Ocean Bay Plantation
at Hanamā'ulu

Coastal Renaturalization Plan

Hanamā'ulu, Kaua'i, Hawai'i
TMK 4-3-7-3:1

Final Environmental Assessment

Applicant:

EWM Kaua'i, LLC
c/o Walton D. Y. Hong
3135-A Akahi Street
Līhu'e, HI 96766

February 2002

Group 70 International, Inc. • Architecture • Planning • Interior Design • Environmental Services •
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This environmental document is prepared pursuant to Chapter 200 of Title 11, Administrative Rules, Department of Health, "Environmental Impact Statement Rules."

Applicant:

EWM Kaua'i, LLC
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Accepting Authority:

County of Kaua'i
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Prepared By:

GROUP 70

Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, HI

February 2002

Coastal Renaturalization Plan
Final Environmental Assessment

TABLE OF CONTENTS (REVISED)

To facilitate the readers' ability to distinguish the revisions made from the Draft EA to the Final EA, substantive changes and additions are underlined. Text that has been deleted is indicated by a ~~strikethrough~~. New, revised and deleted figures are noted.

Section **Page**

Cover Page
Table of Contents i
List of Figures iii
List of Tables iii

1.0 SUMMARY 1-1
1.1 Project Information Summary 1-1
1.2 Overview of the Proposed Project 1-4
1.3 Agencies Contacted in Pre-Consultation 1-4
1.4 Contents of the Draft Environmental Assessment 1-4

2.0 PROJECT DESCRIPTION 2-1
2.1 Description of the Project Area 2-1
2.2 Existing Conditions of the Project Site 2-2
2.3 Description of the Proposed Project 2-2
2.3.1 Coastal Renaturalization Plan- Tree Inventory and Survey 2-2
2.3.2 Coastal Renaturalization Plan- Habitat Restoration 2-9
2.3.3 Biodiversity and Ecological Management Approach 2-9
2.3.4 Post Removal Uses 2-21
2.4 Purpose and Need for the Project 2-21
2.4.1 Removal of Invasive Species 2-21
2.4.2 Preservation of the Native Ecosystem 2-23
2.4.3 Viewscape Enhancement and Preservation 2-23
2.4.4 Relationship to Adjoining Property Development 2-24
2.5 Project Costs and Schedule 2-24

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES 3-1
3.1 Climate 3-1
3.2 Topography 3-1
3.3 Soils and Grading 3-2
3.4 Surface Water, Flooding, and Drainage 3-4
3.5 Flora 3-4
3.6 Fauna 3-6
3.7 Archaeological-Cultural Resources 3-8
3.8 Land Use- Development Patterns 3-9

TABLE OF CONTENTS (Continued)

Section **Page**

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES (continued)
3.9 Roadways, Access, and Traffic Conditions 3-10
3.10 Noise 3-10
3.11 Air Quality 3-14
3.12 Socio-Economic Characteristics 3-15
3.13 Visual Resources 3-15
3.14 Utilities 3-16
3.15 Cumulative Impacts 3-17

4.0 ALTERNATIVES TO THE PROPOSED ACTION 4-1
4.1 No Action Alternative 4-1
4.2 Alternative Uses for the Site 4-1
4.3 Alternative Site Configurations 4-2

5.0 REQUIRED PERMITS AND APPROVALS 5-1
5.1 State Land Use Boundaries 5-1
5.2 Kaua'i County General Plan 5-1
5.3 Līhu'e Regional Development Plan 5-1
5.4 County of Kaua'i Special Management Area 5-2
5.5 County of Kaua'i Zoning Districts 5-2
5.6 Approvals and Permits Required 5-6

6.0 CONSULTED PARTIES 6-1

7.0 FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION 7-1
7.1 Anticipated Determination 7-1
7.2 Reasons Supporting the Anticipated Determination 7-3

8.0 REFERENCES 8-1

LIST OF FIGURES

Figure	Title	Page
1-1	Project Location Map	1-2
1-2	TMK: 4-3-7-3:1; 4-3-9-5:5	1-3
2-1	Photo Key Map	2-4
2-2	Existing Conditions	2-5
2-3	Prominent Site Views	2-6
2-4	Coastal Tree Survey- Existing Trees	2-7
2-5	Coastal Renaturalization Plan- Segment One	2-10
2-6	Coastal Renaturalization Plan- Plan One	2-11
2-7	Coastal Renaturalization Plan- Segment Two	2-12
2-8	Coastal Renaturalization Plan- Plan Two	2-13
2-9	Coastal Renaturalization Plan-Segment Three	2-14
2-10	Coastal Renaturalization Plan- Plan Three	2-15
2-11	Coastal Renaturalization Plan- Plant Materials: Canopy Trees	2-17
2-12	Coastal Renaturalization Plan- Plant Materials: Palms	2-18
2-13	Coastal Renaturalization Plan- Plant Materials: Shrubs	2-19
2-14	Coastal Renaturalization Plan- Plant Materials: Grasses	2-20
3-1	Soil Classification Map	3-3
3-2	FIRM Classification Map (revised)	3-5
3-3	State Land Use Map (revised)	3-11
3-4	GP Land Classification	3-12
3-5	County of Kaua'i Zoning	3-13
5-1	SMA Boundary	5-3

LIST OF TABLES

Table	Title	Page
3-1	Soil Classification	3-2
3-2	Existing Archaeological Resources	3-8
4-1	Permitted Uses Within State Conservation District Subzones	4-2

Section 1.0

Summary

1.0 SUMMARY

This Final Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, HRS and Hawaii Administrative Rules, Title 11, Department of Health.

1.1 PROJECT INFORMATION SUMMARY

Applicant:	EWM Kaua'i, LLC, c/o Walton D.Y. Hong 3135-A Akahi Street Līhu'e, HI 96766 Contact: Walton D.Y. Hong, Tel. (808)-245-4757
Accepting Authority:	County of Kaua'i, Planning Department 4444 Rice Street, Suite 473 Līhu'e, HI 96766-1399 Contact: Keith Nitta, Tel. (808)-241-6699
Name of Action:	Ocean Bay Plantation at Hanamā'ulu Coastal Renaturalization Plan
Planning/Environmental Consultant:	Group 70 International, Inc. 925 Bethel Street, 5th Floor Honolulu, Hawaii 96813 Contact: Jeff Overton, Tel. (808) 523-5866, ext. 104
Tax Map Key:	4-3-7-3:1
Land Area:	29 acres (approximate)
Project Location:	Located on the eastern shoreline of Kaua'i, extending around the northern rim of Hanamā'ulu Bay.
Landowner:	EWM Kaua'i, LLC
Request:	Non-native tree removal and landscaping management plan that will enhance the natural habitat and visual quality of the project area.
State Land Use District:	Conservation
County Zoning:	Open; Special Treatment
Special Management Area:	Located within the SMA

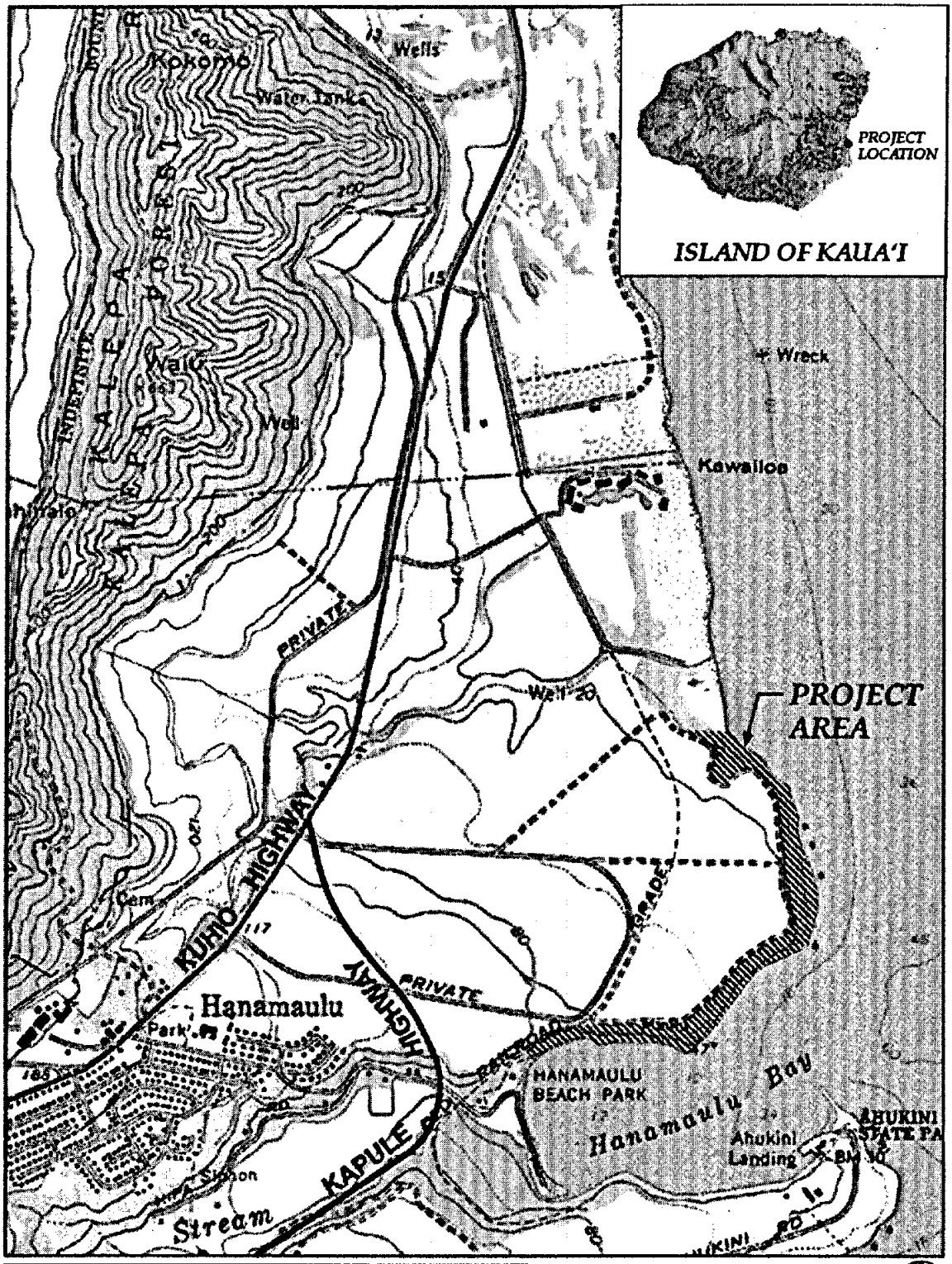


FIGURE 1-1 PROJECT LOCATION MAP

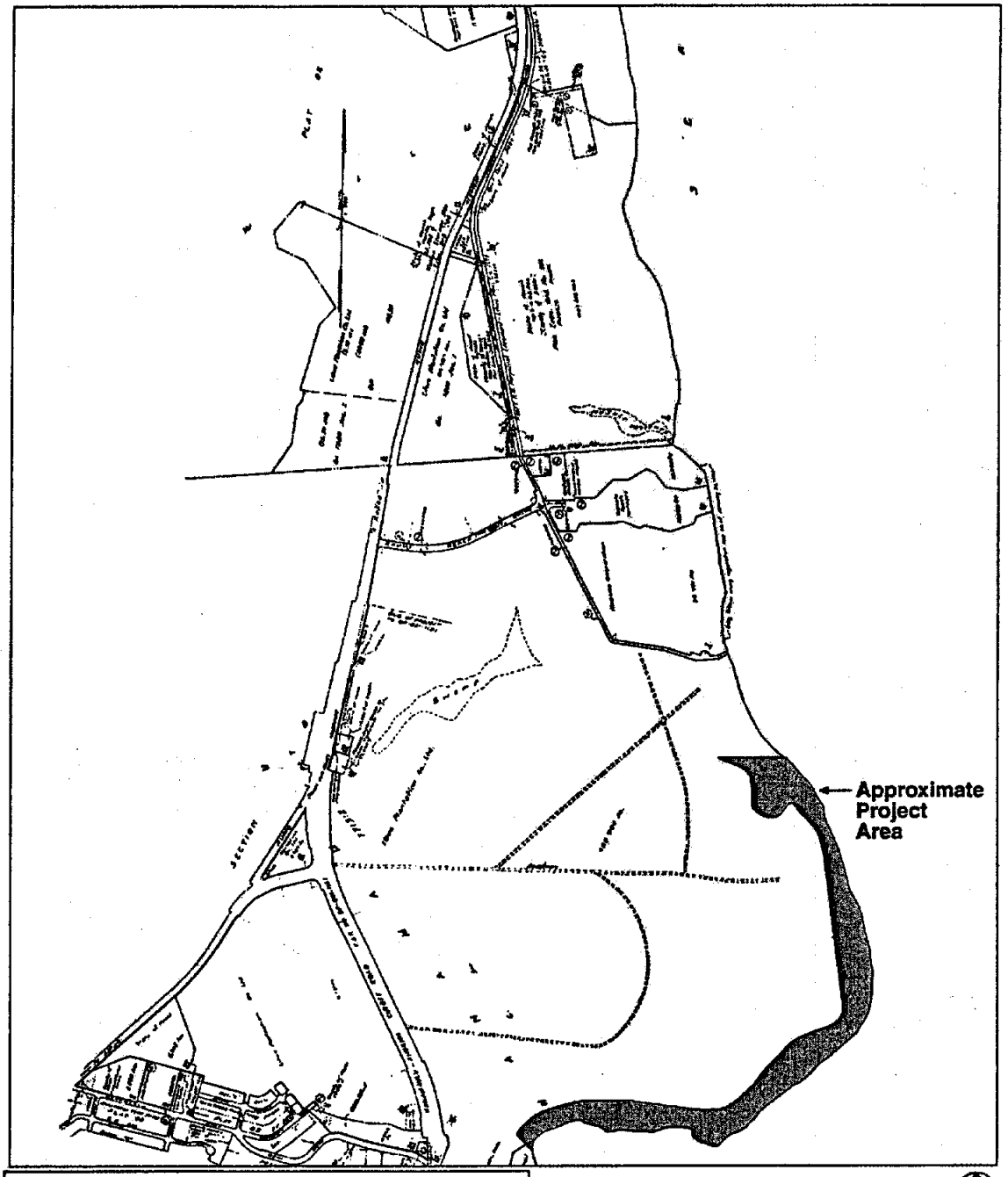


FIGURE 1-2: TMK: 4-3-7-3:1; 4-3-9-5:5

0' 600' 1200' 2400'

1.2 OVERVIEW OF THE PROPOSED PROJECT

The project will implement a two-phased landscaping maintenance and management plan that will enhance the overall natural and visual quality of the area through the identification, evaluation, and selective removal of trees, shrubs, and grasses. Extensive clearing, pruning, and grubbing of trees, shrubs, and grasses within the project area will be based upon an inventory and identification of damaged, dying, or dead trees as well as overgrown areas that pose a threat to public safety.

The second phase of the project implements a strategy of re-introducing appropriate species of plants to the conservation area. Selective planting of native shrubs, grasses, and low lying trees that naturally grow within the coastal habitat will be encouraged along with non-native species compatible with the natural setting. Additionally, the scope of the project will include an evaluation, development, and implementation of fertility, pest management, and other maintenance programs to preserve the native habitat.

1.3 AGENCIES CONTACTED DURING PRE-CONSULTATION AND DRAFT EA REVIEW PERIODS

Listed below are the agencies and organizations that were consulted in the preparation of the Final Environmental Assessment. The County of Kaua'i Department of Planning is the lead agency and accepting authority for this proposed action. A complete list of consulted parties is provided in Section 6.0.

STATE OF HAWAI'I
Department of Business Economic Development and Tourism (DBEDT) - Land Use Commission
DEBDT- Office of Planning, CZMP
Department of Health
Department of Land and Natural Resources (DLNR)- Forestry & Wildlife
DLNR- Land Division
DLNR- State Historic Preservation Division
Office of Environmental Quality Control

COUNTY OF KAUA'I
Department of Planning
Department of Public Works, County Engineer
Department of Water
Office of the Mayor

ORGANIZATIONS
Hanamā'ulu Beautification Committee

1.4 CONTENTS OF THE FINAL ENVIRONMENTAL ASSESSMENT

This Environmental Assessment evaluates the potential impacts of the Ocean Bay Plantation at Hanamā'ulu Coastal Renaturalization Plan upon the natural and human environment. This document is presented in seven sections. Section 1.0 contains the introduction and project overview. Section 2.0 describes the proposed project and Section 3.0 addresses the environmental, social and economic setting of the proposed project. Alternatives to the proposed project are presented in Section 4.0. A review of the necessary approvals and permits are discussed in Section 5.0. A list of consulted parties in the preparation of this EA is presented in Section 6.0. The anticipated finding and discussion of significance criteria is discussed in Section 7.0. In Section 8.0, a list of references is provided.

An appendix section has been added to the Final EA. This section includes an archaeological inventory survey and cultural impact assessment, as Appendix A and B, respectively. Both studies were conducted by PHRI, Inc.

Section 2.0

Project Description

2.0 PROJECT DESCRIPTION

2.1 DESCRIPTION OF PROJECT AREA

Regional Setting

Comprised of a land area of 555 square miles, the island of Kaua'i is the fourth largest island in the Hawaiian chain. Dramatic mountainous regions ranging in elevation from 200 to over 4000 feet unfolding upon flat coastal parcels distinguish the area of East Kaua'i. Former areas of thriving agricultural lands situated near and along various coastal plains dominate the lower elevations. The distinct regional identity of East Kaua'i has been transformed from the former small plantation communities of Līhu'e Plantation and Grove Farm into established pockets of financial, civic, and commercial activity that comprise Līhu'e, Hanamā'ulu, and Kapa'a towns.

In traditional times, the island of Kaua'i was divided up into six moku, or land districts. The project area lies in the traditional moku of Puna (known today as the Līhu'e District), in the ahupua'a of Hanamā'ulu, along the eastern coast of Kaua'i. The traditional boundary markers of the moku of Puna include the majestic terrain of Wai'ale'ale to the west, the ocean to the east, the mountains of Makaleha to the north, and the Hā'upu range to the south.

Project Area

The project area is located along the eastern shoreline of Kaua'i (TMK 3-7-3: por.1), extending from the northern rim of Hanamā'ulu Bay and extending approximately .5 miles north. The project area is a 100-200 ft. wide strip along the shoreline, comprised of a rocky shoreline area with a variety of plant species that are primarily non-native. This land area served as a buffer zone between the ocean and near-shore agricultural areas. A planting of non-native ironwood trees served to protect the inland areas used for sugarcane production from salt spray emanating from ocean waves breaking along the coastal edge of the project area.

History of the Area

The use of the surrounding area of the project site was centered primarily upon the development of the sugarcane industry. In 1849, the Līhu'e Plantation established itself as an emerging leader in Hawai'i's sugar industry. The plantation quickly began expanding its land base and developing an intricate water irrigation and allocation system. In 1870, the plantation acquired the lands of Hanamā'ulu, utilizing the unique features of the landscape by creating a complex water collection and transfer system that was based entirely upon gravity flow, producing an average yield of 100 to 140 million gallons per day. By 1884, there were three sugarcane plantations in full operation at Hanamā'ulu, 2 planting stations and 1 milling station.

However, by 1994, Amfac/JMB consolidated various aspects of its operations, shared by the Līhu'e Plantation and the Kekaha Sugar Company, in an effort to address the failing

market in Hawai'i's sugar industry. As a result of consolidating operations, selected parcels of land and their adjoining irrigation systems were no longer maintained and utilized due to expected lower production yields. By 2000, Amfac/JMB closed the last of its plantation holdings on Kaua'i.

In 1994, with the consensus of then landowner Amfac/JMB, the Office of State Planning petitioned the State Land Use Commission to reclassify the 29 acres comprising the project area from an "Urban" to "Conservation" District. The Commission granted the petition by its Findings of Fact, Conclusions of Law, and Decision and Order, filed July 20, 1995. However, the designated Conservation district currently does not have a sub-zone designation, as pursuant to the Hawaii Administrative Rules, Title 13, Chapter 5 provisions and guidelines. Existing subzone classification of the surrounding north and south boundaries of the project site are classified as Limited (L) subzone. Currently, an application has been filed to designate the project area as Limited (L), to create a consistent designation with the Department of Land and Natural Resources.

2.2 EXISTING CONDITIONS OF THE PROJECT SITE

Currently there is no activity within the project area or adjacent to the project site. The project parcel is bordered to the east by the ocean waters of Ka'ie'iewaho channel and is bounded to the west by both Kūhiō Highway and Kapule Highway. Līhu'e Airport is approximately .75 miles south of the area. Just southwest of the project site lies the town of Hanamā'ulu, with a resident population of slightly over 3,600 people.

The project area is part of former planted buffer zone of non-native ironwood trees, designed to protect sugarcane crops from offshore wind conditions and sea spray. Since the closure of the Līhu'e Plantation in mid-November of 2000, the current non-use of the adjacent agricultural parcels has allowed the overgrowth of invasive trees and grasses. These abandoned and desolate agricultural parcels have been invaded by other non-native species of plants and grasses, which generally out compete and displace the native habitat. Many of the ironwood trees have experienced storm damage and have been afflicted with disease and termites. The dead trees and tree litter detract from the viewscape of the near-shore area, and also preclude other native species from flourishing. There are numerous bare soil and erosion areas in the near-shore area that have no ground cover vegetation. Existing conditions are illustrated in Figures 2-1 through 2-3.

2.3 DESCRIPTION OF THE PROPOSED PROJECT

2.3.1 Coastal Renaturalization Plan-Tree Inventory and Survey

The proposed project is an implementation of a comprehensive coastal renaturalization plan. The first phase is comprised of a tree inventory and survey intended to enhance

the overall natural and visual quality of the area through the identification, evaluation, and an extensive removal of ironwood trees, shrubs, and grasses.

The extensive clearing, pruning, and grubbing of trees, shrubs, and grasses within the project area are based upon identifying the following:

1) Damaged, dying, and dead trees, and overgrown areas that are considered a safety threat, or pose a fire hazard;
2) Diseased or insect-infested trees;
3) Tree groves and shrub growth that need to be thinned to allow more sunlight through overgrown canopies;
4) Tree groves and shrub growth inhibiting the natural growth of various native species of plants;
5) Blighted tree groves that are the result of previous storm damage;
6) Areas where the views through and around can be improved.

Upon completion of an area inspection, determinations will be made regarding necessary tree pruning and clearing work, individual tree removals and stump grubbing, and overall stand thinning. Details of the tree survey are included in Figure 2-4.

Landscaping Techniques

A variety of techniques and methods will be employed in the removal and clearing of trees, grasses, and shrubs. Safety precautions will be taken to ensure that adequate work space and access are provided and that all landscaping activity will be conducted in a manner that protects on-site workers and the natural habitat. The selection of techniques and methods will be site-specific as to determining best management practices that will minimize short and long-term disturbances to the area including noise impacts and any potential for soil erosion. A review of the various landscaping and maintenance techniques and options for the first phase of the project is discussed below.

Cabling/Bracing: Involves the installation of threaded steel rod braces and/or high strength cables to preserve the integrity and natural structure of trees.

Crown Cleaning: Involves the removal of dead, dying, diseased, crowded, weakly attached, low vigor branches, and water sprouts from the tree canopy, shrub or hedge.

Crown Elevating: Involves the removal of the lowermost branches of a tree in order to provide clearance for pedestrians, vehicles or vistas. Crown elevating encourages the development of view corridors through the foliage of tree.

FIGURE 2-1 PHOTO KEY MAP

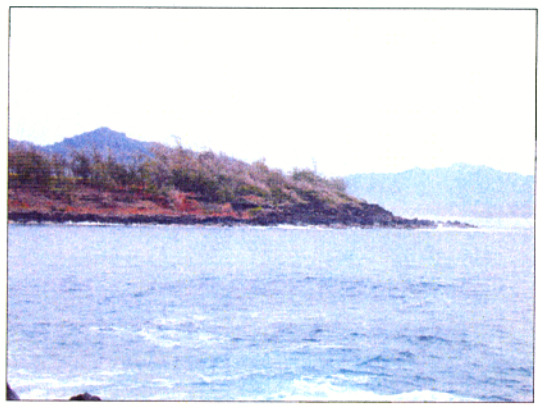


FIG. 2.2.1 View of Site from Ahukini Landing

FIG. 2.2.4 Pollution in the Wetlands Area

FIG. 2.2.2 Wind Blown Vegetation Buffer Zone

FIG. 2.2.5 Coastal Soil Erosion and Run-off

FIG. 2.2.3 Native Vegetation in Overgrowth

FIG. 2.2.6 Dense Ironwood Overgrowth

FIGURE 2-2 EXISTING CONDITIONS

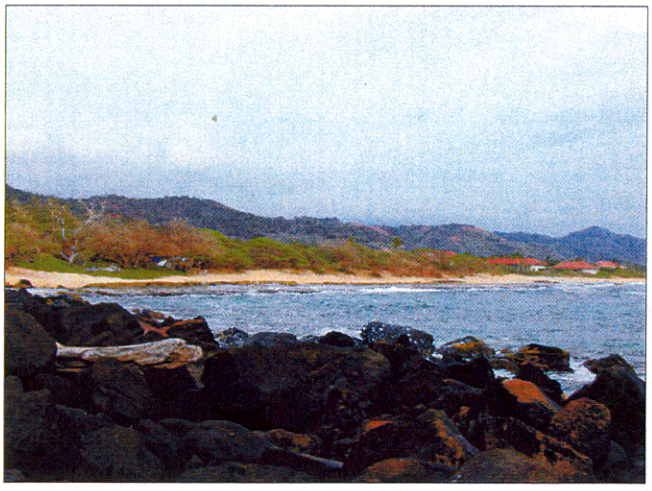


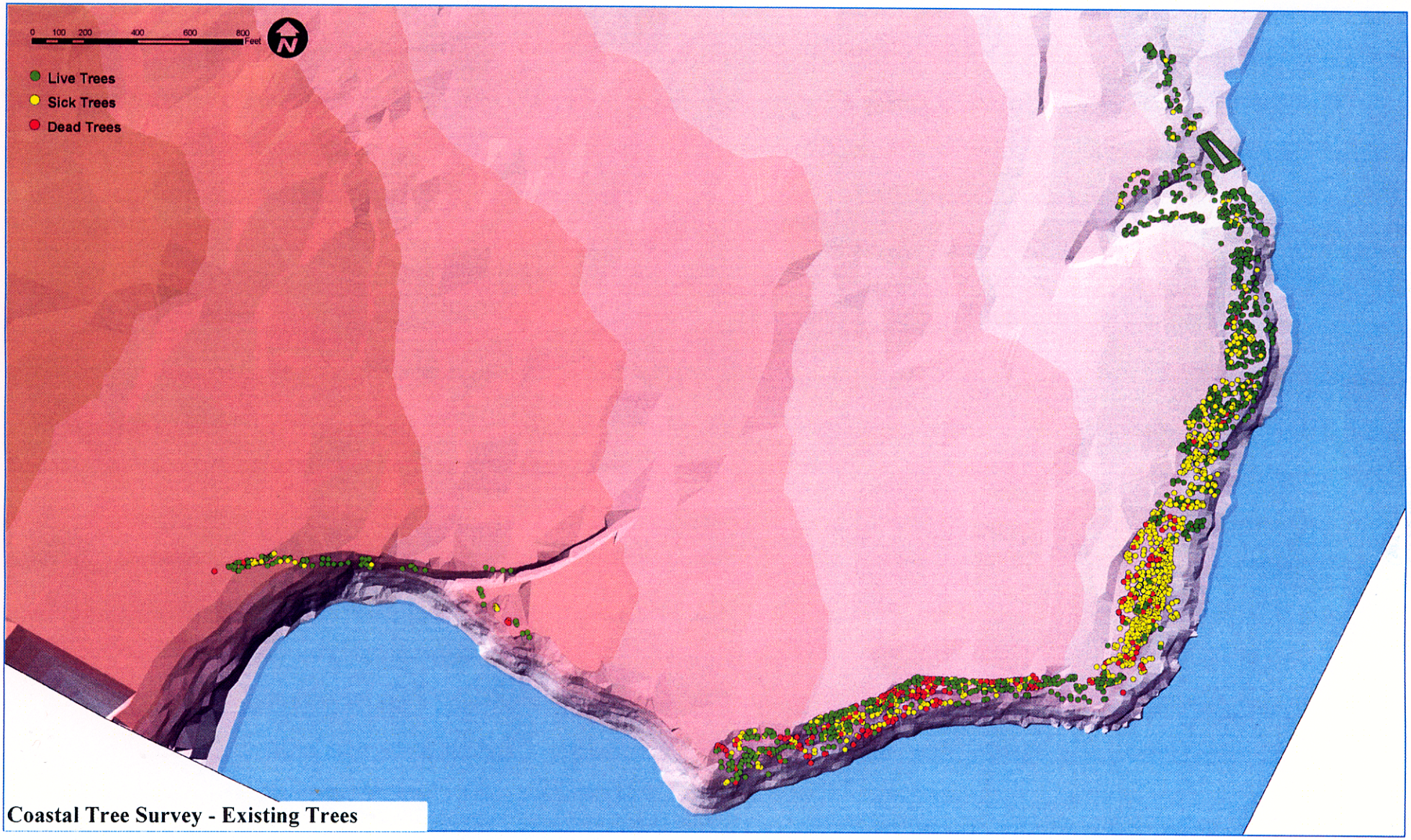
FIG. 2.3.1 Northern Coastal View

FIG. 2.3.2 View of Hanamā'ulu Bay

FIG. 2.3.3 View of Ahukini Landing

FIG. 2.3.4 View of Ocean from NE section of project site

FIGURE 2-3 PROMINENT SITE VIEWS



Ocean Bay Plantation
at Hanamā'ulu

Kodani & Associates

GROUP 70 INTERNATIONAL

17 November 2001

Figure 2-4

Crown Reduction: Involves thinning and removal of leaders to lateral branches to reduce the height and extension of the tree canopy. This procedure is only done as a last resort instead of complete removal.

Crown Thinning and Restoration: Involves crown cleaning and the selective removal of branches to increase light penetration and air circulation throughout the canopy, as well as to lessen wind resistance and damage potential from storms. Thinning reduces the weight on heavy limbs, the wind-sail effect of the crown, improves the structure and stability of the tree, and helps restore the tree's natural shape. Restoration may involve several prunings over an extended length of time.

Tree Removal (Cutting to Grade): Involves cutting a tree or shrub as close to the ground as possible. Selective tree removal and directional felling will be done in a manner that minimizes soil disturbance, erosion and siltation.

Tree Stump Removal & Stump Grinding: As appropriate, tree stumps will be removed through mechanical means. Stump grinding involves the use of machinery to reduce stumps to wood chips to a maximum depth of 12" below grade.

Use of Equipment

Depending upon the specific landscaping activity, various types of equipment and safety precautions will be employed. During the selective clearing and removal of trees and shrubs, risk zones will be established to ensure all measures pertaining to work safety are taken. Further safety allowances will be made for the potential effects of poor ground conditions, slopes, wind force, and wind direction in the selection and use of specific equipment.

Undergrowth/Scrub Clearance: For this type of activity, a manually-operated heavy duty brush cutter or clearing saw will be used.

Pruning: Hand pruners will be used to prune branches under 2.5 cm in diameter. For slightly larger branches, 7 to 10 cm in diameter, the use of small pruning saws and loping shears will be employed. For branches larger than 10 cm in diameter, a chain saw will be used for cross cutting and removal. Additionally, pole pruners will be used to cut branches beyond reach on remaining trees.

Tree and Stump Removal: The use of chain saws will be employed to take down selected trees. In addition, a backhoe excavator or a winch system will be used to remove stumps and hung trees.

Conversion: Circular saw benches are used for ripping and cross cutting. A variety of chippers will be used to process tree trunks and tree litter into woodchips for mulching material.

2.3.2 Coastal Renaturalization Plan- Habitat Restoration

This phase of the project implements a strategy of re-introducing appropriate species of plants to the conservation area. A selective planting of native and suitable non-native shrubs, grasses, and low lying trees that naturally grow in conditions similar to the existing coastal habitat will be encouraged. Additionally, the scope of the project will include an evaluation, development, and implementation of fertility, pest management, and other maintenance programs to preserve the native habitat, based upon the results of the evaluation.

The coastal renaturalization plan goes a step beyond traditional design principles that focuses primarily on maximizing ecological structure and function within a landscape. An emphasis is placed upon on maintaining and enhancing the local biodiversity of plants within the conservation area that ultimately serve as areas of wildlife habitat. This approach allows the creation of landscapes and outdoor spaces that effectively blend aesthetics, function, and maintenance considerations with existing site and environmental considerations.

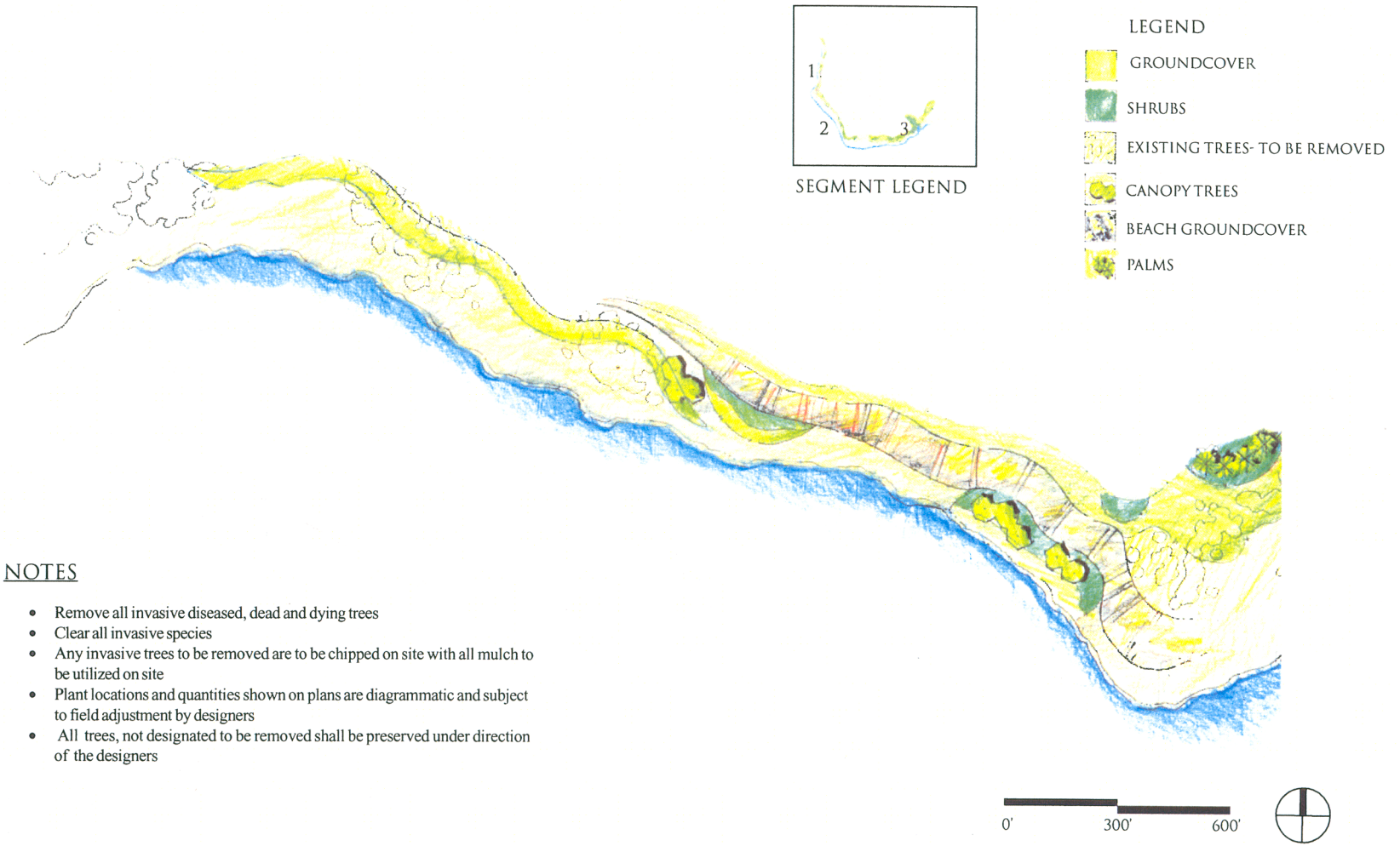
A comprehensive coastal renaturalization plan has been prepared by GDI Landscape Architects (November 2001). Figures 2-5 to 2-10 illustrates the proposed enhancements to the coastal area. The selection of plants includes a balanced mix of groundcover, mulch, shrubs, canopy trees, beach groundcover, and palms. A combination of mature trees and younger seedling trees will be used in the restoration effort.

2.3.3 Biodiversity & Ecological Management Approach

The appropriate selection of native species of plants to be reintroduced is critical to the sustainability of the habitat structure. In general, knowledge of the island's natural coastal system will be incorporated into a management strategy that assures that the variety and interspersion of reintroduced native species is appropriate for the habitat within the project area. A primary goal in the coastal renaturalization plan is to promote native plant diversity while limiting potential growth areas of noxious and invasive species of plants and grasses.

An emphasis of the coastal renaturalization plan is an ecological management approach that will implement restoration activities, including the use of xeriscaped native plants as well as continued integrated weed management techniques that will control the infestation of noxious plant species.

Xeriscape is a creative and ecological approach of designing attractive landscaped areas that need less water and overall maintenance. Water is conserved in the design of the landscape, so that the water requirements correspond closely to the natural precipitation.



NOTES

- Remove all invasive diseased, dead and dying trees
- Clear all invasive species
- Any invasive trees to be removed are to be chipped on site with all mulch to be utilized on site
- Plant locations and quantities shown on plans are diagrammatic and subject to field adjustment by designers
- All trees, not designated to be removed shall be preserved under direction of the designers

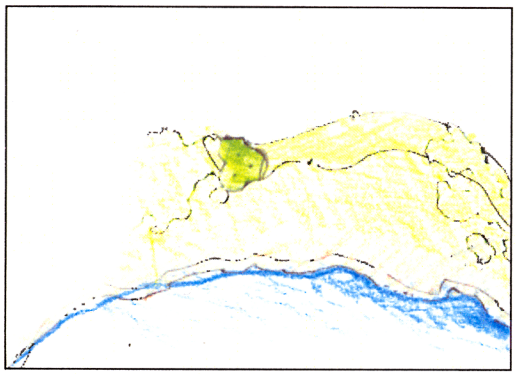
Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLAN
SEGMENT 1

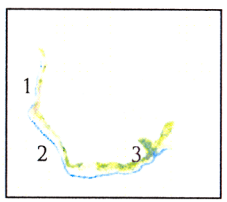
GDI LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-5



SEGMENT 1

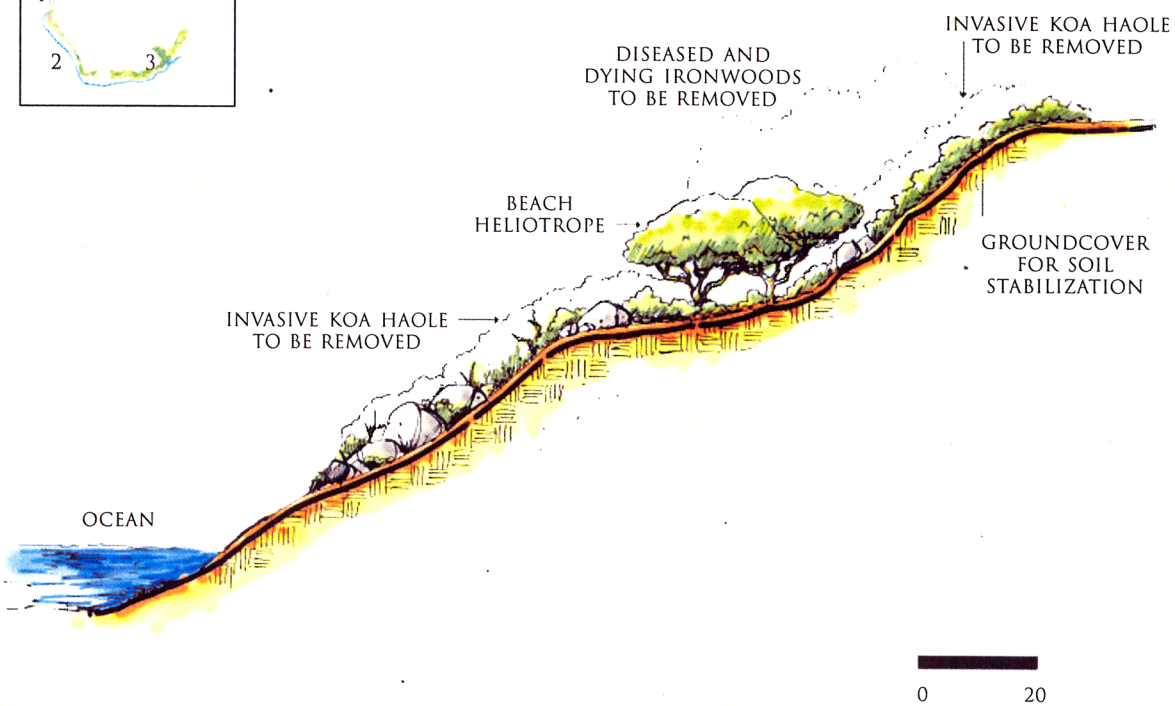


NOTES

- Remove all invasive diseased, dead and dying trees
- Clear all invasive species under 6" caliper
- Any invasive trees to be removed are to be chipped on site with all mulch to be utilized on site
- Plant locations and quantities shown on plans are diagrammatic and subject to field adjustment by designers
- All trees, not designated to be removed shall be preserved under direction of the designers

LEGEND

- GROUNDCOVER
- SHRUBS
- EXISTING TREES- TO BE REMOVED
- CANOPY TREES
- BEACH GROUNDCOVER
- PALMS



Ocean Bay Plantation at Hanama'ulu

COASTAL RENATURALIZATION PLAN

PLAN 1

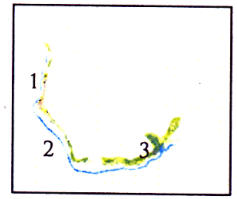
GDI LANDSCAPE ARCHITECTS GROUP

NOVEMBER, 2001

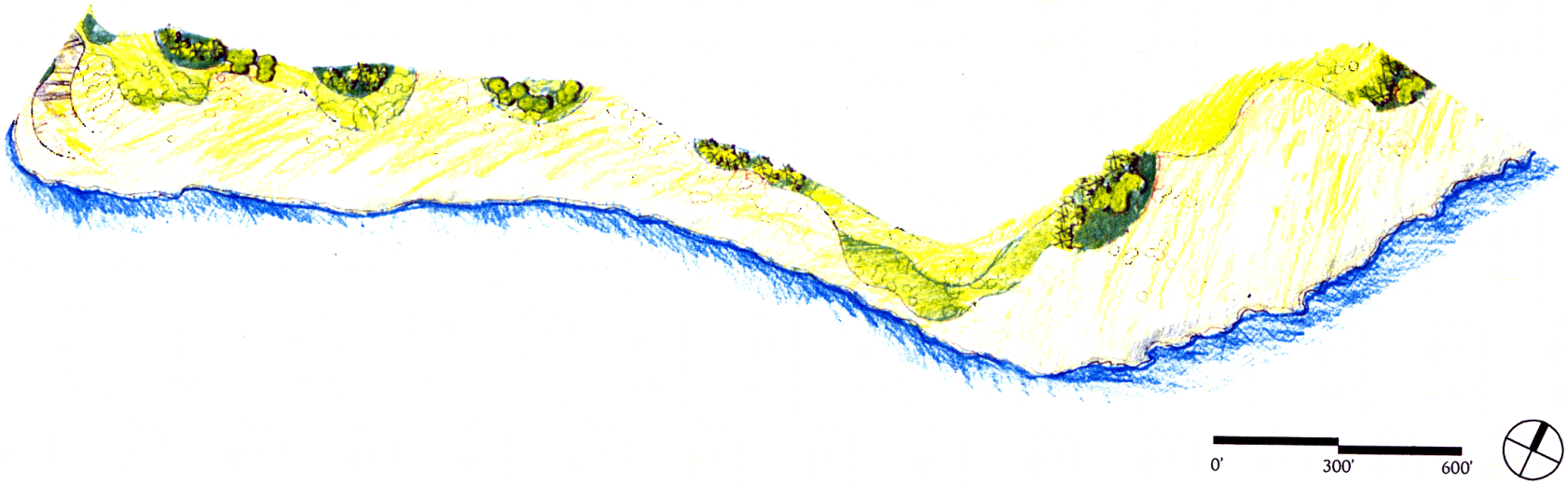
Figure 2-6

LEGEND

- GROUNDCOVER
- SHRUBS
- EXISTING TREES- TO BE REMOVED
- CANOPY TREES
- BEACH GROUNDCOVER
- PALMS



SEGMENT LEGEND



Ocean Bay Plantation
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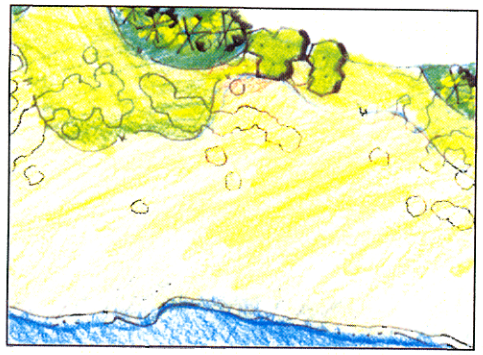
COASTAL RENATURALIZATION PLAN
SEGMENT 2

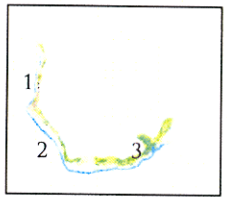
GDI
LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-7

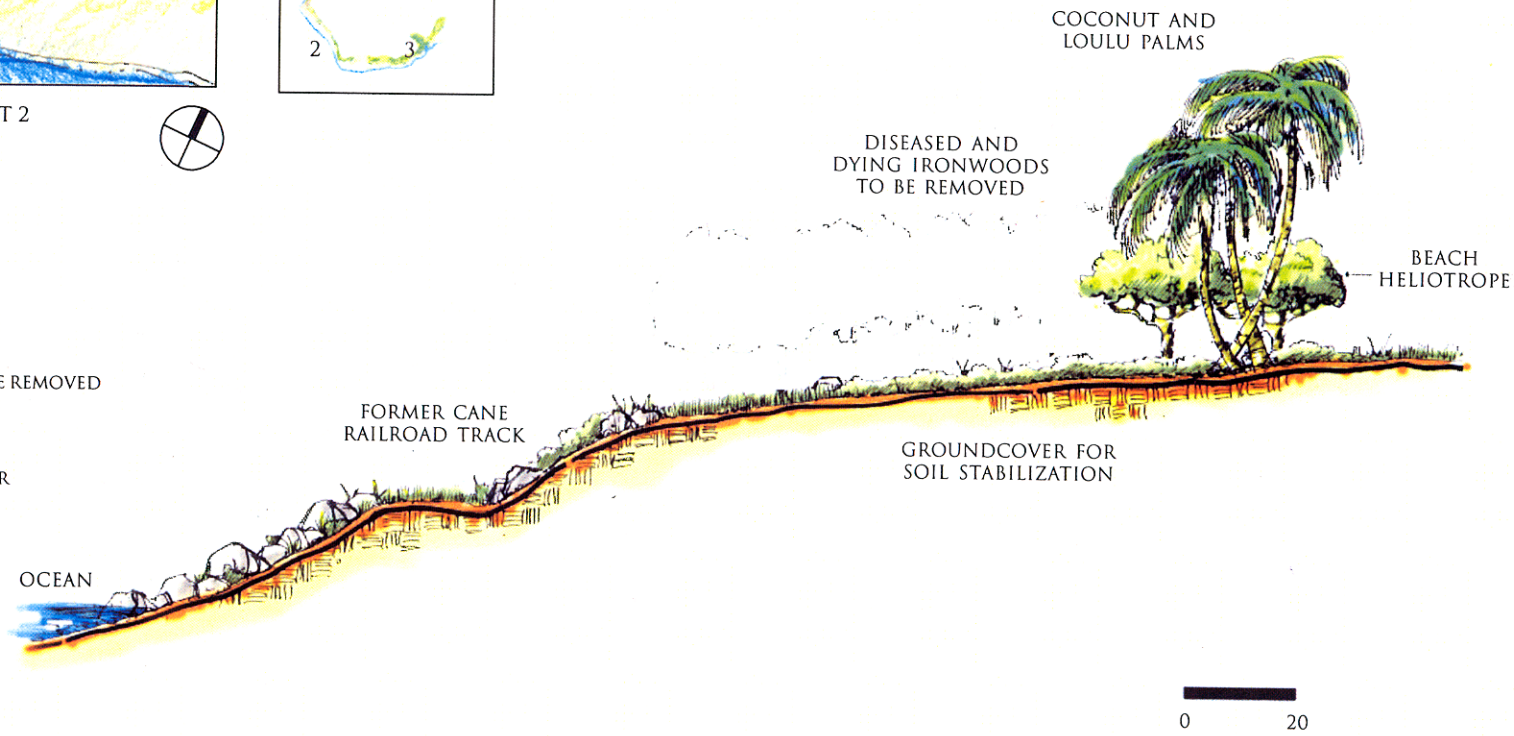


SEGMENT 2



LEGEND

- GROUNDCOVER
- SHRUBS
- EXISTING TREES- TO BE REMOVED
- CANOPY TREES
- BEACH GROUNDCOVER
- PALMS



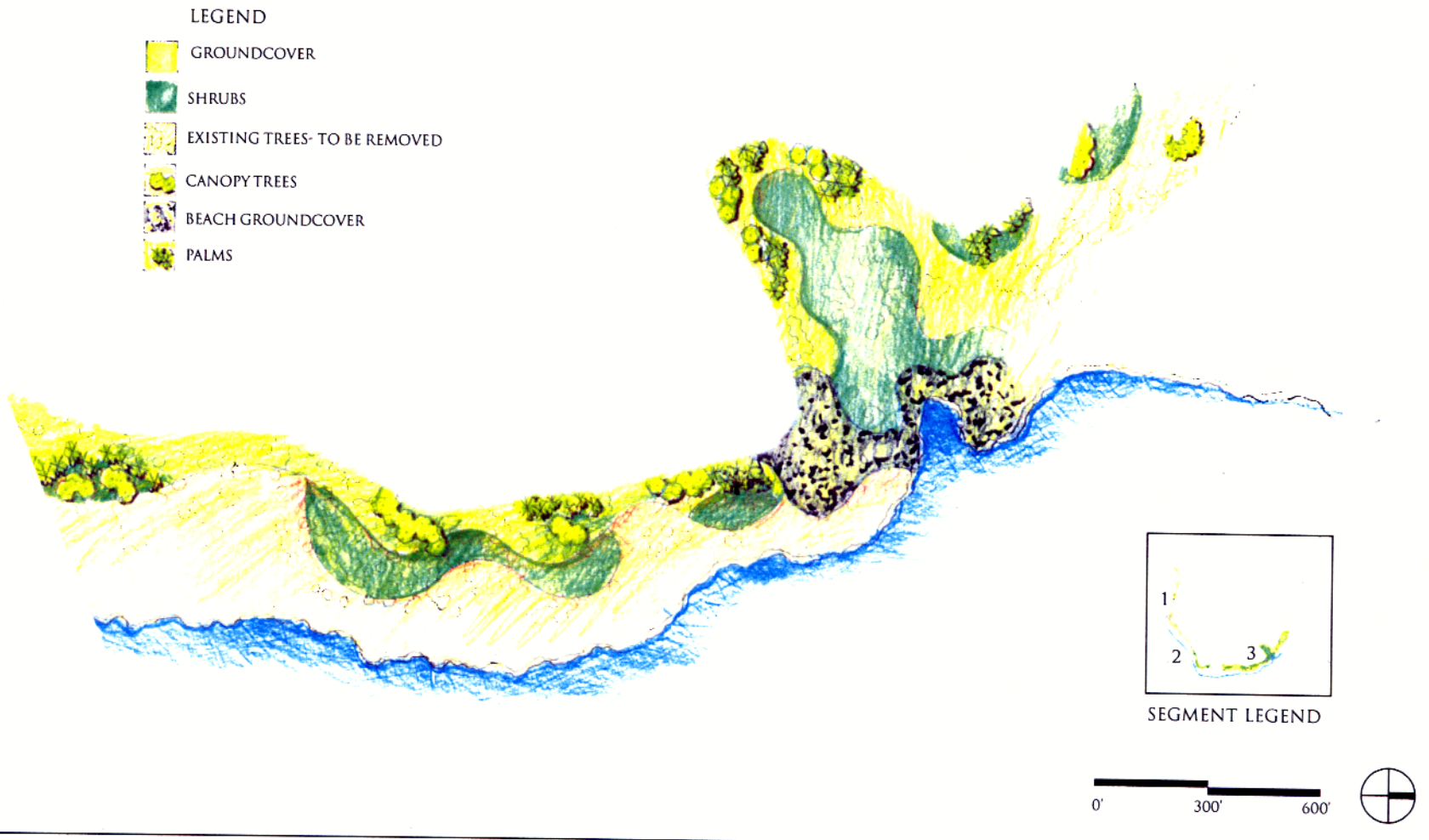
Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLAN
PLAN 2

GDI
LANDSCAPE
ARCHITECTS

NOVEMBER, 2001

Figure 2-8



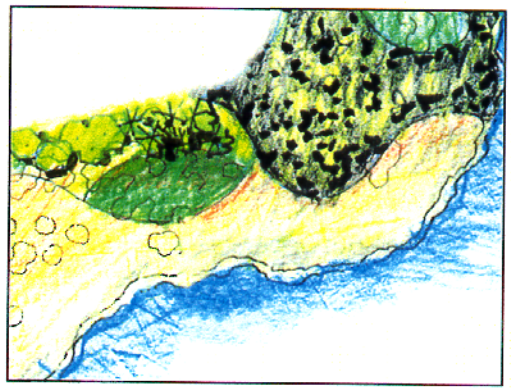
Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLAN
SEGMENT 3

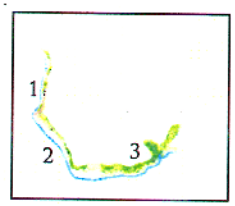
GDI
LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-9

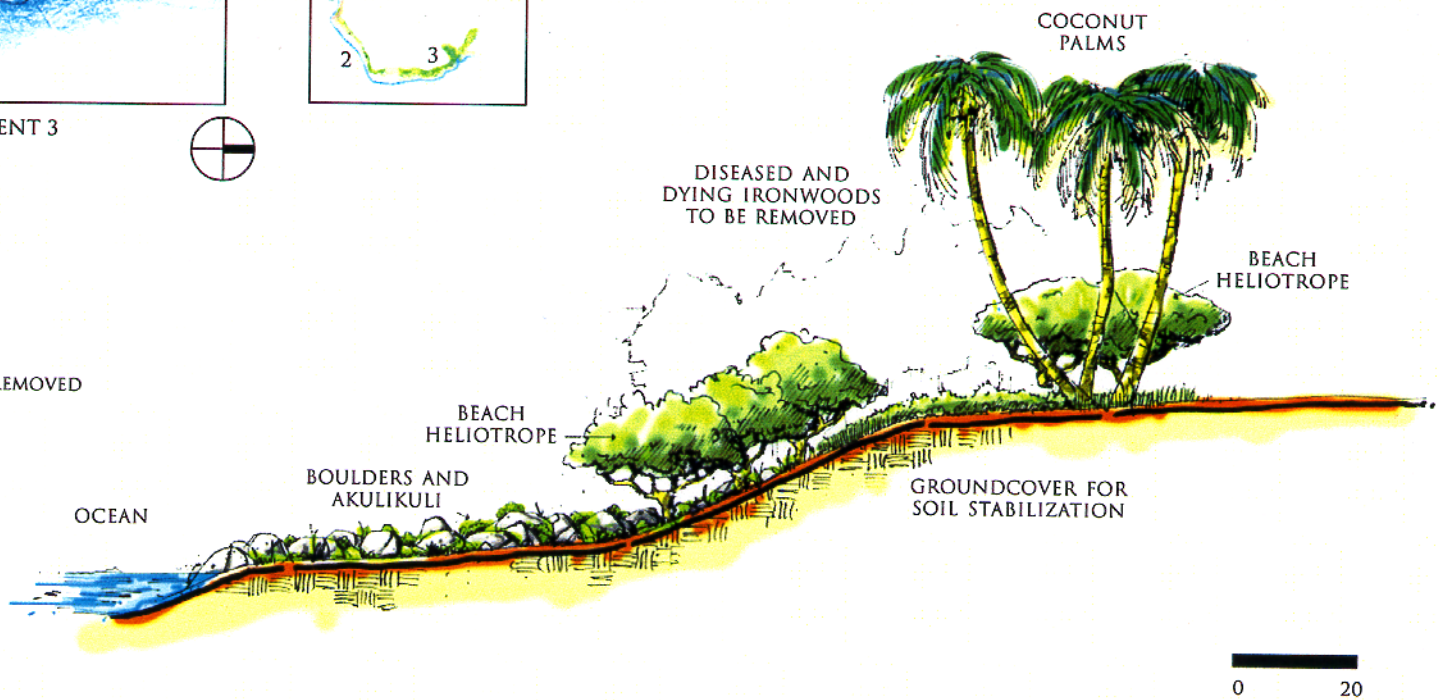


SEGMENT 3



LEGEND

- GROUNDCOVER
- SHRUBS
- EXISTING TREES- TO BE REMOVED
- CANOPY TREES
- BEACH GROUNDCOVER
- PALMS



Ocean Bay Plantation at Hanama'ulu

COASTAL RENATURALIZATION PLAN

PLAN 3

GDI LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-10

The project will incorporate a xeriscape approach that includes seven principles in deciding the appropriate selection of native plant species:

1 Suitable planning and design
1. Soil analysis
2. An efficient irrigation method
4. Practical turf areas
5. Proper plant choice
6. Use of mulches
7. Appropriate maintenance

The selection of plants for landscaping is dependent upon the project site and space allotments for replanting. The plant species used for the project must be tolerant to strong ocean breezes and salt spray. The project will include a balanced mixed of both native and introduced species of plants that are non-invasive. Figures 2-11 through 2-14 illustrate the recommended selections of plant materials to be used as part of the coastal renaturalization plan.

Further discussion of recommended native plants to be used in the project area is provided below.

Hala *(Pandanus tectorius)*: Hala is a small tree growing 20 to 30 feet in height and from 15 to 35 feet in diameter. The trunk is stout and the branches grow at wide angles to it. It has distinctive long blade-like leaves (lau hala) about 2 inches wide and over 2 feet long. Most varieties have spines along the edges and on the midribs of the leaves.

Naupaka Kahakai *(Scaevola taccada)*: Naupaka kahakai is a dense, spreading shrub that generally grows up to 3 feet tall, but can be up to 10 feet tall and 6 to 15 feet wide. The medium green leaves are waxy and fleshy with irregular shaped flowers with all five petals on one side of the flower making them appear to have been torn in half.

'Ilima papa *(Sida fallax)*: 'Ilima ranges in form from a prostrate to an erect shrub. The prostrate forms, called 'ilima papa, are most often 6 to 12 inches tall and grow in coastal areas.. The leaves are bright green with blossoms that are yellow to orange in color.

Pa'ū o Hi'iaka *(Jacquemontia ovalifolia)*: Pa'ū o Hi'iaka is a sprawling, non-woody vine that forms a mat 3 to 8 inches deep. The stems are prostrate, up to 10 feet long, and frequently root at the leaf nodes. The leaves are thick or fleshy, oval-shaped to round, with blossoms that are pale blue to white in color

Pōhinahina *(Vitex rotundifolia)*: Pōhinahina is a sprawling shrub 6 to 8 feet in diameter and 6 inches to 2 feet tall, but reaching 4 feet in height and 12 feet in width when protected from wind and salt spray. The round leaves are gray-green to silvery with blossoms that are bluish purple.

CLUSIA ROSEA
AUTOGRAPH TREE

MESSERSCHMIDIA ARGENTIA
BEACH HELIOTROPE

TERMINALIA CATAPPA
FALSE KAMANI

CORDIA SUBCORDATA
KOU

COCCOLOBA UVIFERA
SEA GRAPE

CALOPHYLLUM INOPHYLLUM
TRUE KAMANI

THESPESIA POPULNEA
MILO

Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLANT MATERIALS

CANOPY TREES

GDI
LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-11

COCOS NUCIFERA
COCONUT PALM

PANDANUS ODORATISSIMUS VAR.
VARIEGATED HALA

PANDANUS ODORATISSIMUS
HALA

PRITCHARDIA REMOTA
LOULU PALM

Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLANT MATERIALS

PALMS

GDI
LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-12

HIBISCUS TILIACEUS
HAU

CRYPTOSTEGIA GRANDIFLORA
INDIAN RUBBER VINE

WIKSTROEMIA UVA-URSI
AKIA

SIDA CORDIFOLIA
BUSH ILIMA

SCAEVOLA SERICEA
BEACH NAUPAKA

GOSSYPIUM TOMENTOSUM
MAO

CRINUM AUGUSTUM
SPIDER LILY

CRINUM AUGUSTUM SP.
PURPLE SPIDER LILY
(NOT SHOWN)

SENNA GAUDICHAUDII
KALAMONA

CLERODENDRUM INERME
INDIAN PRIVET

DODONAEA VISCOSA
AALII

Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLANT MATERIALS

SHRUBS

GDI LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-13

CARPOBROTUS EDULIS
ICE PLANT

PILI GRASS

LIPOCHAETA INTEGRIFOLIA
NEHE

SESUVIUM PORTULACSTRUM
AKULIKULI

SIDA FALLAX
ILIMA

IPOMOEA INDICA
BEACH MORNING GLORY

HELOTROPIUM ANOMALUM
HINAHINA

VITEX OVATA
BEACH VITEX

CARISSA SP.
GREEN CARPET NATAL PLUM

JACQUEMONTIA OVALIFOLIA
PAU O HIAKA

Ocean Bay Plantation
at Hanama'ulu

COASTAL RENATURALIZATION PLANT MATERIALS

GROUNCOVER S AND GRASSES

GDI LANDSCAPE ARCHITECTS

NOVEMBER, 2001

Figure 2-14

Ma'o (*Gossypium tomentosum*): Ma'o is a 1-5 foot tall shrub that can spread to 5 to 10 feet in diameter. In form, it can range from a mound to a prostrate ground cover. The leaves are covered with soft white hairs, giving a silvery, gray-green appearance. The flowers are bright yellow, looking somewhat like a hibiscus, and are 2 to 3 inches across. Ma'o is an endemic shrub that is considered likely to become endangered in the near future (vulnerable status).

Nehe (*Wollastonia integrifolia*): Nehe is a slightly woody perennial plant with spreading stems up to 6 1/2 feet long. The stems grow outward from the center intertwining with the stems of neighboring plants, often rooting where they touch the soil, to form a mat 6 to 8 inches thick.

2.3.4 Post-Removal Uses

Most of the project area is comprised of non-native dense ironwood trees. Post-removal efforts involve developing environmentally friendly uses for branch cuttings, shrub trimmings, and grass clippings. Stump chips, trimmings, and clippings will be recycled and utilized on-site for mulch. In general, mulches serve a number of purposes that includes

- reducing soil erosion,
- reducing soil moisture evaporation,
- maintaining an even soil moisture supply,
- reducing or preventing weed growth,
- insulating soil from extreme temperature changes,
- improving the aesthetic nature of the coastal landscape.

Organic mulches converted from the removed plant materials will serve as slow-release sources of nutrients for both existing and new plant growth within the project area. Newly planted and established trees will benefit from mulching through the promotion of new root growth.

2.4 PURPOSE AND NEED FOR THE PROPOSED PROJECT

2.4.1 Removal of Invasive Species

Invasive species are alien, non-native, exotic species of plants that significantly disrupt the overall quality and function of the native ecosystem. The rampant extent of large numbers of invasive alien plants species is a major threat to the protection and perpetuation of Hawaii's native species and forests. The extent of these alien plants is because these plants have no natural enemies within their new habitat.

Some non-native species, like the ironwood trees within the project area, have been deliberately introduced to serve either some auxiliary or ornamental function. The ironwood trees were planted to serve as a barrier zone, protecting vast parcels of sugarcane production from offshore salt spray conditions. However, these trees are considered invasive due to their physical dominance and alteration of water cycles within the natural habitat. In general, three primary biological attributes make a plant invasive: dispersion of seeds and spores by animals or wind, high fertility rates, and rapid growth rates.

The introduction of these ironwoods has transformed the natural landscape, altering the framework of natural habitat system. Further, the introduction of non-native grasses has diminished the quality of the habitat for native species. The project is an opportunity to address the past affects of ecological impacts of this species within the site area.

As mentioned, the project area contains a variety of invasive species of trees, shrubs, and grasses. Descriptions of some of these species, with their potential impacts are discussed below.

Ironwood *(Casuarina Equisetifolia):* The ironwood is a rapidly growing tree that can reach heights of 40 m (~130 feet). The distinguishing feature of this tree upon the environment is a lack of undergrowth beneath its canopy. The lack of undergrowth beneath these trees is a result of a layer of fallen pine needles that prevents other plants from sprouting. Other studies indicate that the ironwood also exhausts available nutrients in the soil. The lack of undergrowth prevents very hot fires from burning in the vicinity of these trees, thus providing an ideal barrier for the adjacent parcels of previously grown sugarcane. The ironwood had the ability to quickly regenerate from basal shoots and wind dispersed seeds.

Koa Haole *(Leucanea leucocephala):* The koa haole is a thornless tree able to form dense thickets, thus excluding all other plants from growing beneath its canopy. The tree was originally introduced to Hawaii as a quick means of providing fodder for cattle. However, its rapid growth often superceded grazing or control measures, resulting in rampant overgrowth throughout the islands. Like the ironwood, the koa haole has the ability to quickly regenerate from basal shoots after a fire. In addition, new seedlings are produced are produced after a fire. The seeds of the koa haole are dispersed usually by rodents and some non-native birds.

Java Plum (*Syzygium cumini*): Java Plum is an evergreen tree that can reach heights of up to 75 feet, forming a dense cover that does not allow much undergrowth. Smooth, whitish stems and reddish-black berries are its distinguishing marks. Seeds are dispersed by birds and feral pigs. It is normally found in dry to mesic areas and occasionally in wet lowland areas up to 700 m (~3000 ft.) in elevation. Java Plum is

considered an invasive species because of its dense cover that prevents native lowland forest species to thrive.

California Grass *(Brachiaria Mutica):* California grass is a perennial grass that can grow to heights of 2 m (~6.5 ft.). The grass forms dense layers and usually overgrows most trees and shrubs in its habitat, normally between sea level and 700 m (~3000 ft.) It has a mild toxic chemical affect, discouraging other plant forms to grow in the nearby vicinity. The seeds are dispersed usually through means of human activity such as hiking and walking. California grass has the ability to quickly regenerate from any damage incurred from fire. It forms dense monotypic stands by layering from trailing stems and will overgrow most shrubs and trees in its habitat.

Actions that may improve native plant diversity or mitigate impacts of management actions include cultivation and reseeding with native plants and adhering to practices that minimize potential soil-disturbing activities.

2.4.2 Preservation of the Native Ecosystem

Native species of plants are defined as those plants that have naturally existed prior to the impacts of human activity and development of the natural landscape. Close to ninety percent of Hawaii's plants and animals exist nowhere else in the world. The fragile nature of the ecosystem is the result of the dominating influence of non-native invasive species of plants.

One of the goals of the coastal renaturalization plan is to maintain the native ecosystem of the immediate and surrounding vicinity. The existing ironwood trees are remnants of a planted buffer zone that has impacted the natural coastal habitat. Thus, the implementation of the coastal naturalization plan represents the reintroduction and sustainability of a more congenial mix of plants to the native ecosystem that will preserve the island's unique natural beauty and diverse habitats.

2.4.3 Viewscape Enhancement & Preservation

The project serves to enhance and preserve significant and panoramic coastal views. The purpose of visual preservation is that these viewscapes function both as scenic lookouts and represents landmarks offering points of reference for direction and orientation. Protecting and preserving scenic vistas and viewsheds from haphazard unplanned development allows the island community to preserve its own unique charm while attracting positive growth to the area.

The coastal renaturalization plan is a coordination and preservation effort of open space within the Conservation District. The program places an emphasis on protecting significant visual corridors that are identified in county efforts to meet open space needs for the island community.

2.4.4 Relationship to Adjoining Property Developments

EWM Kaua'i, LLC intends to develop the adjoining property to provide a mixed-use residential and golf course community on their 460+ acre coastal parcel. This low-density master-planned community will include large open space areas to preserve the coastline strand, open space and wetland resources, and maintain the open space character and sense of place of the surrounding area. The proposed project also includes plans for a small retail commercial center at its access to Kūhiō Highway.

The coastal renaturalization plan for the Conservation District is an integral part of an overall master plan that seeks to enhance the overall quality of space and use within an abandoned area. The focused efforts of revitalizing and maintaining the natural habitat system within the Conservation District will seamlessly be integrated with proposed landscaping plans for the overall project, specifically the single-family units and golf facilities adjacent or near to the conservation area. Designs include creating an amiable landscape that maintains and accentuates the natural character of coastal bayside and oceanside areas with the proposed golf holes nearest to the ocean.

Long-term project plans for the adjoining property include the development of an on-site non-potable well that will be utilized for irrigation purposes for the entire landscaped area. Additionally, provisions will be made for temporary irrigation during the short interim replanting phase.

2.5 PROJECT COSTS AND SCHEDULE

Phase One of the project is scheduled to begin in June of 2002, and is scheduled to be completed within two months. Phase Two is scheduled to begin immediately after completion of Phase One, and is scheduled to be completed by October 2002. The cost of the entire project is not expected to exceed $125, 000.

Section 3.0

Description of the Environmental Setting, Potential Impacts, and Mitigative Measures

3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

Addressed below are the environmental setting, potential impacts and mitigative measures for the proposed Ocean Bay Plantation at Hanamā'ulu Landscaping Plan.

3.1 CLIMATE

Existing Conditions
The climate of Kaua'i is mild and semitropical with prevailing northeast trade winds. Average daily minimum and maximum temperatures range from the low 60's to the low 90's degrees Fahrenheit (F), depending upon the time of day and the season. Precipitation is seasonal with the most rainfall typically occurring from October through April.

Climatic conditions around the project area yield temperatures ranging from a high of 81 through a low of 69 degrees F. Annual rainfall on Kaua'i varies greatly with elevation and geography from an average rainfall of 444 inches at the top of Mount Wai'ale'ale (the wettest place in the world) to approximately 39-59 inches of rain near the project area, which is located on the eastern side of the island.

Anticipated Impacts and Mitigative Measures
The proposed action will have no effect on climatic conditions, therefore no mitigative measures are required.

3.2 TOPOGRAPHY

Existing Conditions
One of the salient features of the project area is its topography. The area can be described as a spacious coastal plain resting upon low sea cliffs, rising sharply from the ocean's edge. Varying in slope, the topography of the project area is predominantly a relatively flat area with moderate to steep slopes at the ocean's edge, ranging from an elevation of approximately 20 feet above mean sea level down to sea level (USGS 1996).

Anticipated Impacts and Mitigative Measures
The proposed project will not alter the topography of the immediate project area, which is generally flat and level along the upper regions of the coastal areas because of its past association with agricultural use. It is not anticipated that significant grading will be required. No substantial fill or excavation is being proposed for the project. Mitigative measures related to soils and grading are described in the next section.

3.3 SOILS AND GRADING

Existing Conditions
Soil types or classifications for the project area are based on soil surveys by the USDA Soil Conservation Service (SCS). The SCS system classifies soils by type, capability classification (SCS rating), and permeability characteristics including run-off and erosion, as shown in Table 3-1. Soil type describes the composite material of the soil. The SCS rating defines the limitations on the choice of crops that can be grown within the soil, with a higher Roman numeral designation corresponding to stricter limitations on its use. Run-off pertains to the corresponding amount of erosion that can be expected with that particular soil type. Figure 3-1 illustrates the types of soils found within the project area.

Soil	*Soil Type*	*SCS Rating*	*Permeability (Runoff)*	*Erosion*
Lihu'e Silty Clay (LhB)	Red Silty Clay	IIe	Slow	Slight
Koloa Stony Silty Clay (KvD)	Silty Clay	IVe	Medium	Moderate to Severe
Rock Outcrop (rRO)	Basalt, Bedrock, Andesite	VIIIs	Rapid	Severe
Beaches (BS)	Sand	VIIIw	Rapid	Severe
Rough Broken Land (rRR)	Weathered Rock	VIIe	Rapid	Severe

Table 3-1: Soil Classification

Anticipated Impacts and Mitigative Measures
The impact of the proposed action on soils is limited to the small potential for erosion during physical removal of particular trees. The impact of landscaping and maintenance activities on the soils will be mitigated by implementing ~~practicing~~ strict erosion control and dust control measures, particularly those specified in the following:

- County of Kaua'i Grading Ordinance
- State of Hawai'i, Department of Health, Water Quality Standards, Chapter 37-A, Public Health Requirements (1968)
- USDA Soil Conservation Service, Erosion and Sediment Control Guide for Hawai'i (1968).

Primary fugitive dust control methods that will be implemented include regular watering of exposed soil areas, good housekeeping on the job site, and prompt landscaping, covering or paving of bare soils in areas where construction is completed.

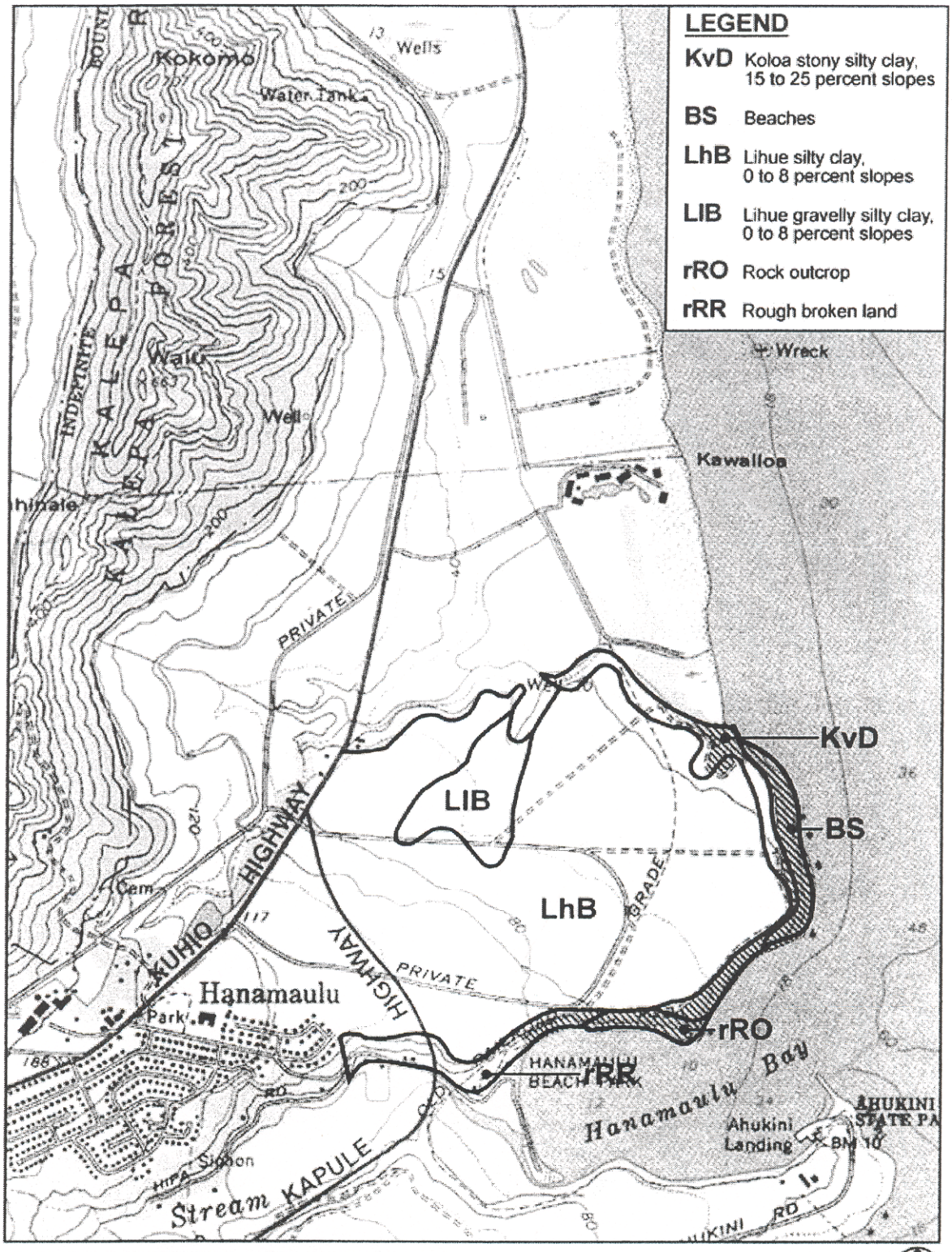


FIGURE 3-1 SOIL CLASSIFICATION

3.4 SURFACE WATER, FLOODING, AND DRAINAGE

Existing Conditions
~~There are no existing streams flowing within the project area~~. The closest perennial stream is Hanamā'ulu Stream, located south of the project area. The former cane lands located adjacent to the project area are no longer irrigated and provide sparse vegetation and groundcover. Running through the center of these adjoining lands to the project area is a wetlands area, which receives runoff from regions mauka of Kūhiō Highway.

According to the National Flood Insurance Program Flood Insurance Rate Map ~~(FIRM # 150002 0140 C),~~ (FIRM # 150002 0140 D, September 30, 1995), most of the property within the Conservation District lies within the VE designated flood zone. The VE zone represents a special flood area that has the potential to be inundated with a 100-year coastal flood with heavy wave action. For each of these VE designations, base flood elevations are determined for the specific geographical area. Within the project area's Conservation District, areas designated as part of the VE zone have a base flood elevation of 10 to 12 feet.

The remaining shoreline areas within the project area lies within the Zone X designation, meaning these areas are lie outside a 500-year flood plain.

Anticipated Impacts and Mitigative Measures
As noted, only a small portion of the project site is subject to relatively minimal flood type conditions occurring every 100 years. The mauka portion of the project site is outside of the 500-year flood plain. However, the coastal renaturalization plan will take into consideration the potential for flood hazard in those areas with the greatest concern.

Long-term impacts of the project on drainage conditions are expected to be insignificant. Currently, non-maintenance of these former agricultural parcels has encouraged soil-runoff and degradation, especially during extended periods of rain. Improvements to the project site are designed to minimize any increase in peak storm runoff flows and to minimize potential runoff. As such, the proposed project will comply with flood hazard requirements in accordance with current State and County of Kaua'i standards. No fill activity is proposed within the designated VE zones and the Conservation District. ~~Mitigation may require additional fill to ensure that the character or pattern of surface runoff will not impact adjacent properties.~~

3.5 FLORA

Existing Conditions
Coastal vegetation forms a band along the seaward facing slopes of the property. Three variant areas of coastal vegetation have been identified based on the differences in substrate type and slope (Char & Associates, 2001).

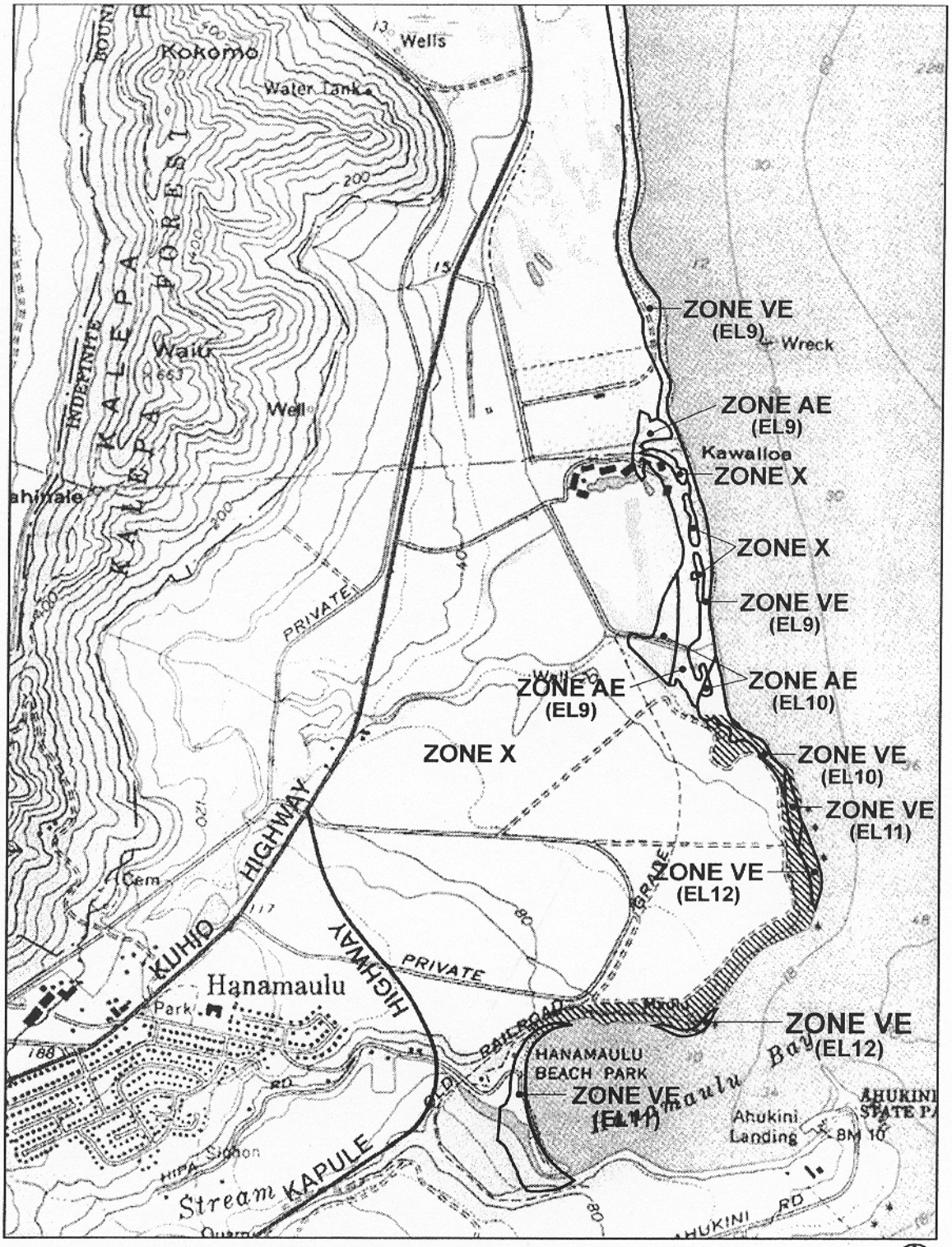


FIGURE 3-2 (revised) FIRM CLASSIFICATION

0' 750' 1500' 3000'

Sand Substrate
A sandy beach is found along the northern portion of the project area, where the stream from the wetlands empties into the ocean. The sandy substrate consists of naupaka (*Scaevola sericea*) and taller tree heliotrope (*Tournefortia argentea*). 'Aki'aki grass (*Sporobolus virginicus*) and pōhuehue (*Ipomoea pes-caprae*) form low mats, especially on the seaward facing portions of the naupaka shrubs. Other species associated with this substrate include nanea (*Vigna marina*), hala (*Pandanus tectorius*), Bermuda grass (*Cynodon dactylon*), and wedelia (*Sphagenticola triloba*).

Rocky Outcrops/ Coastal Cliffs
The coastal vegetation along the seaward rim of rugged coastal cliffs is comprised of large stands of ironwood trees. Along the upper cliff faces, adjacent to the abandoned sugarcane fields, the ironwood trees are 30 to 50 feet tall. Along the exposed steeper slopes, the ironwood trees are low and windsheared, 10 to 12 feet tall. There a few native species associated with this substrate including: naupaka, 'ilima papa (*Sida fallax*), pā'ūohi'iaka (*Jacquemontia ovalifolia ssp. Sandwicensis*), 'aki'aki grass, and 'ākulikuli (*Sessuvium portulacastrum*).

Other Slopes
On the more protected slopes facing Hanamā'ulu Bay, the coastal vegetation consists varying densities of koa haole shrubs, approximately 12 to 15 feet tall. Other species within this substrate include: Kolomona (*Senna surattensis*), Java Plum trees, ironwood, and hau. Guinea grass is the most abundant ground cover, forming robust clumps 2 to 3 feet tall.

Anticipated Impacts and Mitigative Measures
Development of the project site will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. None of the plants found during the field studies are considered a threatened or endangered species or a species of concern. The proposed landscaping within the Conservation District is not expected to have a significant negative impact on the botanical resources on-site or in the general region. It is recommended that areas cleared of vegetation be revegetated as soon as possible. This would prevent soil loss and discharge of sediments into the ocean and wetland areas.

3.6 FAUNA

Existing Conditions
Mammals
Studies were conducted within the project area to detect the presence of endangered Hawaiian hoary bats (*Lasiurus cinereus semotus*), or the 'ōpe'ape'a, as it is known in Hawaiian. Visual recordings documented the presence of five separate animals foraging along the coastline, and over Hanamā'ulu Bay. All other observations of mammalian

species were of an incidental nature. With the exception of the Hawaiian hoary bat, all terrestrial mammals found on the island of Kaua'i are alien species (David, 2001).

Other mammalian species found within the project area include cats (*Felis catus*), horses (*Equss caballus*), and domestic cattle (*Bos taurus*). Recorded signs and scat of two other mammalian species include the domestic dog (*Canis f. familiaris*) and pig (*Sus scrofa*).

Although no live rodents were detected during the course of the field work, 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. All of these mammalian species are harmful to avian populations.

Avi-fauna

Twenty-seven avian species were recorded within the project area either during station counts, nocturnal visits, or incidental encounters. Of the 27 species detected, the 'Alae ke'oke'o, or Hawaiian coot (*Fulica alai*) is an endemic species that is listed as an endangered species, under the Endangered Species Act of 1973, as amended, and by the State of Hawai'i under its endangered species program. Other indigenous or endemic avi-fauna located within the project area include: the koa'e kea (*Phaethon lepturus dorothea*), the 'auku'u (*Nycticorax nyticorax hoactli*), the kōlea (*Pluvialis fulva*), the 'ūlili (*heterosceles incanus*), the 'alea'ula (*Gallinula chloropus sandvicensis*), and the ae'o (*himantopus mexicanus knudseni*). Additionally, three seabird species were recorded flying over the site including the endangered endemic Hawaiian subspecies of the 'ua'u (*Pterodroma phaeopygia sandwichensis*), the threatened endemic subspecies of the 'a'o (*Puffinus auricularis newelis*), and the 'ua'u kani (*Puffinus pacificus*).

The remaining species of avi-fauna are alien to the Hawaiian islands. Avian diversity and densities were relatively low. Two species, the Japanese White-eye (*Zosterops japonicus*), and Zebra Dove (*Geopelia striata*) accounted for 32% of the total sighting of birds recorded within the project area.

Anticipated Impacts and Mitigative Measures

Landscaping development of the project area will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. It is expected that during segments of selective removal of certain trees, birds that frequent the landscaped edge of the site will move to nearby undisturbed areas and will return when disturbances cease. Stray domestic animals and other pest mammals will probably continue to pass through the site during and after. No adverse impacts are anticipated, and no mitigative measures are proposed.

3.7 ARCHAEOLOGICAL-CULTURAL RESOURCES

Existing historical and cultural resources within the project area are detailed in an archaeological inventory survey and cultural impact assessment completed by ~~Paul H. Rosendahl, Ph.D.,~~ PHRI, Inc. The findings are summarized below and are presented in their entirety in Appendix A and B, respectively.

Existing Conditions
Two site complexes and three single-feature sites were identified either within or near the vicinity of the project area. The sites are listed in Table 3-2.

State Inventory of Historic Properties	Feature Type	Tentative Functional Interpretation
1839	Complex: Wall (A), Terrace (B)	Temporary Habitation
1843	Complex: Concrete Foundation (A), Road (B), and Concrete Wall (C)	Transportation
1840	Retaining Wall	Transportation
1841	Road	Transportation
2068	Historic Trash Dump	Trash Dump

Table 3-2: Existing Archaeological Resources

All of the identified sites area located along or near the coast. Of the 5 identified sites, only site 1839 is considered to be prehistoric. Radiocarbon sampling suggests that occupation within the project area may have occurred as early as AD 1170-1400. This time period is known as the Expansion Period, which is characterized by numerous developments, including a rapid increase in population and intensified agricultural practices such as large-scale irrigation, dryland cultivation, and aquaculture.

Based upon historical documentary research, prehistoric settlement in the immediate vicinity of the project area seems to have taken place in the Hanamā'ulu Stream gulch and along the coast. On the coast of Wailua and within the sandy beach area of Hanamā'ulu Bay, burials in sand dunes have been documented as well as habitation activities (Bennett, 1931; Cox, 1977). Because the coast between Hanamā'ulu Bay and the Wailua Golf Course consists of a rocky shoreline, cultural practices and activities along the coast of the present project area were probably restricted to fishing and temporary habitation activities.

Anticipated Impacts and Mitigative Measures
Significance assessments and recommended general treatments for all identified sites are based upon the Rules Governing Procedures for Historic Preservation Review in the

Hawai'i Administrative Rules, Chapter 284. All the sites within the project area have been determined to be potentially significant resources that "have yielded or may likely to yield information important in history or prehistory" with no further work required.

Sites 1839 and 1840 have been tested, and data collected from these sites during the survey work is considered sufficient. Site 2068, a historical refuse dump, has been measured, described, photographed, and plotted, and no further work is recommended. Sites 1841 and 1843 have been recorded and described to the extent that no further work is necessary.

In the event that any previously unidentified sites or remains are encountered during site work and construction phases, work in the immediate area will cease. An archaeologist from the State Historic Preservation Division will be notified and work in the area will be suspended until further recommendations are made for appropriate treatment of cultural materials.

3.8 LAND USE - DEVELOPMENT PATTERNS

Existing Conditions
The State Land Use Commission classifies all State lands with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation. The project site is within the Conservation District as shown in Figure 3-3.

Development patterns in Hanamā'ulu are set by the County General Plan, the Līhu'e Development Plan and the comprehensive Zoning Ordinance of the County of Kaua'i (CZO). The principal function the CZO is to specify areas where land uses such as agricultural, commercial, residential, industrial, open and public areas are permitted.

Under the General Plan, strips of shoreline around the island of Kaua'i are designated Open. The General Plan designation for the project area is Open as illustrated in Figure 3-4. The intent of this designation is to preserve, maintain, or improve the natural characteristics of non-urban land and water areas including coastal bluffs, sandy beaches, and other natural features. These strips range from 100 to 300 feet wide, sometimes wider depending upon topography or other natural features of the site.

The Līhu'e Development Plan serves as a guideline for the region's future growth within the framework of the General Plan. The Development Plan's land use designation of the project site is Open.

The County zoning designation within the project area is Open and Special Treatment-Scenic Ecological (ST-R) and is illustrated in Figure 3-5. The necessary permits and approvals for the proposed development are discussed further in Section 5.0.

Anticipated Impacts and Mitigative Measures
The proposed project involves a selective removal of ironwood trees facilitated with a replanting of appropriate species for the conservation area. There will be no change in the existing land use classification or in the amount of land designated for development. Land use patterns in the area will not change as a result of the proposed action. No mitigative measures are required.

3.9 ROADWAYS, ACCESS AND TRAFFIC CONDITIONS

Existing Conditions
The project site is about .85 miles east of the intersection of Kūhiō Highway and Kapule Highway. These State Highway roads provide an alternative route between Līhu'e and points north and west. There are a series of former cane haul roads located in the near vicinity of the project area.

Anticipated Impacts and Mitigative Measures
There are no anticipated impacts upon existing traffic conditions of the nearby highway intersection. The landscaping plan may require the removal of large tree stumps. If so required, off-site hauling may be required. Where necessary, precautions will be taken to maintain traffic safety and minimize effect upon normal traffic patterns.

3.10 NOISE

Existing Conditions
The primary noise sources in the area of the project site are related to wind, surf, aircraft, traffic from the nearby highways, and ocean recreational activities. Generally, the rural character of the area does not generate extended periods of unacceptable levels of noise.

Anticipated Impacts and Mitigative Measures
Landscaping activities within the isolated project area will involve the use of chain saws, a brush chipper, and other types of machinery and equipment. The loudest equipment used during the landscaping could generate intermittent noise levels as high as 95 dB. However, such exposures are only a short-term condition, occurring during normal working hours.

Noise generated during the landscaping activity will be mitigated in accordance with Hawai'i Administrative Rules, Title 11, Chapter 46, Community Noise Control of the State Department of Health. Overall, the landscaping work will not generate significant or potentially disturbing levels of noise, thus no mitigative measures will be required.

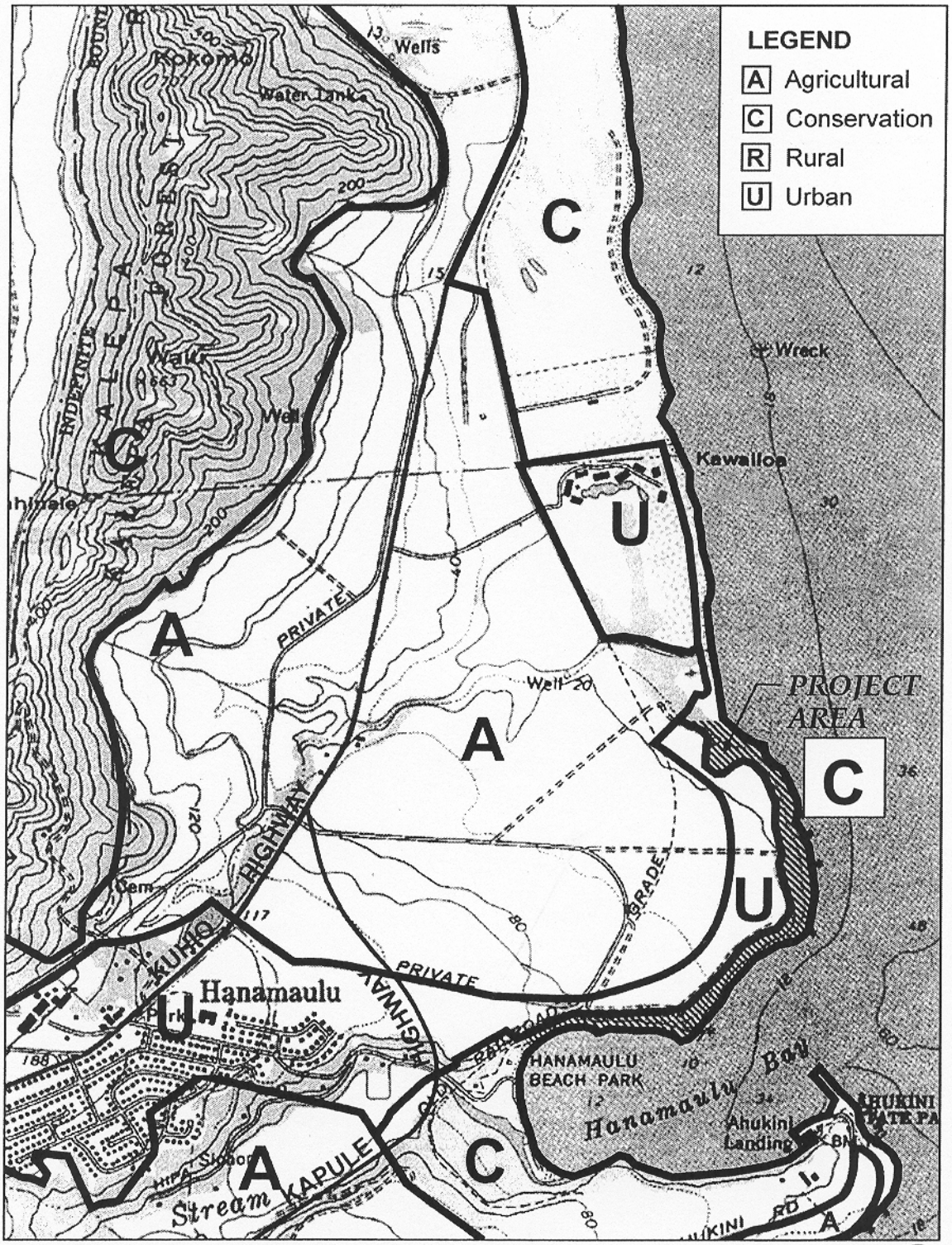


FIGURE 3-3 (revised) STATE LAND USE MAP

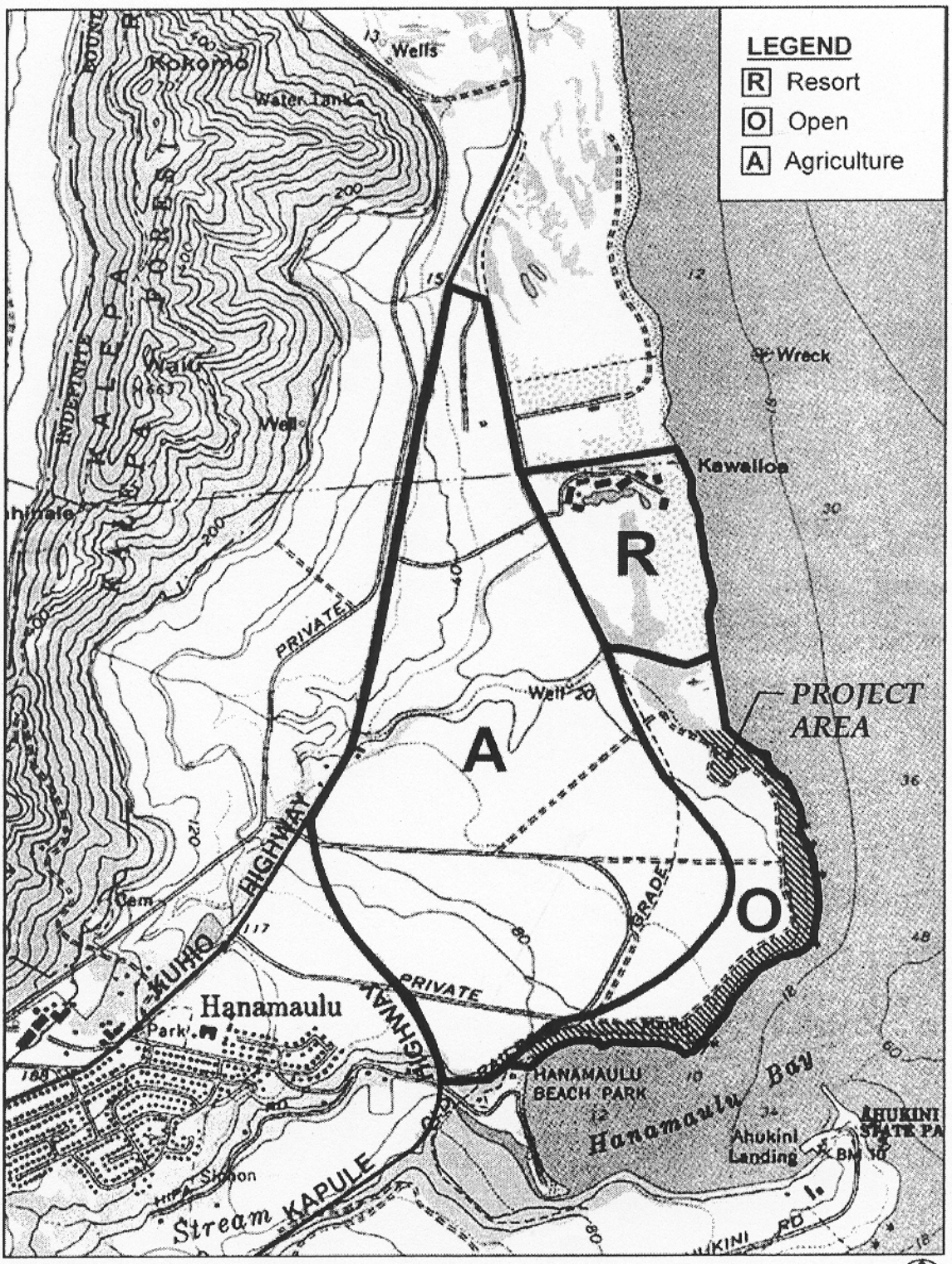


FIGURE 3-4 GP LAND CLASSIFICATION

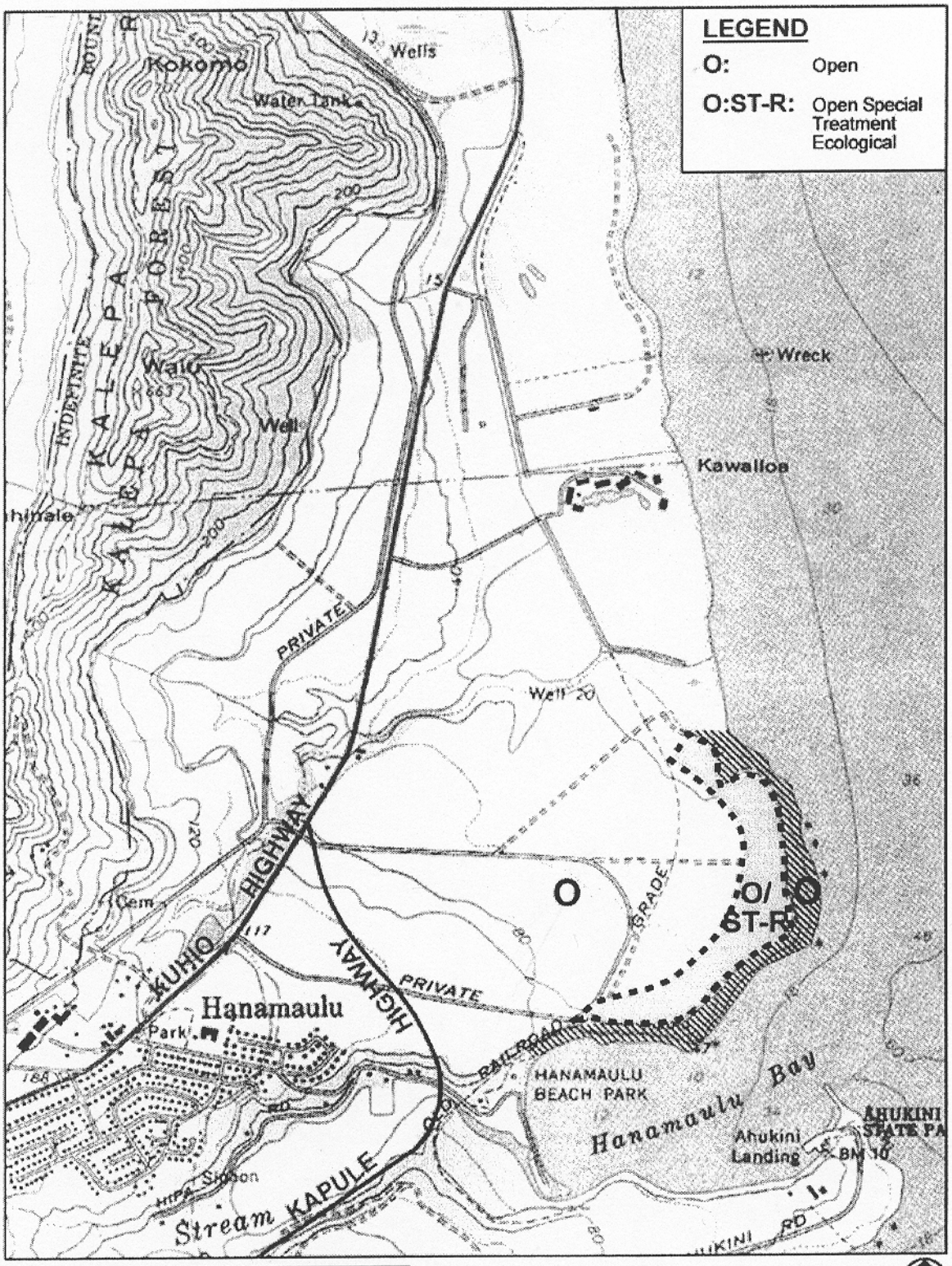


FIGURE 3-5 COUNTY ZONING

3.11 AIR QUALITY

Existing Conditions
The State Department of Health, Clean Air Branch regularly samples ambient air quality at monitoring stations throughout the State and publishes the information in *Hawai'i Air Quality Data.* For the island of Kaua'i, there is a monitoring station in downtown Līhu'e, located within a commercial and residential area with nearby agricultural parcels. The station monitors levels of PM_{10}, particulate matter that includes dust, soot, smoke, and liquid droplets from sources such as factories, power plants, motor vehicles, construction activities, agricultural activities, and fires. However, there are no monitoring stations for carbon monoxide on Kaua'i.

Air quality in the Līhu'e area is good, with pollution levels below State standards. Typically, the particulate counts in Līhu'e range between 20 to 40 ug/m3 and can be attributed primarily to automobiles and activity at Līhu'e Airport. The particulate counts do peak at levels much higher than this, usually during periods of adverse weather conditions.

Anticipated Impacts and Mitigative Measures
Clearing activities are expected to generate short-term impacts to air quality primarily from fugitive dust emissions. On-site landscaping activities will generate particulate emissions. The impact of landscaping activities on air quality will be mitigated by conforming to strict dust control measures, particularly those specified in the State Department of Health's (DOH) Ambient Air Quality Standards, Hawai'i Administrative Rules, Title 11, Chapter 59; Public Health Regulations, 1968; and the U.S. Soil Conservation Service's Erosion and Sediment Control Guide for Hawai'i, 1968.

Primary fugitive dust control measures include wetting down loose soil areas, good housekeeping on the job site and the prompt landscaping of bare soil areas. In addition, State of Hawai'i Air Pollution Control Regulations require that fugitive dust emissions be controlled to such an extent that no visible emissions of fugitive dust from construction activity should occur beyond the property line.

There is the potential for air pollution from landscaping equipment and vehicles, and from vehicular emissions due to traffic disruptions from construction equipment. On-site mobile and stationary equipment will also emit some air pollutants in the form of engine exhausts. The larger types of equipment are usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are very low and should be relatively insignificant compared to normal vehicular emissions.

Short-term increases in vehicular emissions due to disruption of traffic by construction equipment mobilization will be alleviated by moving equipment and personnel to the site during off-peak traffic hours. Increased traffic volumes in the long term may increase vehicular emissions; however, the region is generally rural and undeveloped. Air quality conditions in the region are not anticipated to decline and no mitigative measures are required.

3.12 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions
The island of Kaua'i has nearly 60,000 residents and supports, on average, 16,000 visitors each day. Of the four counties within the State of Hawai'i, the County of Kaua'i is the least populated. As of 2000, the Census Designated Place of Hanamā'ulu indicated a population of 3,272 with a median age of 35.3 years, most living in large households. The region has seen an increase in construction activity of homes and infrastructure.

For most of the 20th century, the economy of the island was based upon sugar cultivation. However, with the closure of Līhu'e Plantation in 2000, the only existing sugar producer, Gay and Robinson, is based in West Kaua'i. Over the past ten to fifteen years, the area of Līhu'e-Hanamā'ulu has seen resurging growth in commercial activity as well as increases in the visitor industry and related services sector. The closure of area sugar mills has emphasized the need for continued economic diversification and new employment opportunities.

Anticipated Impacts and Mitigative Measures
The project will create short-term benefits as a result of landscape design and construction employment. The project will create jobs for local landscape personnel, plant nurseries, and other local material suppliers and retail businesses. State General Excise Tax revenues will be generated by the landscaping activities and related expenditures.

It can also be assumed that the landscaping activity will enhance the overall character of the Conservation District. Open and natural areas are valuable resources and indirectly contribute to economic development. Natural coastal regions, such as Hanamā'ulu, are regarded as being among the visitor industry's strongest assets.

3.13 VISUAL RESOURCES

Existing Conditions
Scenic views of the ocean as well as varying mountain regions abound on the project site. The design and development of the Ocean Bay Plantation at Hanamā'ulu project will be a conscious application of landscaping that promotes and preserves the present on-site view planes. The preservation of view planes is recognized as an important component of the success of this landscaping effort.

Anticipated Impacts and Mitigative Measures
The landscaping project will enhance and maintain existing view planes while opening areas that are either overgrown or currently occupied with dead or diseased trees. Short-term visual impacts may result from personnel working and equipment stationed at the project site. Upon completion of the landscaping work, no other visual impacts are anticipated.

3.14 UTILITIES

Existing Conditions
Groundwater
The Wailua-Kapa'a and Puhi-Līhu'e-Hanamā'ulu water systems, the two largest systems on the island transmit source supply for the Hanamā'ulu area. These two systems are interconnected by a 16-inch water main. The Wailua-Kapa'a Water System serves an area that extends south from Kealia to just north of Hanamā'ulu and serves resort, commercial, industrial, and residential uses. According to the County of Kaua'i Department of Water's Master Plan, storage facilities for the service zone have approximately 590,000 gallons more capacity than the estimated volume required in 2020.

Wastewater
Both the project area and the adjacent parcels are not sewered and are outside the Līhu'e Wastewater Collection and Treatment service area. There are plans to provide an on-site wastewater collection and treatment facility to serve the larger 460-acre planned project. The treated effluent from the Ocean Bay at Hanamā'ulu Wastewater Treatment Facilities will be reused for irrigation purposes.

Electrical
Kaua'i Electric services over 30,000 customers on the island of Kaua'i. Power is generated from a 96 megawatt, diesel-fired power plant. Kaua'i Electric also has purchase power agreements with the remaining sugar producer, Gay and Robinson. A portion of Kaua'i Electric's power output is from renewable resources including bagasse, a sugarcane by-product, and the use of hydropower.

Anticipated Impacts and Mitigative Measures
The proposed project on the adjoining land will be developing a new irrigation source through an on-site non-potable well. Provisions will be made for temporary irrigation during the restoration period. The landscaping plan will incorporate a low-intensity water use design, allowing for the entire landscaped area to be adequately supplied by the new development.

3.15 CUMULATIVE IMPACTS

Cumulative and interrelated impacts are those associated with existing, approved, and foreseeable future projects that may produce related or additive impacts. In the case of the planned improvement to the Conservation District, the only anticipated impacts that may fit into these categories relate to plans for the development of the Ocean Bay Plantation at Hanamā'ulu project. The goals and plans for this new residential and golf development are briefly summarized in Section 2.4.4.

As noted in this section, the proposed coastal renaturalization project will be compatible and complementary to the overall landscaping plans of the master planned development. Both projects emphasize the importance of maintaining and protecting the area's coastal resources. As such, with respect to the nearby public and private amenities (Hanamā'ulu Beach Park and the Radisson Hotel), the coastal renaturalization project will enhance the overall visual quality of the coastal area, thereby providing a scenic benefit (i.e. positive impact) for the region.

Section 4.0

Alternatives to the Proposed Action

4.0 ALTERNATIVES TO THE PROPOSED ACTION

This Environmental Assessment evaluates three alternatives to the proposed project as described in Section 2.0. The alternatives include:

- No Action Alternative
- Alternative Uses for the Site
- Alternative Site Configurations

4.1 NO ACTION ALTERNATIVE

Th project area once served as a buffer zone between the ocean and near-shore agricultural areas. The planting of non-native ironwood trees served to protect the inland areas used for sugarcane production from salt spray emanating from ocean waves breaking along the coastal edge of the project area. Since the closure of the Līhu'e Plantation, these lands are no longer being maintained on a regular basis.

The No-Action alternative would maintain the site as a conservation strip. However, the existing conditions would not be improved, thereby allowing for overgrowth, soil degradation and erosion, and the infestation of vermin to continue. Public safety and health issues can become a concern if conditions within the project area continue to deteriorate.

4.2 ALTERNATIVE USES FOR THE SITE

Under State Land Use classification, the project area is designated as a Conservation district. However, the designated Conservation district currently does not have a sub-zone designation, as pursuant to the Hawaii Administrative Rules, Title 13, Chapter 5 provisions and guidelines. Existing subzone classification of the surrounding north and south boundaries of the project site are classified as Limited (L) subzone. Currently, an application has been filed to designate the project area as Limited (L), to create a consistent designation with the Department of Land and Natural Resources.

As a Conservation District, land use is regulated for the purpose of conserving, protecting, and preserving important natural resources. Assuming the approval of the subzone designation for the area to be "Limited," uses within the "Limited" subzone encompass specified activities approved for its own designation as well as approved activities within the more stringent "Protective" subzone (Table 4-1). The proposed coastal renaturalization plan adheres to the appropriate and regulatory use for the Conservation District. No other alternative uses are being considered at this time.

Table 4-1
Permitted Uses Within State Conservation District Subzones

Protective (P) Subzone	Data Collection Fishponds Kuleana Land Uses Landscaping, Removal of Noxious Plants Moorings and Aids to Navigation Public Purpose Uses Sanctuaries Signs Structures, Existing Structures, Accessory Subdivision of Consolidation of Property Tree Removal
Limited (L) Subzone	Uses in Protective Subzone Agricultural Botanical Gardens and Private Parks Erosion Control Seawalls and Shoreline Protection Single Family Residence

Source: Hawaii Administrative Rules, Title 13, Subtitle 1, Chapter 5 Conservation District

4.3 ALTERNATIVE SITE CONFIGURATIONS

The preferred landscaping site plan calls for a selective removal and trimming of trees and shrubs that present the greatest concern to maintain a healthy natural habitat. A comprehensive inventory of the existing condition on the 29 acres of Conservation land has been completed. After consulting with qualified experts, recommendations were made as to which areas within the project site would require the most work yielding the best results in terms of maintaining ecological balance and visual quality. Any site configurations may alter which trees are selected for removal. However, the overall concept of implementing a coastal renaturalization plan as a ecological approach would not change.

Section 5.0

Required Permits and Approvals

5.0 REQUIRED PERMITS AND APPROVALS

This section discusses the necessary approvals and permits required for the proposed project from governmental agencies, boards or commissions or other similar groups having jurisdiction, and the status of each identified approval.

5.1 STATE LAND USE DISTRICT BOUNDARIES

The State of Hawai'i Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources of the area. The State Land Use Commission classifies all State lands with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation. The project site is within the Conservation District and requires no action by the State Land Use Commission.

5.2 KAUA'I COUNTY GENERAL PLAN

The Kaua'i County General Plan is the primary policy governing long-range and comprehensive development, use and allocation of land within the County. The General Plan identifies areas, which are intended to improve the physical environment of the County and the health, safety, and general welfare of the island community. The location of specific uses and development is organized by the Development Plans and regulated by the Comprehensive Zoning Ordinance.

As discussed in Section 3.0, the General Plan designation for the project site is Open Lands. The Open designation includes lands within the State Conservation District and is intended to preserve coastal bluffs, sandy beaches, and other natural features. The project is consistent with the General Plan designation and requires no action by the County of Kaua'i.

5.3 LĪHU'E REGIONAL DEVELOPMENT PLAN

The Līhu'e Regional Development Plan, which is codified in the Kaua'i County Code, 1987 as Chapter 10, Article 5, provides detailed plans for administrative purposes and assists the Planning Department and Planning Commission to implement the County's General Plan. Adopted in 1977, it serves as a guideline for specific improvements and provides orderly direction for this region's future growth within the framework of the General Plan.

The Development Plan designation for the project area is Open. As stated in the Plan, open land is designated as such because "it is desirable for physical or social reasons." The project is consistent with the Open designation and requires no action by the County of Kaua'i.

5.4 COUNTY OF KAUA'I SPECIAL MANAGEMENT AREA

It is the policy of the County of Kaua'i to preserve, protect, and to restore the natural resources of its coastal areas. The County's Special Management Area (SMA) boundary is located along the coastal edge of the project area, as shown in Figure 5-1. The SMA designation places special controls on development within an area along the shoreline. These controls are necessary to avoid permanent loss of valuable resources and to insure that adequate public access is provided to public owned or used beaches, recreation areas, and natural reserves. Issuance of a major or minor permit is necessary if it is determined that a proposed use can be defined as "development."

Under the Hawai'i Revised Statutes, Chapter 205A, and the County of Kaua'i Special Management Area Rules and Regulations, the proposed landscaping activity will require a SMA minor permit (administrative). The proposed landscaping project will be part of a larger project, whose cumulative impact may have an effect on the SMA. A project-wide SMA permit will be sought at an appropriate time in the future.

5.5 COUNTY OF KAUA'I ZONING DISTRICTS

The purpose of the Comprehensive Zoning Ordinance (CZO) for the County of Kaua'i is to implement the General Plan and Regional Development Plans' policies for growth and development. The zoning designation within the project area is Open and Special Treatment-Scenic Ecological (ST-R) and requires no zoning action.

The Special Treatment designation is intended to guide the development of County areas that because of their unique or critical cultural, physical, or locational characteristics, they have particular significance or value to the general public. The Scenic/ Ecological Resources sub-designation includes lands and water areas, which have unique natural forms, biological systems, or aesthetic characteristics which are of particular significance to the general public.

The purpose of the Open Designation of the CZO is to preserve, maintain, and improve those characteristics of land and water areas that are (1) of significant value to the public as scenic or recreational resources, (2) important to the overall structure and organization of urban areas and which provide accessible and usable open areas for recreation or aesthetic purposes, and (3) necessary to buffer the public and places of residence from undesirable environmental factors caused by particular uses such as noise and dust.

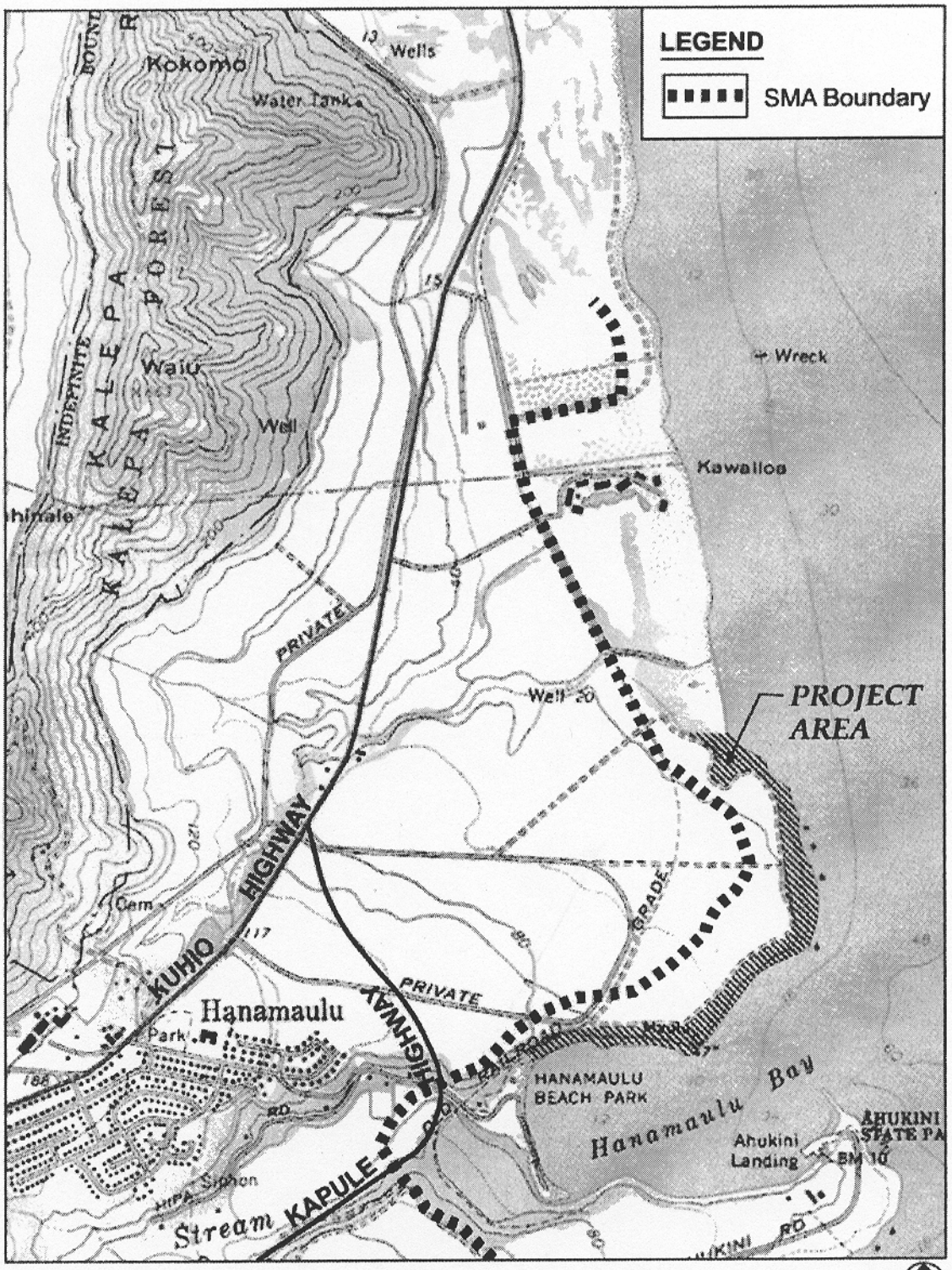


FIGURE 5-1 SMA BOUNDARY

5.6 APPROVALS AND PERMITS REQUIRED

The following is a list of the approvals and permits required for the development and implementation of the Ocean Bay Plantation at Hanamā'ulu Landscaping Plan.

- State of Hawai'i, DLNR acceptance of Conservation District Subzone Designation application, whereby changing non-designation to Limited (L) subzone.
- Completion of the Chapter 343, HRS environmental review process, which is required for use of any land classified as Conservation District by state law.
- State of Hawai'i, DLNR issuance of a Board Permit, for acceptable identified land use activities (landscaping) within the Limited (L) subzone of the Conservation District.
- State of Hawai'i, DLNR approval for Conservation District Use Permit application for Landscaping.
- County of Kaua'i, Special Management Area (SMA) minor use permit (administrative).

Section 6.0

Consulted Parties

6.0 CONSULTED PARTIES

The following agencies and organizations were contacted during the preparation of the Draft Environmental Assessment (EA) and/or received a copy for review and provided comment for the proposed Ocean Bay Plantation at Hanamā'ulu Coastal Renaturalization Plan. A copy of comment and response letters are included in this Section.

Agency/Organization	Pre-Consultation	Received Copy of Draft EA	Draft EA Comments Received
Federal			
U.S. Department of the Interior, Fish & Wildlife Services		✓	
State of Hawai'i			
Department of Business Economic Development & Tourism (DEBDT)- Land Use Commission		✓	✓
DEBDT- Office of Planning, CZMP		✓	✓
Department of Health		✓	✓
Department of Land & Natural Resources (DLNR)- Aquatic Resources		✓	
DLNR- Conservation & Resource Enforcement		✓	
DLNR- Forestry & Wildlife	✓	✓	
DLNR- Land Division	✓	✓	✓
DLNR- State Historic Preservation Division	✓	✓	✓
Office of Environmental Quality Control	✓	✓ (4)	✓
Office of Hawaiian Affairs		✓	

County of Kaua'i

Department of Planning	✓	✓	
Department of Public Works, County Engineer		✓	✓
Department of Water, Manager		✓	✓
Fire Department		✓	
Office of the Mayor	✓	✓	
Police Department		✓	

Organizations & Other Interests

Bosshart, Kurt		✓	
Hanamā'ulu Beautification Committee	✓	✓	
Kaua'i Community College Library		✓	
Līhu'e Public Library		✓	
The Garden Isle Newspaper, Editor		✓	

Ocean Bay Plantation at Hanamāʻulu Coastal Renaturalization Plan

Draft Environmental Assessment Comment and Response Letters

MARYANNE W. KUSAKA
MAYOR

WALLACE G. REZENTES, SR.
ADMINISTRATIVE ASSISTANT

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COUNTY ENGINEER
TELEPHONE 241-6600

IAN K. COSTA
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6640

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
4444 RICE STREET
MO'IKEHA BUILDING, SUITE 275
LIHU'E, KAUA'I, HAWAI'I 96766

December 17, 2001

Group 70 International, Inc.
925 Bethel Street, 5th floor
Honolulu, HI 96813

Attention: Mr. Jeffrey Overton

Gentlemen:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA)
OCEAN BAY PLANTATION
TMK: 3-7-3:1; 3-9-5-5 PW 12.038

We completed our review of the subject draft environmental assessment and offer the following comments:

A. 3.3 SOILS AND GRADING

1. A grading permit may be required for this project if the grading exceeds 100 cubic yards. We consider the processing of the tree trunks and tree litter into wood chips for mulching material as grading. Temporary dust control measures, and both temporary and permanent erosion control measures need to be provided with your grading plans.

2. A grubbing permit may be required for this project if the grubbing area is in excess of one (1) acre. We consider the scrub clearance as grubbing. Temporary dust control measures, and both temporary and permanent erosion control measures need to be provided with your grubbing plans.

B. 3.4 SURFACE WATER, FLOODING, AND DRAINAGE

1. Existing Conditions:

a. There is also an additional drainage way in the vicinity of the former hardwood area that drains the area mauka of Kuhio Highway. The natural drainage way between Kuhio Highway and the Pacific Ocean needs to be maintained.

b. The Federal Insurance Rate Map panel no. 140C dated March 4, 1987 is the incorrect flood map. The current Federal Insurance Rate Map (FIRM) is Panel No. 140D dated September 30, 1995. The revised flood map did not revise the flood elevations along the coastal reaches. Our flood plain management Ordinance No. 630 prohibits manmade alteration within the Coastal High Hazard Flood Zone (VE flood zones). We interpret this to mean that fills are prohibited in the VE flood zone designations. We request reviewing and approving your coastal renaturalization plan before work commences so that fills are not made in the coastal high hazard area.

c. There are other areas that are susceptible to flooding and are designated as zone AE with Base Flood Elevations 9 ft. MSL and 10 ft. MSL and zone X-unshaded. AE flood zones should be treated similarly as VE flood zones in regards to filling.

Thank you for this opportunity to provide our comments. Should you have any questions please feel free to contact Mr. Wallace Kudo of my staff at (808) 241-6620.

Very truly yours,

CESAR C. PORTUGAL
County Engineer

wk

February 12, 2002

Francis S. Oda, Arch. D., AIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
Hitoshi Hida, AIA
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Kathryn A. Nam
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Norma J. Scott
Scott Tangonan
Sharon Ching Williams, AIA

Mr. Cesar C. Portugal, County Engineer
Department of Public Works
County of Kauai
4444 Rice Street
Lihue, Kauai, HI 96766

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Portugal:

Thank you for your letter of December 17, 2002 regarding the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The applicant proposes to implement appropriate dust controls and erosion controls in the vegetation removal and replanting program. There are no plans to conduct grading in the Conservation District. Limited tree stump removal is proposed, following authorized procedures to minimize soil disruption.

Existing drainage ways on the property will be respected to retain the surface runoff pathways, including the land receiving runoff from areas mauka of Kuhio Higway. No fill activity is proposed in these areas and the Conservation District, therefore, we anticipate no impact to flood zones and high hazard areas.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for

Jeffrey H. Overton, AICP
Chief Environmental Planner

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environm
925 Bethel Street, 5th Floor • Honolulu, Hawaii 96813-4307 • Ph (808) 523-5866 • Fax (808) 523-5874 • www.group70int.com • mail@g

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

December 17, 2001

RECEIVED
DEC 19 2001
GROUP 70

Mr. Dee Crowell, Director
Planning Department
County of Kauai
4444 Rice Street, Suite 473
Lihue, Hawaii 96766

Attn: Keith Nitta

Dear Mr. Crowell:

Subject: Draft Environmental Assessment (DEA)
Ocean Bay Plantation at Hanamaulu Landscaping Plan
Hanamaulu, Kauai
TMK No: 3-7-03: por. 1

We have reviewed the subject DEA and confirm that the project site, as represented on Figure 3-3, is located within the boundary of the State Land Use Conservation District. We also confirm that the project site was reclassified from the Urban District to the Conservation District under LUC Docket No. BR94-714/Office of State Planning to protect the area's scenic coastal resources. To the extent that the project will involve the selective removal of ironwood trees and the replanting of appropriate species of both native and non-native vegetation "...that promotes and preserves the present on-site view planes," the project appears to be consistent with the intent of the reclassification.

We would like to point out that the legend in Figure 3-3 mistakenly refers to the Agricultural District as the "Agriculture" District. The legend should be corrected in the Final EA.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the DEA. Please feel free to contact Bert Saruwatari of my office at (808) 587-3822 should you require clarification or any further assistance.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

c: Office of Environmental Quality Control
Jeff Overton, Group 70 International, Inc.

Francis S. Oda, Arch. D., AIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seamen, AIA, ASID
Hitoshi Hida, AIA
Roy H. Nihei, AIA, CSI
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Ralph E. Portmore, AICP
Stephen H. Yuen, AIA
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Frank B. McCue
Kyle K. Nakamoto
Kathryn A. Nam
Jeffrey H. Overton, AICP
Christine M. Ruotola, AICP
Norma J. Scott
Scott Tangonan
Sharon Ching Williams, AIA

February 12, 2002

Mr. Anthony J.H. Ching, Executive Officer
State of Hawai'i
Department of Business, Economic Development, and Tourism
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804-2359

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Ching:

Thank you for your letter of December 17, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

We appreciate your clarification of our Figure 3-3 legend noting the State Agricultural District.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for Jeffery H. Overton, AICP
Chief Environmental Planner

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Services
925 Bethel Street, 5th Floor • Honolulu, Hawaii 96813-4307 • Ph (808) 523-5866 • Fax (808) 523-5874 • www.group70int.com • mail@group70int.com

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

JAN 9 = 2002

GROUP 70

January 7, 2002

EWM Kaua'i, LLC
c/o Mr. Walton D. Y. Hong
3135-A Akahi Street
Lihu'e, Hawai'i 96766

The Honourable Dee Crowell, Director
Planning Department, County of Kaua'i
4444 Rice Street, Suite 473
Lihu'e, Hawai'i 96766

Mr. Jeffrey Overton
Group 70 International Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawai'i 96813

Dear EWM Kaua'i, LLC, and Messrs. Wong, Crowell and Overton:

The restoration of the biota associated with the natural physical environment of the Kaua'i coastline in your project's draft environmental assessment for the Coastal Renaturalization Plan for Ocean Bay Plantation at Hanama'ulu, District of Lihu'e, Tax Map Keys 4-3-7-3:1 is indeed commendable. Having reviewed the draft environmental assessment, we offer the following additional comments for your consideration and response:

1. *CULTURAL IMPACT ASSESSMENT AND COASTAL ACCESS*: Act 50, Session Laws of Hawai'i 2000, requires that actions requiring an environmental assessment asssess cultural impacts. Please refer to our website at http://www.state.hi.us/health/oeqc/index.html for a copy of the "Cultural Impact Assessment Guidelines" adopted by the Environmental Council in 1997 for your use in meeting this requirement prior to submission of a final environmental assessment. This would include contacting neighbors and community members with respect to current cultural resources and cultural practices in the project site and region (i.e., fishing, gathering, surfing, religious practices in the area). Please also discuss coastal access through the property.
2. *CUMULATIVE IMPACT ASSESSMENT*: Please discuss the relationship to, and cumulative impacts of the project to the Ocean Bay Plantation at Hanama'ulu as well as other developments in the region. In addition, please discuss what the expected setback from the certified shoreline for the Ocean Bay Plantation and the project site will be.
3. *WETLANDS*: Please discuss the nature and extent of wetlands within and beyond the project site, as well as measures to mitigate any adverse impacts to these wetlands.
4. *STATE HISTORIC PRESERVATION DIVISION CONCURRENCE ON BURIALS*: Please document any state historic preservation division concurrence on burial plans for human remains on site.

If there are any questions, please call Leslie Segundo, Environmental Health Specialist, at (808) 586-4185. Thank you for the opportunity to comment.

Sincerely,

GENEVIEVE SALMONSON
Director

Francis S. Oda, Arch. D., AIA, AICP
Norman G.Y. Hong, AIA
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February 12, 2002

Ms. Genevieve Salmonson
State of Hawai'i
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Ms. Salmonson:

Thank you for your letter of January 7, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

1. Cultural Impact Assessment. The Draft EA addresses potential cultural impacts of the proposed coastal renaturalization plan, although no reports were included because they address a larger project. A Draft EIS is in preparation for the master planned development of the adjoining 400+ acres, which will include the cultural impact assessment and an archaeological inventory study addressing the overall development. Copies of both reports were provided to SHPD and OHA during early January. The Final EA will include these reports. Coastal access will be provided through the property.

2. Cumulative Impact Assessment. The potential cumulative impacts of the proposed project and other known projects for the region will be addressed in the Final EA. The shoreline setback requirement for structures will be addressed in the overall master plan EIS. No structures are proposed in the conservation district area as part of the coastal renaturalization plan.

3. Wetlands. There are very few wetland areas on this property that lie within the Conservation District, where the coastal renaturalization plan will be implemented. Further, the DEIS will discuss mitigation relating to the wetlands.

4. Burials. The PHRI study found no human remains present on the site.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for

Jeffery H. Overton, AICP
Chief Environmental Planner

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Serv
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

January 15, 2002

LD-NAV LOG-1721
Ref.: OCEANBAYLSPLAN.RCM

Group 70 International, Inc
Jeffery H. Overton, AICP
925 Bethel Street, Fifth Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Overton:

SUBJECT: Review: Draft Environmental Assessment
Applicant: Group 70 International, Inc., for EWM Kauai, Inc.
Project: Landscaping Plan for Ocean Bay Plantation at Hanamaulu (Coastal Re-naturalization Plan)
Location: Island of Kauai, Hawaii
Tax Map Key: 4th/ 3-7-3: 1; 3-9-5: 5

Thank you for the opportunity to review and comment on the Draft Environmental Assessment covering the proposed **Coastal Re-naturalization Plan** for Ocean Bay Plantation at Hanamaulu.

A copy of the Draft Environmental Assessment was submitted to the following Department of Land and Natural Resources' Divisions for their review and comment:

- Division of Forestry and Wildlife
- Land Division Planning & Technical Services
- Land Division Kauai District Land Office

The Department of Land and Natural Resources has no comment to offer on the subject matter.

Should you have any questions, please feel free to contact Nick Vaccaro of the Land Division Support Services Branch at 1-808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

c: Kauai District Land Office

Francis S. Oda, Arch. D., AIA, AICP
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Scott Tangonan
Sharon Ching Williams, AIA

February 12, 2002

Mr. Harry M. Yada, Acting Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, HI 96809

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Yada:

Thank you for your letter of January 15, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

We appreciate you circulating the document to the various DLNR divisions for comment, and we look forward to coordinating closely with DLNR during the project planning and development process.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for Jeffery H. Overton, AICP
Chief Environmental Planner

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DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA, Ph.D.
DIRECTOR
SHARON S. NARIMATSU
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
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Ref. No. P-9329

January 8, 2002

RECEIVED
JAN 9 = 2002
GROUP 70

Mr. Dee M. Crowell, Director
Planning Department
County of Kauai
4444 Rice Street, Suite 473
Lihue, Hawaii 96766

Attn: Mr. Keith Nitta

Subject: Ocean Bay Plantation, Hanamaulu, Kauai
Tax Map Key: 4-3-7-3: 1 and 4-3-9-5: 5

Dear Mr. Crowell:

The Office of Planning has reviewed the Landscaping Plan – Environmental Assessment (EA) for landscape work along the coastal area of a proposed mixed-use residential and golf course community at Hanamaulu, Kauai. The project is being proposed by EWM Kauai, LLC, the property owners.

The proposed project area is an approximately 29-acre strip of land that includes the northern rim of Hanamaulu Bay and goes around to the north for approximately half a mile. The strip varies between 100 and 200 feet in width. The property is in the State's Conservation District and is zoned Open (O) and Open: Special Treatment Ecological (O:ST-R) by the County of Kauai.

The project involves extensive clearing, pruning and grubbing of trees, shrubs and grasses based upon several criteria listed on pages 2 to 3 and upon a tree inventory and survey. This could potentially involve the removal of well-established ironwood trees with a height of 50 to 60 feet as well as other vegetation which help reduce soil erosion.

The EA provides illustrative conceptual drawings from the coastal renaturalization plan and also provides pictures of potential replacement trees and plants. These pictures show mature trees and plants. However, the EA does not provide information as to whether mature trees will be planted as replacements or whether smaller less mature trees will be planted.

To assure the full implementation/completion of the landscaping plan, we recommend the following:

1. A bond should be provided in the event that the project is not fully implemented and soil runoff/erosion causes damage. The bond could also be used to complete the landscaping in such a situation.

2. A monitoring plan be set up with the county (with picture reports or on-site visits) to assure that revegetation is taking place according to a defined schedule.

The EA mentions a proposal to place the property in the Limited Subzone which allows single family residences. The property was reclassified to the Conservation District because of its scenic and open space values. The development of structures on the property would not be consistent with this intent.

Finally, the application states that the area will be continuously maintained, but it is not clear if the area will be irrigated. The application says xeriscaping principles will be used in the restoration of the area so that water requirements are close to the natural precipitation rates, but the application also states that the adjacent proposed community will use treated effluent and an on-site non-potable well for irrigation. It would be helpful to know what happens to the 29-acre coastal strip if it does not receive its customary amount of rainfall. Would the coastal area be irrigated, and would it be irrigated by non-potable or potable sources?

Thank you for the opportunity to comment. Should you have any questions, please call Heidi Meeker at 587-2802.

Sincerely,

David W. Blane, AICP
Director
Office of Planning

c: Anthony Ching, Land Use Commission
✓ Jeff Overton, Group 70

Francis S. Oda, Arch. D., AIA, AICP
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February 12, 2002

Mr. David W. Blane, Director
Office of Planning
State of Hawai'i, Dept. of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, HI 96804

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Blane:

Thank you for your letter of January 8, 2002 regarding the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The recommendations for implementation of the coastal renaturalization plan are appreciated. Contractors performing the work will be bonded to ensure proper completion of the project and mitigation requirements. The project will be monitored closely with regular reports made to the DLNR and County.

This property is located within the Conservation District. However, there is no subzone designation for the subject property, which is required. Designating the subject property as "Limited" would remain consistent with the existing subzone areas on both sides of the project area.

No structures are planned for development in the conservation district portion of the property. The coastal renaturalization plan is intended to enhance the scenic and open space values, which are currently diminished by the extensive dead trees, diseased trees, tree litter and exotic species incursion.

There will be provisions made for temporary irrigation during the plant establishment period. The on-site non-potable well will be used as an irrigation source for the coastal planting areas.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for
Jeffrey H. Overton, AICP
Chief Environmental Planner

Group 70 International, Inc. • Architecture • Planning • Interior Design • Building Diagnostics • Assets Management • Environmental Services
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BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

RECEIVED
JAN 17 2002
GROUP 70

In reply, please refer to:
File:
01-176/epo

January 16, 2002

Mr. Jeffrey H. Overton, AICP
Chief Environmental Planner
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307

Dear Mr. Overton:

Subject: Draft Environmental Assessment (EA)
Ocean Bay Plantation at Hanamaulu Landscaping Plan
Tax Map Key: 4-3-7-3:1; 4-3-9-5:5 (Kauai, Hawaii)

Thank you for the opportunity to review and comment on the subject proposal. The EA was routed to the various branches of the Environmental Health Administration. We have the following comments:

Clean Water Branch (CWB)

Polluted Runoff Control

Proper planning, design and use of erosion control measures and management practices will substantially reduce the total volume of runoff and limit the potential impact to the coastal waters from polluted runoff. Please refer to the Hawaii's Coastal Nonpoint Source Control Plan, pages III-117 to III-119 for guidance on these management measures and practices for specific project activities. To inquire about receiving a copy of this plan, please call the Coastal Zone Management Program in the Planning Office of the Department of Business, Economic Development and Tourism at 587-2877.

The following practices are suggested to minimize erosion during construction activities:

1. Conduct grubbing and grading activities during the low rainfall months (minimum erosion potential);

2. Clear only areas essential for construction;

3. Locate potential nonpoint pollutant sources away from steep slopes, water bodies, and critical areas;

4. Protect natural vegetation with fencing, tree armoring, and retaining walls or tree wells;

5. Cover or stabilize topsoil stockpiles;

6. Intercept runoff above disturbed slopes and convey it to a permanent channel or storm drain;

7. On long or steep slopes, construct benches, terraces, or ditches at regular intervals to intercept runoff;

8. Protect areas that provide important water quality benefits and/or are environmentally sensitive ecosystems;

9. Protect water bodies and natural drainage systems by establishing streamside buffers;

10. Minimize the amount of construction time spent in any stream bed;

11. Properly dispose of sediment and debris from construction activities; and

12. Replant or cover bare areas as soon as grading or construction is completed. New plantings will require soil amendments, fertilizers and temporary irrigation to become established. Use high planting and/or seeding rates to ensure rapid stand establishment. Use seeding and mulch/mats. Sodding is an alternative.

The following practices are suggested to remove solids and associated pollutants in runoff during and after heavy rains and/or wind:

1. Sediment basins;

2. Sediment traps;

3. Fabric filter fences;

4. Straw bale barriers; and

5. Vegetative filter strips.

Any questions regarding these matters should be directed to the Polluted Runoff Control Program in the Clean Water Branch at 586-4309.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

Francis S. Oda, Arch. D., AIA, AICP
Norman G.Y. Hong, AIA
Sheryl B. Seaman, AIA, ASID
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Sharon Ching Williams, AIA

February 12, 2002

Mr. Gary Gill, Deputy Director
State of Hawai'i
Department of Health
P.O. Box 3378
Honolulu, HI 96801

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Gill:

Thank you for your letter of January 16, 2002 regarding the review of the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your specific comments for consideration in the Final EA.

We received the construction mitigation recommendations provided by the Clean Water Branch. Practices to minimize erosion and control polluted runoff will be implemented as specified under the Erosion Control Plan prepared by the consulting civil engineers. We are providing them with the information you indicated from the Nonpoint Source Control Plan. Approval of the Erosion Control Plan will be part of the County of Kauai Grading Permit conditions, and the NPDES permit.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.

for Jeffery H. Overton, AICP
Chief Environmental Planner

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DEPARTMENT OF WATER

County of Kauai

"Water has no Substitute – Conserve It!"

January 22, 2002

RECEIVED
JAN 23 2002
GROUP 70

Planning Department
County of Kauai
Attn: Mr. Keith Nitta
4444 Rice Street, # 473
Lihue, HI 96766

Dear Mr. Nitta:

Subject: Draft Environmental Assessment for the Ocean Bay Plantation at Hanama'ulu Landscaping Plan, TMK: 4-3-7-03:001, 4-3-9-05:005, Kauai, Hawaii

The Department of Water's comments are as follows:

We have no objections to this draft Environmental Assessment. However, the applicant is made aware that any actual subdivision or development will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

The applicant is made aware that the lots are located out of the Department's service area as defined in the Department's General Plan for Domestic Water.

If you have any questions, please contact Mr. Keith Aoki of my staff at 245-5418.

Sincerely,

for Ernest Y. W. Lau
Manager & Chief Engineer

cc: Group 70 International, Inc.

KAOki

— 4398 Pua Loke Street, Lihue, Kauai, Hawaii or P. O. Box 1706, Lihue, HI 96766-5706 —
Phone No. (808) 245-5400 – Administration FAX No. (808) 246-8628 – Engineering/Fiscal/Shop FAX No. (808) 245-5813

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Sharon Ching Williams, AIA

February 12, 2002

Mr. Ernest Y.W. Lau, Manager & Chief Engineer
Department of Water
County of Kauai
P.O. Box 1706
Lihue, Kauai, HI 96766-5706

Subject: Ocean Bay Plantation at Hanamā'ulu
Coastal Renaturalization Plan
Draft Environmental Assessment
TMK: 4-3-7-03. por. 1

Dear Mr. Lau:

Thank you for your letter of January 22, 2002 regarding the Draft Environmental Assessment (EA) for the above-referenced project. We have prepared the following responses to your comments for consideration in the Final EA.

The applicant is aware that any actual subdivision or development will be dependent on the adequacy of the source, storage and transmission facilities existing at that time. Further, we note your comment that the subject properties are located out of the Department's service area as defined in the Department's General Plan for Domestic Water.

For the purposes of the subject project to restore the natural vegetation along this shoreline area, the applicant intends to utilize non-potable water from an on-site well for irrigation purposes. There should be no effect on Department facilities as a result of the proposed activity.

Your comments and this response letter will be included in the Final EA. We will also forward you a copy of the Final EA upon its completion. We appreciate your participation in the environmental review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC.
Kathleen McCay
for
Jeffrey H. Overton, AICP
Chief Environmental Planner

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Section 7.0

Findings and Reasons Supporting Anticipated Determination

7.0 FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION

7.1 ANTICIPATED DETERMINATION

In accordance with the Hawai'i Revised Statutes, Chapter 243 and Hawai'i Administrative Rules, Section 11-200-12, an applicant or agency must determine whether an action may have a significant impact on the environment. According to Section 11-200-12, an action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

- **Involve an irrevocable loss or destruction of any natural or cultural resources.**

The proposed project does not involve any known destruction of existing natural or cultural resources. The project is located in the State of Hawai'i Land Use Conservation District and new development is planned for the relatively level areas near the adjacent residential area. Known historic sites have been identified and documented with no further work required. If during the course of construction any cultural or archaeological remnants are unearthed, the Historic Preservation Division of the State Department of Land and Natural Resources will immediately be notified, and their treatment will be conducted in strict compliance with SHPD requirements.

- **Curtail the range of beneficial uses of the environment.**

The proposed development is located in the State of Hawai'i Land Use Conservation District but it will not cause substantial adverse impact on the natural environment. The site improvements constitute a very limited encroachment on the conservation area and they are designed to blend in with the natural area. In addition, the use will be compatible with the surrounding locality.

- **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 environmental policies established in Chapter 344, Hawai'i Revised Statutes. Expanded landscaping will increase the number of native plant species, thereby contributing to maintaining and improving the existing natural habitats within the project area.

- **Substantially affects the economic or social welfare of the community or State.**

Landscape work will generate indirect and induced employment opportunities and multiplier effects, but not at a level that would generate any significant expansion. The short-term employment impacts will be beneficial to the local economy.

- **Substantially affects public health.**

The project does not substantially affect public health. The long-term benefits associated with the project outweigh the temporary impacts to air and noise levels.

- **Involves substantial secondary impacts, such as population changes or effects on public facilities.**

Improvements to the project area serve to maintain and protect its natural and scenic resources. No new facilities or structures are planned within the project area. The project will maintain and improve public access to the shoreline areas.

- **Involves a substantial degradation of environmental quality.**

It is anticipated that the proposed project will not involve a substantial degradation of environmental quality. To the contrary, the proposed development will significantly enhance an area that is now characterized as overgrown and cluttered. The proposed project is designed to have a minimal impact upon the Conservation District. Appropriate landscaping design will allow the new plantings to blend into the natural environment.

- **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.**

No plan or schedule currently exists for further development within the conservation area. The proposed project will be implemented as part of the overall future development of the area.

- **Substantially affects a rare, threatened or endangered species, or its habitat.**

Landscaping development of the project area will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. It is expected that during segments of selective removal of certain trees, birds that frequent the landscaped edge of the site will temporarily move to nearby undisturbed areas and will return when disturbances cease.

- **Detrimentally affects air or water quality or ambient noise levels;**

Short-term effects on air, water quality or ambient noise levels during the landscaping activity will be mitigated by compliance with the County of Kaua'i and State Department of Health rules, which regulate construction-related activities. After development, improvements to the site and related infrastructure should have no significant impacts on air and water quality, and on ambient noise levels.

- **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.**

Improvements to the project include the removal of damaged, dying, and dead trees, and overgrown areas that are considered a safety threat, or pose a fire hazard. Measures will be taken to minimize soil erosion that may occur from removal of tree stumps.

- **Substantially affects scenic vistas and view-planes identified in county or state plans or studies.**

The proposed landscaping activity is designed to improve existing scenic vistas and view corridors.

- **Require substantial energy consumption.**

The use of various landscaping tools and equipment will not consume substantial sources of energy. As a relatively small project, energy consumption during the work activity will be low.

7.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

As stated above, there are no significant environmental impacts expected to result from the proposed action. A Finding of No Significant Impact (FONSI) is anticipated. The improvements to the conservation area are consistent with the regulated uses within the "Limited" sub-zone designation. The coastal renaturalization plan will be beneficial by providing an opportunity of restoring an ecological balance to the area's natural habitat while enhancing the scenic quality of the area, thereby creating a greater public good.

Section 8.0

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APPENDIX A

Archaeological Inventory Survey-Ocean Bay Plantation at Hanamā'ulu, Land of Hanamā'ulu, Līhu'e District, Island of Kaua'i

PHRI, Inc.

September 2001

Report 2182-082101

Archaeological Inventory Survey
Ocean Bay Plantation at Hanamāʻulu

Land of Hanamāʻulu, Lihuʻe District
Island of Kauaʻi

PHRI
Paul H. Rosendahl, Ph.D., Inc.
Archaeological • Historical • Cultural Resource Management Studies & Services

Archaeological Inventory Survey Ocean Bay Plantation at Hanamā'ulu

Land of Hanamā'ulu, Lihu'e District Island of Kaua'i (TMK:4-3-7-3:1;4-3-9-5:5)

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SUMMARY

Paul H. Rosendahl, Ph.D., Inc. (PHRI) recently completed an archaeological inventory survey of the approximately 460-acre Ocean Bay Plantation at Hanamā'ulu site, located in the Land of Hanamā'ulu, Lihu'e District, Island of Kaua'i (TMK:4-3-7-3:1; 4-3-9-5:5). The work was done at the request of Mr. Jeff Overton of Group 70 International, representing EWM Kauai, LLC. The basic objective of the project was to provide information sufficient for (a) preparation of an Environmental Impact Statement (EIS) for the proposed development of the project site, and (b) compliance with the historic preservation regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the County of Kaua'i.

The current report is an upgraded version of an earlier PHRI report (Walker et al. 1991). The current project area had been previously surveyed in 1990 by PHRI for an Environmental Impact Statement that was to be prepared in connection with AMFAC/JMB Hawaii, Inc.'s Lihu'e/Puhi/Hanamā'ulu Master Plan Project. That inventory survey included virtually the entire current project site. The Walker et al. (1991) report was completed but was never submitted to SHPD for formal review. PHRI consulted with Dr. Ross Cordy, SHPD Archaeology Branch Chief, regarding the prior field survey and report, and in consultation with Dr. Cordy formulated the specific tasks needed to upgrade the prior report and survey. PHRI then proceeded with the required fieldwork and upgraded the report to its current state.

Four site complexes and six single-feature sites were identified in or in the vicinity of the project area. The sites and complexes were composed of a variety of formal feature types. The most common feature types are bridges (2), cultural deposits (2), and cemeteries (1 and possibly 2). Other feature types in the area include concrete foundations, a retaining wall, and a terrace. Transportation constituted one-quarter of the functional site types. This function is almost certainly connected to the sugar cane production and distribution that took place in the area. Temporary and possible permanent habitation constituted one-half of the functional types. These relate to the prehistoric use of the project area for habitation at the coast, doubtless for the procurement of marine resources.

Two test excavations, totaling 0.75 sq m in surface area, were dug within the project area at Sites 1839 (Feature B) and 1840. In addition to the test units, two bulk soil radiocarbon samples were collected from Site 1838, and a sample of mammal bone and diagnostic historic artifacts was collected from the surface of Site 1843.

Of the ten sites identified, six are assessed as significant under Criterion D only (important for information content) and are recommended for no further work (Sites 1838, 1839, 1840, 1841, 1843, 2068). One site (Site 1845), a historic concrete railroad bridge, is assessed as significant under multiple criteria (A, C, D). Further data collection followed by preservation with some level of interpretive development is recommended for the site. Another concrete bridge site (Site 1846) is assessed as significant under Criteria A and D and is recommended for further data recovery in the form of limited historical research. Site 2066, a complex with an upright, is recommended for further data recovery in the form of limited historical research and possible preservation. Site 2067, a historic cemetery located outside the current project area, is recommended for preservation "as is."

Contents

Introduction · 1

Background · 1
Scope of Work · 1
Project Area Description · 3
Previous Archaeological Research · 4
Field Methods and Procedures · 8

Findings · 10

Relocation of Sites · 10
Subsurface Testing and Surface Collection · 12
Site 1838 – Complex · 12
Site 1839 – Complex · 13
Site 1840 – Retaining Wall · 13
Age Determinations · 14
Portable Artifacts · 15
Midden · 19

Conclusion · 22

Summary and Discussion · 22
General Research Topics · 24
General Significance Assessments and Recommended General Treatments · 24

References Cited · 27

Appendix A: Site Descriptions · A-1

Appendix B: Historical Documentary Research · B-1

Tables

Table 1. Correlation of SIHP Site Numbers with PHRI Temporary Field Numbers · 9
Table 2. Summary of Identified Sites and Features · 11
Table 3. Frequencies of Formal Feature Types · 11
Table 4. Frequencies of Functional Feature Types · 12
Table 5. Summary of Radiocarbon Age Determinations · 14
Table 6. Detailed Distribution of Portable Artifacts, Site 1843 · 15
Table 7.Qualitative Distribution of Ecofactual Remains · 20
Table 8. Summary of General Significance Assessments and Recommended General Treatments · 25

Figures

Figure 1.Project Area and Site Locations · 2
Figure 2. Vase Rim Sherd · 16
Figure 3. Japanese Medicine Bottle · 18
Figure A-1. Site 1838, Feature A, View to NNE (1990) · A-3
Figure A-2. Site 1838, Feature A, View to NNE (2001) · A-3
Figure A-3. Site 1839, View to WSW (1990) · A-4
Figure A-4. Site 1839, Feature A, View to SW · A-4
Figure A-5. Site 1839 · A-5
Figure A-6. Site 1840 · A-7
Figure A-7. Site 1840, View to W · A-8
Figure A-8. Site 1840, Test Unit 1, View to W · A-8
Figure A-9 Site 1841, View to S · A-9
Figure A-10. Site 1841, View to NW · A-9
Figure A-11. Site 1843, Feature A, View to SW (1990) · A-12
Figure A-12. Site 1843, Feature A, View to W (2001) · A-12
Figure A-13. Site 1843, Feature A, View to ESE (1990) · A-13
Figure A-14. Site 1843, Feature A, View to W (2001) · A-13
Figure A-15. Site 1843, Features B and C, View to E (1990) · A-14
Figure A-16. Site 1843, Features B and C, View to E (2001) · A-14
Figure A-17. Site 1845, View to WSW (1990) · A-15
Figure A-18. Site 1846, View to W (1990) · A-15
Figure A-19. Site 1846, View to W (2001) · A-17
Figure A-20. Site 2066, Feature A Upright, View to S · A-17
Figure A-21. Site 2066 · A-18
Figure A-22. Site 2067, Two Gravestones · A-20
Figure A-23. Site 2067, Probable House Foundation · A-20
Figure A-24. Historic Trash Dump, View to W · A-21
Figure B-1. Document 336, Describing Boundaries of Hanama'ulu · B-9
Figure B-2. Document Describing Boundaries of Kalapaki · B-12
Figure B-3. 1930 Tax Map of Kalapaki Showing Location of LCAs · B-13
Figure B-4. 1927 Fire Insurance Map, Lihu'e Area · B-15

INTRODUCTION

BACKGROUND

Paul H. Rosendahl, Ph.D., Inc. (PHRI) recently completed an archaeological inventory survey of the approximately 460-acre Ocean Bay Plantation at Hanamā'ulu site, located in the Land of Hanamā'ulu, Lihu'e District, Island of Kaua'i (TMK:4-3-7-3:1; 4-3-9-5:5)(*Figure 1*). The work was done at the request of Mr. Jeff Overton of Group 70 International, representing EWM Kauai, LLC. The basic objective of the project was to provide information sufficient for (a) preparation of an Environmental Impact Statement (EIS) for the proposed development of the project site, and (b) compliance with the historic preservation regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the County of Kaua'i.

SCOPE OF WORK

The level of archaeological investigation generally conducted in conjunction with the preparation of an EIS is referred to as an *inventory survey*. The basic purpose of an *inventory survey* is to identify all sites and features of potential archaeological significance present within a specified project area. An inventory survey generally comprises the initial level of archaeological investigation, and is conducted to determine the presence or absence of archaeological resources. It indicates the general nature and variety of archaeological remains present, and the general distribution and density of such remains. Finally, it permits a general significance assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for any subsequent mitigation work (such as preservation, data recovery excavations, or construction monitoring) that might be necessary or appropriate.

The current project area had been previously surveyed in 1990 by PHRI for an Environmental Impact Statement that was to be prepared in connection with AMFAC/JMB Hawaii, Inc.'s Lihu'e/Puhi/Hanamā'ulu Master Plan Project. That inventory survey included virtually the entire current project site. The report for the earlier survey (Walker et al. 1991) was completed but was never submitted to SHPD for formal review. Prior to the fieldwork for the current project PHRI consulted with Dr. Ross Cordy, SHPD Archaeology Branch Chief, regarding our prior field survey and report, and the specific tasks and level-of-effort needed to upgrade the prior survey to current SHPD review standards.

The specific objectives of the 1990 survey were fourfold: (a) to identify all potentially significant archaeological remains present within the parcel; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains.

The following are the specific tasks for the current work. They were formulated based on consultation with Dr. Cordy, a review of prior archaeological survey work done in the general area, information derived from the 1990 inventory survey, and our familiarity with both the general project area and the current regulatory review requirements of the SHPD.

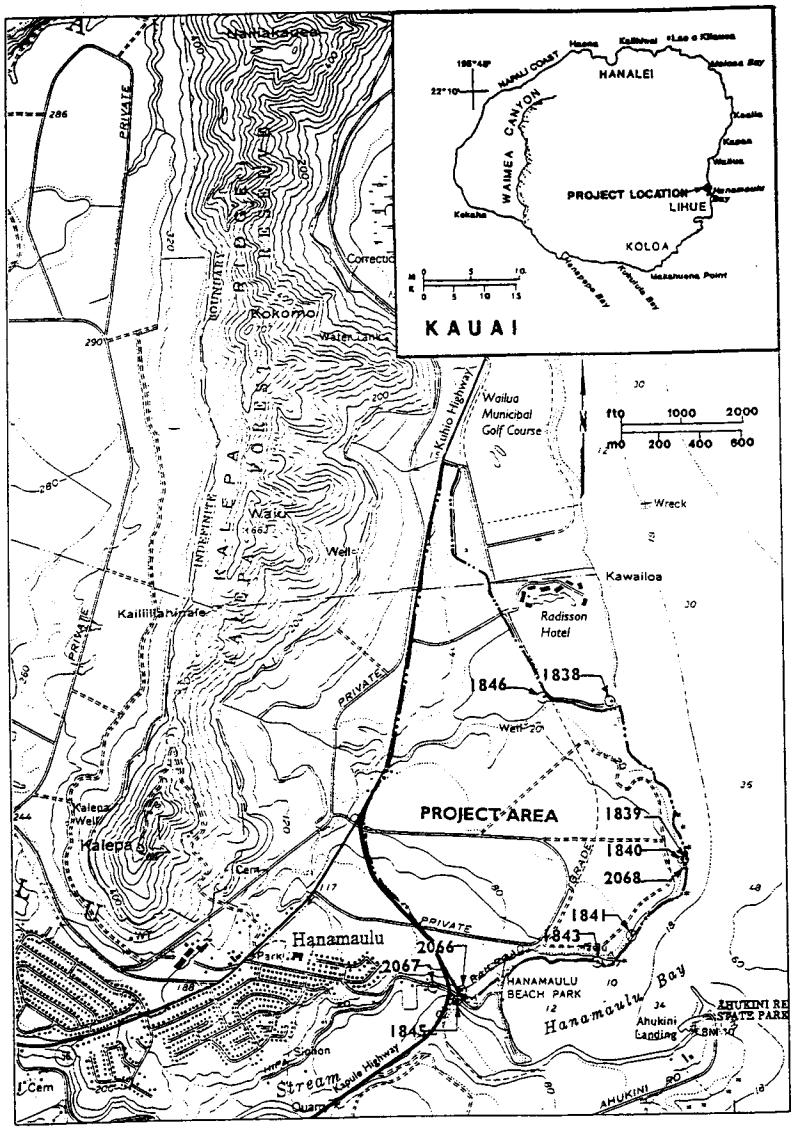


Figure 1. Project Area and Site Locations

1. Appropriate background review and research, including upgrading background section of the earlier PHRI 1990 survey report;

2. Mobilization – including fieldwork preparations, field crew travel, and demobilization;

3. Fieldwork – relocation and updated assessment of condition and significance of all previously identified sites, and detailed recording of any newly identified sites;

4. Post-field analyzes of fieldwork and other research data;

5. Prepare draft and final report; and

6. Coordinate and consult with client, client representatives, agency staff, etc. as appropriate and/or required.

Both the prior inventory and the current survey were carried out in accordance with the appropriate standards of the County of Kaua'i and the SHPD, as contained in the draft SHPD Administrative Rules, Title 13, Subtitle 13, Chapter 276 (DLNR 2001). The significance of archaeological remains identified within the project area was assessed in terms of Rules Governing Procedures for Historic Preservation Review (Chapter 284, Hawai'i Administrative Rules; DLNR 2001). DLNR-SHPD uses these criteria to evaluate eligibility for both the Hawai'i State and National Register of Historic Places. Significance criteria are discussed further in the *Conclusion* section.

PROJECT AREA DESCRIPTION

The project area consists of c. 460 acres and is located in the Land of Hanamā'ulu (*Figure 1*). It is bounded on the south by Hanamā'ulu Bay; on the east by the Pacific Ocean; on the west by the Hanamā'ulu-Ahukini cut-off road and Kuhio Highway; and on the north by Kaua'i Beach Road. The project area has, in the past, been subjected to sugar cane cultivation, but is abandoned at the present time. EWM Kauai, LLC intends to develop the property as a mixed-use residential and golf course community. This low-density master-planned community will include large open-space areas (to preserve the coastline strand), open space and wetland resources, and will maintain the open space character and sense of place of the surrounding area.

The terrain within most of the project area is generally level and consists of four classifications of soil: Lihu'e silty clay (0-8% slopes), Lihu'e silty clay (8-15% slopes), Lihu'e gravelly silty clay (0-8% slopes), and Koloa stony silty clay (15-25%) (Foote et al. 1972). The Koloa series soils are present immediately inland of the coastline. They developed in material weathered from basic igneous rock and overlie hard rock (Foote et al. 1972).

Vegetation in the immediate coastline and the coastal flats at the northeast corner of the project area, adjacent to the beach access road, consists predominately of ironwood (*Casuarina equisetifolia* L.), *naupaka-kahakai* (*Scaevoloa sericea* Vahl), grasses, and tree heliotrope (*Heliotropium anomalum* H. & A. var. *argenteum* Gray). There are three classifications of soil present within the immediate coastline: Rough broken land, Rock outcrop, and Beaches (Foote et al. 1972). The Rock outcrop land consists of exposed basalt and andesite bedrock, which covers

more than 90% of the surface (Foote et al. 1972). Within the southern half of the project area, the lands classified as Beaches are composed solely of basalt cobble and boulder areas that are constantly awash with waves. Present within the coastal flats at the northeast corner of the project area are three classifications of soil: Mokuleia fine sandy loam, Koloa stony silty clay (8-15% slopes), and Beaches (Foote et al. 1972). Within the coastal flats, the land classified as Beaches is composed of light-colored sands derived from coral and seashells.

Because the section of land inland of the Radisson Kauai Beach Resort Hotel is a low-lying drainage, sometimes containing standing water, vegetation in this area includes various reeds, sedges, grasses, and *hau*. Present within this area are three classifications of soil: Mokuleia clay loam (poorly drained variant), Lihu'e silty clay (25-40% slopes, eroded), and Hanalei silty clay (0-2% slopes) (Foote et al. 1972). According to Foote et al., Hanalei series soils are used for taro, pasture, sugarcane, and vegetable crops. Hanalei silty clay (0-2% slopes) specifically "...occurs on stream bottoms and flood plains" (Foote et al. 1972:38).

The area inland of the county park land appears to have been modified sometime in the past, as evidenced by the presence of secondary growth species such as *koa-haole* and Indian Pluchea (*Pluchea indica* [L.] Less.). Present within this area are four classifications of soil: Mokuleia clay loam (poorly drained variant), Lihu'e silty clay (25-40% slopes, eroded), Lihu'e gravelly silty clay (8-15% slopes), and Fill Land (Foote et al. 1972). According to Foote et al., Fill Land "...consists of areas filled with material from dredging, excavation from adjacent uplands, garbage, and bagasse and slurry from sugar mills. . .Generally, these materials are dumped and spread over marshes, low-lying areas along the coastal flats, coral sand, coral limestone, or areas shallow to bedrock".

Rainfall in the general vicinity of the project area ranges between 40-50 inches per year, and the mean annual temperature in the project area vicinity ranges from 70-75 degrees F (Armstrong 1983:63).

PREVIOUS ARCHAEOLOGICAL RESEARCH

In order to obtain the information necessary to compile this section on previous archaeological work in the project area, PHRI searched for relevant records and reports at the SHPD. According to SHPD records, the following four reports were supposed to be present in the SHPD Library, but these could not be found despite assistance from the SHPD staff and a memo to SHPD Staff Archaeologist for Kauai Nancy McMahon. This section was therefore written without the information from these reports:

Flores, K.K. 1995	Historical and Cultural Research at Malaehaakou, District of Puna, Island of Kauai, State of Hawaii.
Hammatt, H. 2001	Archaeological Assessment of the Proposed Sandwich Isles Communication Fiberoptic Cable Project within an Approximately 51 Mile Road Corridor Between Kekaha and Moloaa.

Kawachi, C.T.
1995 Archaeological Monitoring of the Kuhio Highway Widening Project, Wailua, Kawaihau, Kauai.

Stauffer, B.
1993 The Mahele Documents of Wailua, Kauai.

Archaeological work conducted within or immediately adjacent to the present project area includes investigations by Thrum (1907), Dickey (1916), Bennett (1931), Cox (1977), Kikuchi (1984), (Henry et al. 1993), Walker and Rosendahl (1990), Rosendahl (1990), Kawachi (1993), Folk and Hammatt (1994), Fager and Spear (2000), Creed et al. (2001), and Perzinski and Hammatt (2001).

In 1906 T.G. Thrum compiled a list of *heiau* for the Island of Kaua'i (Thrum 1907). Of the numerous *heiau* Thrum recorded, two (Ahukini and Kalauokamanu) are in the general vicinity of the present project area. Thrum, however, did not mark the location of the heiau on a map and his descriptions are brief. Thrum described Ahukini Heiau as "[a] medium sized heiau; all destroyed" and Kalauokamanu Heiau as "[a] large walled heiau that stood above the present mill; destroyed about 1855. Of pookanaka class" (1907:40).

In 1928-1929, while surveying sites on Kaua'i for B.P. Bishop Museum, Bennett described Ahuhini (Ahukini) and Kalauokamanu *heiau* and assigned them site numbers 101 and 102, respectively (Bennett 1931). In addition to repeating Thrum's site descriptions, Bennett indicates that Ahuhini Heiau was once located "...near Ahukini Point on the bluff overlooking the sea" (Bennett 1931:125). Because Bennett (1931) indicates both *heiau* had been destroyed, it appears the sites may not have been relocated. During his survey, Bennett (1931) recorded one other site (Site 103, dune burials) in the immediate vicinity of the present project area. Bennett describes Site 103: "[i]n the sand dunes that run along the shore half way between Hanamaulu and Wailua River are many burials" (125).

In 1949 Mrs. Rebecca Banks recorded 36 petroglyph figures on boulders stretching across the mouth of the Wailua River (Dickey 1916:16). These boulders became a National Historic Landmark in 1962. In 1973, Dr. Kikuchi and the Anthropology Club of Kaua'i Community College surveyed the same area and relocated the petroglyphs, some of which had bulldozer marks on them (Kikuchi 1984:8). In 1991, the Division of Water Resource Management, Design Section contacted the SHPD to do surveys of the mouths of Wailua and other Kaua'i rivers in order to determine the presence or absence of historic sites. During these surveys, none of the petroglyphs previously recorded were relocated; however, a boulder with petroglyph figures and a superimposed grinding facet, was identified and recorded (Kawachi 1993:30).

In 1972, F.K.W. Ching of Archaeological Research Center Hawaii, conducted a survey near Nawiliwili Bay for the Kanoa Estate (Ching et al. 1973, Neller and Palama 1973). This survey resulted in the examination of nine archaeological features, including three fishponds (Sites 98 [501], 3027 and 3028), two irrigation ditches (Sites 3029 and 3030), and the remains of four taro fields (all are now components of the North Niumalu Complex – HRHP Site 50-30-11-3168).

In 1972, Handy and Handy (1972) published an account of native Hawaiian agricultural practices. Handy and Handy speculate that because Hanamaulu Stream gulch, near the current project area, offers a suitable environment for prehistoric agriculture, it may contain numerous terraced flats. Handy and Handy also surmise that the stream gulch was covered with *lo'i* for wetland taro cultivation and extended approximately two and a half miles inland (1972:425-426).

In 1977, Archaeological Research Center Hawaii, Inc. (ARCH), provided consultant services and conducted salvage fieldwork during construction of a force main and effluent ponding basin north of the clubhouse of the Wailua Golf Course (Cox 1977). During the fieldwork, scattered human remains representing 13 burials were identified, most of which were on the western (*mauka*) side of sand dunes. Three of the burials were in an extended position, with the crania facing east or northeast, suggesting possible ceremonial significance. Following the investigation, the burial remains were left either *in situ* or were reinterred as near as possible to their original locations. Included in the report is osteological analysis of the remains and general comments regarding distribution. With the exception of historic railroad items, no other cultural remains (artifacts or deposits) were identified.

According to local informants, burial remains previously identified north of the golf course clubhouse were usually of sparsely distributed single individuals. But burial remains previously identified south of the clubhouse (toward Hanamaulu and the present project area) were often in groups or multiple individuals (Cox. 1977:27). The burials of this type identified within the Wailua Golf Course area are probably those referred to by Bennett (1931).

In 1993, Erkelens and Welch (1993) encountered a burial during investigations of a sewer line trench extending from Kaua'i Correctional Facility to Wailua Golf Course. Informants stated that "hundreds of bones" were found during construction of the golf driving range in the early 1960s (cf. Fager and Spear 2000:8).

In 1994 Cultural Surveys Hawaii was contracted to monitor backhoe trenching in order to install a fiber optic cable from the edge of the sea to Kuhio Highway, through the Wailua Golf Course at Wailua, Kaua'i. During the excavations and subsequent reroutings, several burials and disarticulated human remains were discovered. These consisted of (1) a single, discrete articulated adult; (2) several disarticulated adult bones; and (3) disturbed and disarticulated bones screened from the sand castings from the first original trench. These disturbed bones represented at least six individuals (three adults and three subadults)(Folk and Hammatt 1994:i).

Numerous burials were recovered during renovation of the golf course irrigation system in 2000. Scientific Consultant Services encountered 44 pre-contact burials with an additional 42 isolated finds of isolated bones from previously disturbed burials. In addition, pre-contact artifacts, including two adzes, a sinker stone, and a hammerstone were recovered, and historic artifacts such as glass and porcelain-ware were also found (Fager and Spear 2000).

Given the archaeological findings and cultural significance of the areas discussed above, Cultural Surveys of Hawaii in 2001 recommended mitigation in the form of a monitoring program in conjunction with construction of a proposed trail/bike path through Lydgate State Park (Creed et al. 2001).

Cultural Surveys of Hawaii in 2001 monitored construction activities associated with the expansion of Waikaea Bridge. However, after four monitoring days it was evident that the original widening of the channel and subsequent construction of the bridge in 1948 had removed any cultural materials that may have once existed there (Perzinski and Hammatt 2001).

PHRI Archaeological Investigations

Between November 1988 and April 1989 PHRI conducted an archaeological inventory survey of the Grove Farm Lihue/Puhi project area, located in the Lands of Nawiliwili, Niumalu, and Ha'iku, Lihue District. The survey resulted in identifying two sites (a historic

cemetery [Site 503], and a historic residence [Site 9390]). Subsurface testing revealed no subsurface cultural deposits. An additional inventory in eight small areas of the project area also revealed no archaeological sites (Henry et al. 1993).

In late 1989 PHRI conducted an archaeological inventory survey of the approximately 66-acre proposed Hanamaulu Affordable Housing project area (Walker and Rosendahl 1990). The parcel is centrally located between Hanamaulu Stream gulch, Kuhio Highway, and Hanamaulu-Ahukini cut-off road. The basic objective of the survey was to provide information sufficient for the preparation of an Environmental Assessment (EA). The survey included variable-coverage surface and limited subsurface archaeological inventory survey. During the surface survey, the only cultural remains identified were isolated coral fragments. No structural features or cultural deposits were encountered. The subsurface survey entailed excavation of nine backhoe trenches. The trenches yielded no cultural matrices, buried pondfields, subsurface horizontal features, portable cultural remains, or datable materials of any kind. As a result of these negative findings, no further archaeological work was recommended (Walker and Rosendahl 1990).

In late 1990, PHRI conducted an archaeological field inspection and limited subsurface testing of the Kalepa Radio Station and Kalepa Road Improvement project area located on Kalepa Ridge in the Land of Hanamaulu (Rosendahl 1990). During construction at the Radio Station site, previously unidentified human burial remains had been uncovered in a boulder mound, and the remains had been designated as Site 1827. DLNR-HPP/SHPO had been contacted and recovered portions of the burials.

The principal objectives of the field inspection were to identify all sites present within the project area and to assess the potential significance of all identified archaeological remains, and to define the scope of any subsequent archaeological work. The specific purpose of the field inspection for the Road Improvement project area was to identify any archaeological remains on or alongside a 500-ft-long section of an existing roadbed. During the inspection of the roadbed, no archaeological remains of any kind were identified, either within or immediately adjacent to the roadbed (Rosendahl 1990).

The field inspection of the Radio Station project area consisted of inspecting Site 1827 and the areas of disinterred burials and *in situ* burial remains previously identified by DLNR-HPP/SHPO. The purpose of the inspection was to determine if additional human burials were present and to make appropriate recommendations for further archaeological work. Because intact human burial remains had been found, and because there were still undisturbed areas within the project area suitable for burials, it was felt that there were probably additional burials in the area. It was also discovered that Site 1827 had originally functioned as a quarry or flake reduction area (Rosendahl 1990). Based on the findings of the field inspection, it was recommended that an alternative site be selected for the Radio Station project. Three alternative sites were later selected, and PHRI inspected these sites and conducted backhoe testing at two of the sites. Because one of the alternative sites (Alternate Site 1) was located atop a portion of Site 1827, it was not tested. No portable remains or human burials were present within the

trenches. Based on the fieldwork findings, PHRI recommended that the radio station be constructed at either Alternate Site 2 or 3 (Rosendahl 1990). No further archaeological work was recommended within the 500-ft section of existing gravel road (Road Improvement project area) (Rosendahl 1990).

FIELD METHODS AND PROCEDURES

The survey fieldwork for the project area was conducted October 3-11, 1990 under the supervision of Supervisory Archaeologist Alan T. Walker, assisted by Assistant Supervisory Archaeologist Jenny O'Claray and Field Archaeologists Mike Fager, John Murray, and Jack Harris. While planning the survey strategies, considerations included: (a) past land alteration patterns (sugar cane cultivation), and (b) prehistoric site distribution patterns (as shown in previous archaeological work). Because areas altered by sugar cane cultivation were unlikely to contain archaeological features, such areas (including portions of the current project area) were not surveyed fully, but were sampled. One hundred percent ground survey was conducted in all portions of the project area not cultivated in sugar cane. This included all coastal areas, unaltered stream gulches, and drainages within sugar cane fields, and the edges of all unaltered areas bordering sugar cane fields. Because previous archaeological work indicated that the immediate shoreline area of the Hanamā'ulu project area unit, and the coastal flats at the northeast corner of the Hanamā'ulu project area unit (adjacent to the beach access road) were likely to contain archaeological sites, they were covered 100%.

The surface survey was conducted in a series of pedestrian transects. Intervals between sweeping crewmembers were 15.0-20.0 m, depending on vegetation and terrain. To aid in relocating sweep areas and sites, sweeps were numbered sequentially. To ensure complete coverage, the edges of sweep areas were flagged with red- or blue-striped flagging tape. As sites were identified, they were flagged with pink-and-blue flagging tape and were assigned sequential PHRI temporary numbers prefixed by "T-," beginning with T-1. Subsequently, all identified sites were assigned permanent State Inventory of Historic Places (SIHP) site numbers. All sites were plotted on a blueline topographic map (1"=600' scale) provided by Helber, Hastert & Kimura (now Helber, Hastert & Fee) and were listed by sweep designations in a field notebook. Site plotting was aided by 1"=1000' scale, black-and-white, aerial photos (R.M. Towill Corp. Photo Nos. 1165-1 through –3, dated November 26, 1989 and Photo No. 8437-43 dated February 27, 1986).

Sites were then recorded on standard PHRI site record forms and were sketch-mapped, with orientation and site dimensions determined using metric tape and compass. At least one 35 mm black-and-white photograph was taken of each site (PHRI Roll Nos. 1566 and 1567). Sites were tagged with an aluminum strip bearing the site number, PHRI project number (90-894), the letters PHRI, and the date. This information was also written on pieces of flagging tape, which were then wrapped around stones and placed in protected areas on the site.

Two test units, totaling 0.75 sq m surface area, were excavated within the project area. Test Units were numbered sequentially within sites and were excavated using hand trowel, whisk broom, and dust pan. Test units were terminated on bedrock or on large bedrock boulders, below cultural matrices. Surface collection was done at two sites. Two bulk radiocarbon soil samples were collected from Site 1838 – one from a cultural deposit exposed in an eroding cut bank (Layer II) and one from an exposed surface deposit (Layer I). Diagnostic historic artifacts and a sample of mammal bone were collected from Site 1843.

To facilitate recovery of portable remains, all material excavated from the test units was processed through 1/4- and 1/8-in mesh. Because the test units contained no midden material, only midden recovered from the two bulk radiocarbon soil samples from Site 1838 underwent laboratory analysis. Soil samples were described in detail using standard procedures and terminology as set forth in the *Soil Survey Manual* (Soil Survey Staff 1962).

The fieldwork for the current project was conducted on August 10, 2001 by PHRI Supervisory Archaeologist Alan B. Corbin, M.A., and PHRI Field Technician Bruce M. Gothar. As previously mentioned, the purpose of the current project was to relocate and update the condition and significance of all sites previously identified during the 1990 survey, and to record any newly identified sites. During the process of relocating sites, three sites (2066, 2067, 2068) were newly identified. These were plotted on a USGS map and aerial photograph provided by the client. The sites were recorded on standard PHRI site record forms and at least one color photograph was taken of each site, generally from the same vantage point as the original site photograph taken during the 1990 survey. Newly identified sites were given a temporary site number (T-) and later were assigned permanent SIHP numbers (*Table 1*).

Table 1. Correlation of SIHP Site Numbers with PHRI Temporary Field Numbers

*SIHP	PHRI
2066	T-11
2067	T-12
2068	T-13

**State Inventory of Historic Places numbers: four-digit numbers prefixed by 50-30-08 or 11 (50=State of Hawaii; 30=Island of Kaua'i; 08 or 11=USGS 7.5' series quad map "Kapaa" or "Lihu'e, Hawaii").*

FINDINGS

RELOCATION OF SITES

During the present and previous survey a total of ten sites containing 14 features were identified within or immediately adjacent to the project area. *Figure 1* shows the locations of all of the identified sites. *Table 2* provides a summary of sites and their component features in terms of formal type, functional type, and completed fieldwork tasks. *Appendix A* provides detailed information for each site, including:

1. Site number — SIHP numbers and PHRI temporary site numbers. SIHP numbers are four-digit numbers prefixed by 50-30-08 or 11 (50=State of Hawaii; 30=Island of Kaua'i; 08 or 11=USGS 7.5" series quad map ["Kapaa" or "Lihu'e, Kaua'i". PHRI temporary numbers are one- and two-digit numbers prefixed by "T";

2. A site type designation - provides formal feature type for sites consisting of a single feature, or designates the site as a complex if site comprises more than one feature. Also lists total number of features present;

3. A description of site topography - a brief description of the terrain in the area of the site;

4. A listing of site vegetation - lists principal components of the vegetation within and in the vicinity of the site;

5. A statement of site condition - overall state of preservation of the site (poor, fair, good, or excellent);

6. An assessment of site integrity - degree of post-abandonment modification by human agencies (unaltered, partially altered, and completely altered) and nature of modifications, if any, with a determination of possession of integrity or non-possession of integrity of the site.

7. A probable age - indicates probable/possible age of the site (i.e., historic or prehistoric);

8. A functional interpretation - probable or possible functions for each site; or, if function cannot be determined, assigns indeterminate function. For sites with multiple functions, functions are separated by a hyphen;

9. A site description - a brief overall description of the site, listing types of constituent features, portable remains, if any, and other site data; and

10. Feature dimensions - maximum length, width, and height or depth. Dimensions immediately followed by a description of feature construction, associated portable remains, and other information.

Table 2. Summary of Identified Sites and Features

SIHP Site No.	Formal Site/Feature Type	Tentative Functional Interpretation	Fieldwork Tasks Completed DR	SC	EX
1838	Complex (2)	Habitation	+	-	+
A	Cultural deposit				
B	Cultural deposit				
1839	Complex (2)	Temporary habitation	+	-	-
	Wall				
	Terrace				
1840	Retaining wall	Transportation	+	-	+
1841	Road	Transportation	+	-	-
1843	Complex (3)	Transportation	+	-	-
A	Concrete foundation				
B	Road				
C	Concrete wall				
1845	Railroad bridge	Transportation	+	-	-
1846	Concrete bridge	Transportation	+	-	-
2066	Complex (3)		+	-	-
A	Upright	Possible burial			
B	Road	Transportation			
C	Foundation	Possible habitation			
2067	Historic cemetery	Burial	+	-	-
2068	Historic trash dump	Trash dump	+	-	-

DR=detailed recording (scaled drawings, photographs, and written descriptions)
SC=surface collections
EX=limited excavations

Four site complexes and six single-feature sites were identified in or in the vicinity of the project area. The sites and complexes were composed of a variety of formal feature types. The most common feature types in the project area are bridges (2), cultural deposits (2), and cemeteries (1 and possibly 2). Other feature types in the area include concrete foundations, a retaining wall, and a terrace (*Table 3*).

Table 3. Frequencies of Formal Feature Types

Formal Type	Number	Percent
Bridge	2	15
Cultural deposit	2	15
Road	2	15
Retaining Wall	1	7.7
Cemetery	1	7.7
Upright	1	7.7
Concrete wall	1	7.7
Concrete foundation	1	7.7
Terrace	1	7.7
Dump	1	7.7
Total	13	98.9

Transportation constituted one-quarter of the functional site types (*Table 4*). This function is almost certainly connected to the sugar cane production and distribution that took place in the area. Temporary and possible permanent habitation constituted one-half of the functional types. These relate to the prehistoric use of the project are for habitation at the coast, doubtless for the procurement of marine resources.

Table 4. Frequencies of Functional Feature Types

Function Type	Number	Percent
Transportation	3	25
Habitation	2	17
Temp. habitation	4	33
Burial	1 (poss. 2)	17
Refuse disposal	1	8
Total	12	100

SUBSURFACE TESTING AND SURFACE COLLECTION

During the initial survey in 1990, two test excavations, totaling 0.75 sq m in surface area, were dug within the project area. The purpose of the excavations was to determine the presence or absence of cultural remains and to attempt recovery of datable material. Excavations were placed at Sites 1839 (Feature B) and 1840. In addition to the test units, two bulk soil radiocarbon samples were collected from Site 1838, and a sample of mammal bone and diagnostic historic artifacts was collected from the surface of Site 1843. Both dating samples were submitted for age determination analysis.

Site 1838 - Complex

PHRI Radiocarbon Sample No. RC-891 was collected from a possible cultural deposit (Layer II) exposed in a cut sand bank. The possible cultural deposit (designated Feature A of Site 1838) was composed of charcoal-stained sand and contained sparse marine shell midden. The profile exposed in the cut sand bank displayed the following stratigraphy:

Layer	Description
I	0-5 cmbs; yellowish-brown (10YR 5/4 dry); sand; weak, very fine to fine, single grain structure; loose when dry, loose when moist, nonsticky and nonplastic when wet; lower boundary is abrupt and smooth in profile;
II	5-24 cmbs; grayish-brown (10YR 5/2 dry); coarse sand; weak, very fine to fine, single grain structure; loose when dry, loose when moist, nonsticky and nonplastic when wet; lower boundary is abrupt and smooth in profile;
III	24-65+ cmbs; pink (7.5YR 8/4 dry); coarse sand; loose when dry, loose when moist, nonsticky and nonplastic when wet; layer continues below base of exposed profile

A radiocarbon sample (PHRI No. RC-890) was collected from a possible cultural deposit (Layer I) exposed on the surface of a sand dune. The possible cultural deposit (designated Feature B of Site 1838) was composed of charcoal-stained sand and contained sparse marine shell. The soil layer is described as follows:

Layer	Description
I	0-7+ cmbs; dark grayish-brown (10YR 4/2 dry); sand to coarse sand texture; weak, very fine to fine, single grain structure; loose when dry, loose when moist, nonsticky and nonplastic when wet; layer continues below base of exposed deposit.

Site 1839 - Complex

Test Unit 1 (TU-1) measured 0.5 by 0.5 m and was placed within Feature B, a terrace (*Figure A-3; Appendix A*). The test unit was placed on the flat interior soil surface of the terrace, although no portable remains were visible. TU-1 displayed the following stratigraphy:

Layer	Description
I	0-5 cmbs; dark reddish-brown (5YR 2.5/2 dry); clay loam; structureless; many micro to coarse tubular roots; loose when dry, very friable when moist, slightly sticky and slightly plastic when wet; lower boundary is abrupt and smooth in profile;
II	5-30+ cmbs; dark reddish-brown (2.5YR 3/4 dry); loamy clay; weak to medium, very fine, subangular blocky structure; few micro tubular roots; loose when dry, very friable when moist, slightly sticky and slightly plastic when wet; layer continues below base of unit.

No shell midden or cultural material was encountered in the test unit. Excavation was terminated in Layer II at depth of 30 cmbs. Layer I appears to constitute a decaying organic horizon, and Layer II appears to be sterile subsoil.

Site 1840 - Retaining Wall

Test Unit 1 (TU-1) was 1.0 by 0.5 m and was placed against the base of the retaining wall (*Figure A-7; Appendix A*). Below a thin layer of decaying organic material, TU-1 displayed the following stratigraphy:

Layer	Description
I	0-30 cmbs (overlain by stone retaining wall); dark reddish-brown (2.5YR 3/4 dry); clay; weak, very fine, crumb structure; few fine to medium vesicular roots; few pores; hard when dry, firm when moist, slightly sticky and slightly plastic when wet; layer continues below base of unit.

With the exception of recent historic glass fragments, no cultural material (including shell midden) was encountered in the test unit. Upon examination of the west face profile of the test unit, it was determined that the retaining wall was built on the surface of Layer I. Excavation was terminated in Layer I at depth of 30 cmbs. Layer I appears to be sterile subsoil.

AGE DETERMINATIONS

Objectives and Methods

The purpose of age determination analysis is to provide initial chronological data to aid in assessing the relative significance of sites in the project area. Two samples of charcoal were chosen from discrete cultural deposits for age determination using radiocarbon analysis. Samples were selected based on the amount and nature of datable material present, stratigraphic context, and overall distribution within the project area. The two samples were submitted for radiocarbon analysis to Beta Analytic Inc. of Miami, Florida.

Using standard procedures, the samples were pretreated with an acid, alkali, acid series of soakings to remove carbonates and humic acids. After pretreatment, samples were combusted to form carbon dioxide gas, combined with lithium to separate the carbon, and hydrolized for conversion to liquid form. The liquid was then catalyzed to form benzene and placed in a liquid scintillation counter to determine the amounts of carbon-13 and carbon-12. The isotope values obtained during the counting process were then used to calculate the carbon-13/ carbon-12 ratio for each sample, with the final result being determined relative to international standards in order to reduce errors produced by carbon isotope fractionation. Processing of the samples proceeded normally.

Results

The results of the radiocarbon age determination are presented in *Table 5*. The age for each sample is reported as a range corresponding to the calendric age +/- two standard deviations. Ages were calibrated using the tables provided in Stuiver and Pearson (1986), which correct for variations in atmospheric carbon over time.

Both of the samples yielded definitive age ranges. Sample RC-891 yielded an age range of AD 1170 to 1400, indicating that occupation of Feature A of Site 1838 occurred during prehistoric times, and may have occurred as early as c. AD 1170. Sample RC-890, which was derived from Feature B at Site 1838, yielded an essentially modern age range.

Table 5. Summary of Radiocarbon Age Determinations

PHRI Lab.No. RC-	Lab. No. BETA-	Provenience	C-14 Age Yrs. BP (one sigma)	C-13/ C-12 Ratio	C-13 Adjusted C-14 Age Yrs. BP	*Calendric Range Yrs. AD
890	40267	Site 1838, Fea. B, Layer I 0-7 cmbs	101.1±0.7% modern	-16.8	40±60	—
891	40268	Site 1838, Fea. A, Layer II 5-24 cmbs	620±80	-19.5	710±80	1170-1400

*Calibrated according to Stuiver and Pearson (1986). Range at two sigmas.

PORTABLE ARTIFACTS

Non-Indigenous Artifacts

A total of 42 non-indigenous artifacts of recent historic age were collected from the project area. The assemblage derives entirely from Site 1843, and consists of ceramics and glassware. A detailed tabulation of artifacts by deposit area is presented in *Table 6*. No indigenous artifacts were recovered during the project. The results of the artifactual analysis are discussed below.

Table 6. Detailed Distribution of Portable Artifacts, Site 1843, Surface

Artifact Type	Subtype	Quantity
Ceramics		
	Porcelain sherd	22
	Ceramic sherd	5
	Subtotal:	*27*
Glass ware		
	Bottle	1
	Bottle fragments	13
	Vase fragments	1
	Subtotal:	*15*
	Total:	*42*

Ceramics

Twenty-seven ceramic and porcelain artifacts were recovered from the surface of Site 1843. Ceramic artifacts are classified based on a range of attributes, including paste color, texture, vessel form and diameter, and surface finish. Porcelain artifacts, which form a highly specialized class of ceramic artifacts, are manufactured using an extremely fine-grained white clay, and are characterized by a glassy surface finish and extreme hardness after firing (Shepard 1968).

Twenty-two of the ceramic artifacts are classified as porcelain. The specimens include ten rim sherds, one composite rim/base/body sherd, four base sherds, six body sherds, and one support. With the exception of one vase rim sherd and the six body sherds, all of the sherds derive from small or shallow bowls with non-restricted mouths. Bowl diameters, as measured from the rim sherds, range from 8-38 cm, while vessel wall thicknesses range from 2.0 to 8.0 mm. All but one of the bases are footed, each with a single-piece circular foot, and are convex in cross-section. The interior surface of all bowls is white with a glossy surface; one exhibits fine drying cracks. Exterior surfaces are more varied. Four of the bowls have exteriors that are white with a glossy surface. Eight of the bowls are decorated with fine blue floral or nature motifs that have been transferred onto a glossy white background; a ninth bowl has a blue floral design supplemented by green. The remaining bowl is hand-painted with an orange floral design.

The vase rim sherd derives from a narrow-mouthed vase with a non-restricted opening. The vase has a diameter of 8.5 cm and a vessel wall thickness that ranges from 3.0 mm at the rim to 6.0 mm below the rim. The vase is hand-painted with a band of daffodils against a green

background encircling the rim, and has a second, thin band of gold paint encircling the vessel body parallel to the rim. The exterior of the vase below the gold band is white and glossy, and is fluted (*Figure 2*). The interior surface is uniformly white and glossy.

Figure 2. Vase Rim Sherd

Figure 3a. Vase Rim Sherd

The support is hollow and attaches to a fragment of a base. It is hand-painted with an orange floral design similar to that noted on one of the bowl rim sherds, and may be a fragment of the same vessel. The support is 16.0 mm in diameter. The body sherds range in vessel wall thickness from 4.0 to 8.0 mm. Like the bowl fragments, all of the body sherds have interior surfaces that are white with a glossy finish. Three of the body sherds have exterior surfaces that are decorated with blue floral designs similar to those noted above, while a fourth exhibits a green transfer design rather than blue. The exteriors of the remaining two body sherds are a pale bluish-green with a glossy finish, and are ribbed in a manner similar to Fiesta Ware.

The five remaining ceramic artifacts (one rim sherd, two base sherds, and two body sherds) are manufactured from coarser textured clays. The rim sherd is manufactured from a very fine, buff to light orange silty-textured clay. Based on the orientation of the rim and the curvature of the sherd, the specimen most likely derives from a large, shallow, non-restricted bowl approximately 38.0 cm in diameter. Vessel wall thickness ranges from 8.0 mm at the rim, to 6.0 mm further away from the rim. The interior surface is decorated with a white glaze that exhibits abundant, fine drying cracks. The glaze is overlain by a thin black band of paint parallel to the rim, and a yellow painted flower. The exterior of the sherd is decorated with a white glaze and exhibits drying cracks.

One of the base sherds is manufactured from a fine, buff-colored paste that is silty in texture. The base is footed with a single-piece, flanged circular foot. Vessel wall thickness ranges from 5.0 mm for the foot, to 7.0 mm for the base. The interior surface is decorated with white glaze, and exhibits drying cracks and various fading stains. The exterior surface is decorated in an identical manner, including the drying cracks, and features two parallel ridges, one on the foot and the other at the juncture of the foot and vessel wall. The second base sherd is manufactured from a very fine, buff to light-orange colored, silty textured paste, similar to the rim sherd described above. The base is convex in cross-section, and is not footed. Both the interior and exterior surfaces are decorated with white glaze and exhibit drying cracks.

Both of the body sherds are manufactured from a fine, buff-to-white, silt-textured paste. One of the sherds is curved in a convex-concave pattern, suggesting the form of a plate or shallow bowl. It has a vessel wall thickness of 5.0 mm, and is decorated with a white, cracked glaze on both the interior and exterior surface. The other body sherd has a convex shape, and may derive from a bowl. Vessel wall thickness ranges from 3.0 to 5.0 mm. The interior surface of the sherd is decorated with a cracked, cream-colored glaze and is painted with several parallel blue bands. The exterior surface is painted with blue geometric and floral designs over the white glaze, and strongly resembles Pfaltzgraf Ware.

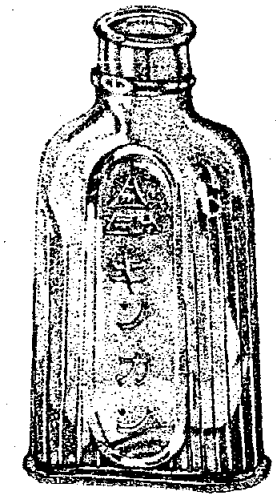
Glassware

Fifteen glass artifacts were encountered on the surface of Site 1843. The inventory includes one complete bottle, 13 bottle fragments, and a body fragment from a glass vessel of unknown form. Bottles are classified based on a range of attributes, including glass color, form, size, and manufacturing technique. Identifications of bottles and bottle fragments were augmented by comparisons with historic period bottles illustrated in Wilson and Wilson (1968), Putnam (1968), Fike (1987), Elliot (1971), and Garland (Appendix A *in* Walker 1985).

The complete bottle, which measures 9.5 cm by 4.5 cm by 2.5 cm, is a Japanese medicine bottle manufactured from dark amber glass (c. AD 1900-1918). The body of the bottle is mold-

made, indicated by a fine seam along each side, while the mouth and neck are hand tooled. There are oval recessed panels on both the front and back of the bottle; the front panel is embossed with four Japanese characters. A series of embossed parallel lines runs from the shoulder to the base of the bottle between the recessed panels (*Figure 3*).

Figure 3. Japanese Medicine Bottle



ACTUAL SIZE

Figure 3b. Japanese Medicine Bottle

The bottle fragments include six mouth/neck/shoulder fragments, six base fragments, and one body fragment. The fragments are manufactured from clear glass (3), clear irridized glass (1), pale green glass (3), dark brown glass (3), dark green glass (1), pale yellow glass (1), and lavender glass (1). The mouth/neck/shoulder fragments range in diameter from 1.4 to 3.8 cm, and

exhibit the following range of neck finishes: one reinforced extract with a double ring, one flat or patent neck, one bead finish, one crown finish, one ring or oil finish, and one composite crown and double ring (Fike 1987:8). The fragment with the reinforced extract and double ring neck finish is embossed with the statement "5 FLUID OZ."

Five of the base fragments are round in profile, while the sixth is classified as an "elixir" or "handy base" profile (Fike 1987:10). The round bases are uniformly 8.0 cm in diameter, and are generally convex in cross section. Three of the base fragments have embossed lettering. The letters "& S" appear on a dark brown base fragment, "P.C.C.W." appears on a pale green fragment, and "-AM'S POUND" appears on one wall of the elixir base fragment. The single body fragment is manufactured from clear glass, and represents portions of two sides of a rectangular bottle. The front of the fragment is embossed with the words "BOSTON, U.S.A."

The remaining glass artifact is a body fragment from a glass vessel of unknown form. It is manufactured from opaque white glass, and has a wall thickness of 2.0 to 5.0 mm. The exterior surface of the fragment is fluted, or impressed, with a series of parallel rectangular panels, in an alternating pattern of small and large panels. Above the panels, the fragment has a flat surface, which is painted with a floral motif of faded yellow flowers and green leaves. The interior surface of the fragment is undecorated

Summary

In general, the assemblage of non-indigenous artifacts recovered during the current investigation suggests that areas surrounding Site 1843 served as a periodic refuse area during the late 19th and early 20th centuries. The artifacts are generally fragmentary, indicating that they have been disturbed since being discarded and deposited at the site. No artifactual remains were encountered in the deposits from Sites 1838 and 1839.

MIDDEN

Objectives and Methods

The variety and content of food remains within midden deposits provide useful information concerning prehistoric diet and resource utilization. The analysis of midden remains for the current project has two primary objectives:

1. To determine midden content; in particular the variety and distribution of the remains for each cultural deposit encountered within the project area;

2. To provide an indication of dietary and resource exploitation patterns for each site, and for the project area as a whole;

All midden recovered from the bulk soil radiocarbon samples and surface collection underwent detailed analysis. No midden was present in the test units. Detailed analysis involved splitting the sample into two size classes by passing each sample through 1/4-inch and 1/8-inch mesh. One hundred percent of the material retained in the 1/4-inch screen was completely sorted to the lowest taxonomic level possible, while the material retained in the 1/8-inch screen was inspected both for artifactual material and for taxa not encountered in the larger portion of the sample. Marine shell identifications were verified and augmented using Kay (1979).

The sampling design outlined above is adapted from Kirch (1979), based on a series of experiments measuring the relative distribution of molluscan and bone material retained on each screen. Kirch concluded that use of the screening process increased the speed of the sorting process without decreasing either the accuracy or statistical validity of the overall analysis. The taxonomic distribution and weight of material retained on the 1/4-inch screen should thus be considered representative of the variety and relative percentages of each taxon present in the sample.

Results

The range of taxa present in the midden sample from each deposit is summarized in *Table 7*. Total weights for each taxon (in grams) are tabulated by site and feature, with subtotals indicating

Table 7. Qualitative Distribution of Ecofactual Remains

Material	Site 1838 Feature A Level II	Site 1838 Feature B Level I	Site 1838 Site Total	Site 1843 Surface	Grand Total
MOLLUSCA					
GASTROPODA					
TURBINIDAE					
Turbo sanwicensis	-	3.40	3.40	-	3.40
NERITIDAE					
Nerita picea	-	1.84	1.84	-	1.84
STROMIDAE					
Strombus maculatus	0.03	-	0.03	-	0.03
HIPPONICIDAE	0.19	0.42	0.61	-	0.61
CYPRAEIDAE	-	1.84	1.84	-	1.84
THAIDIDAE	-	4.43	4.43	-	4.43
CONIDAE	-	0.96	0.96	-	0.96
PLEUROBRANCHIDAE					
Operculatum aurantium	-	0.29	0.29	-	0.29
SUBTOTAL GASTROPODA	**0.22**	**13.18**	**13.40**	**0.0**	**13.40**
OTHER INVERTEBRATES					
ECHINOIDEA	0.35	1.5	1.85	-	1.85
TOTAL INVERTEBRATES	**0.57**	**14.68**	**15.25**	**0.0**	**15.25**
VERTEBRATE					
BONE	-	-	0.0	7.66	7.66
TOTAL	**0.57**	**14.68**	**15.25**	**7.66**	**22.91**

the combined weight per feature for each larger material class (e.g., gastropods). The total weight of each taxon in the project area is provided in the final column of the table, while the grand total represents the combined weight of all the midden materials for the project area.

In general, the taxa represented by the midden samples taken from the project area are common inhabitants of the shorelines, shallow-water areas, solution benches and fringing reefs of the windward islands of the Hawaiian chain. By weight, 58.5% of the 22.91 grams of midden material recovered from the project area is contributed by marine gastropods, 8.1% is contributed

by echinoids, and 33.4% by mammal bone. No vegetal remains were encountered in the deposits. The range and relative weight percentages of taxa at each site show somewhat different patterns than those noted for the project area as a whole. The deposits associated with Site 1838 are composed entirely of marine gastropods and echinoids, while the deposits encountered on the surface of Site 1843 are composed entirely of mammal bones.

The results of the midden analysis indicate that subsistence patterns at Site 1838 included limited collection and consumption of marine resources, ranging from several taxa of marine gastropods to echinoids. All of the marine taxa represented in the midden deposits, both at the site and feature level, were readily obtainable in the shallow-water areas immediately off shore, from tidal pools, or from the solution benches and fringing reefs located near the shoreline. The mammal bones on the surface of Site 1843 may indicate a subsistence pattern that included exploitation of terrestrial resources, but were more likely deposited as refuse, similar to the glass and ceramic artifacts described above.

CONCLUSION

SUMMARY AND DISCUSSION

The archaeological inventory survey of the current Hanamā'ulu project area was executed in two phases. The first phase was an inventory survey done in 1990, and the second phase comprised the recent field inspection, site relocation, and updating of data for the previously identified sites. The 1990 survey included a 100% ground survey of all areas not planted in sugar cane, limited survey and inspection of areas planted in sugar cane, and limited subsurface testing. Only limited surface survey was done in areas of sugar cane fields because surface archaeological features are not likely to have survived in such heavily modified areas. Previous archaeological work conducted in the vicinity of the present project by Walker and Rosendahl (1990) has demonstrated the absence of archaeological features in sugar cane fields. During the Walker and Rosendahl (1990) work a sample area (c. 33%) of an area from which sugar cane had been recently harvested was examined and tested using a backhoe. The ground visibility was excellent. No surface sites were identified, and the backhoe test excavations revealed only several small, isolated coral pebbles (Walker and Rosendahl 1990).

Given the extensive sugar cane cultivation that occurred within the present project area, it is not surprising that the present survey confirmed that only a limited number of archaeological sites are present. The sites include four complexes and six single-feature sites, and comprise the following functional feature types: habitation (cultural deposit, wall, and terrace), transportation (retaining wall, road, concrete foundation, concrete wall, and concrete bridge), burial (one historic cemetery and one upright [possible burial]), and refuse disposal. A few prehistoric sites were identified, but generally the sites are historic. The overall physical condition and integrity of the sites varies from poor to good.

Two general patterns exist in the overall distribution of the formal and functional types, and it appears the patterns are directly influenced by historic period activity. First, of the ten sites identified, all are in areas minimally modified or unmodified by historic period land alteration. Second, all the historic period sites (Sites 1840, 1841, 1843, 1845, 1846) are located along or near the coast. These historic sites were all probably connected by a historic road that followed the coastline and which may be associated with Ahukini Landing on the south side of Hanamā'ulu Bay (Site 1843, however, probably predates Ahukini Landing). The historic period artifacts recovered from Site 1843 may reflect habitation associated with the small wharf area, or with inhabitants of a small support community in the immediate area. The historic dump (Site 2068) may or may not be associated with the transportation route. The people who created the dump may have been involved in the cane or transportation business, but the artistic and apparently expensive glass represented by the fragments encountered at the site may indicate the dump creators were of a relatively higher-status.

In the process of relocating the sites of the 1990 survey, three additional sites were newly identified. One of the sites, a historic period cemetery (Site 2067), is located adjacent to Hehi Road, and is just outside the present project area. It is currently still semi-maintained and visited. The second site, an early shrine/possible burial site (Site 2066), is also just outside the project area, on a bluff at the edge of the sugar cane field abutting the Hanamā'ulu-Ahukini Cutoff Road. This area, south of the cane road, will not be impacted by the planned construction of the housing community/golf course. The third site, 2068, is a trash dump on a small bluff overlooking the ocean.

The sites in the project area associated with sugar cane cultivation are associated, specifically, with Lihu'e Plantation. Lihu'e Plantation developed the sugar cane industry in this part of Kaua'i during the early historic period. Its history is described in more detail in the historical documentary research portion of this report (*Appendix B*). Cultivation of sugar cane within most of the current project area has continued through recent times.

Two sites within the project area (Sites 1838 and 1839) are prehistoric. Both are located on the coast and are assigned habitation functions. Based on an age determination result from a single radiocarbon sample collected from Site 1838, it appears that occupation of the coastal zone within the project area may have occurred as early as AD 1170-1400. The date recovered from the project area correlates with one of the later prehistoric periods (the Expansion Period, AD 1100-1650) proposed by Kirch (1985). The Expansion Period (AD 1100-1650) is characterized by numerous developments, including a rapid increase in population and intensified agricultural practices (large-scale irrigation, dryland cultivation, and aquaculture). These resulted in the creation of new social, political, and religious forms (Kirch 1985:303-306). Development of the *ahupua'a* system, a system of land division and related social organization unique to Hawaii, led to a more complex level of social and political integration (Hommon 1976, Green 1980).

Because of the extensive historic modifications in the current project area, and the resulting loss of prehistoric sites, we must rely on historical documentary research and previous archaeological work in surrounding areas to gain an understanding of the prehistoric settlement pattern for this area of Kaua'i. Based on such information, prehistoric settlement in the immediate vicinity of the present project area seems to have taken place primarily in Hanamā'ulu Stream gulch and along the coast (Bennett 1931, Handy and Handy 1972). Hanamā'ulu Stream gulch appears suitable for wetland taro cultivation and probably contained an extensive agricultural system comprising *lo'i* and terraces (Handy and Handy 1972). On the coast at Wailua, or the beach area in Hanamā'ulu Bay, burial (in sand dunes) and habitation activities probably took place (Bennett 1931, Cox 1977). Because the coast between Hanamā'ulu Bay and Wailua Golf Course consists of a rocky shoreline, activities along the coast of the present project area were probably restricted to marine resource exploitation and temporary habitation.

The higher lands surrounding the coastline (currently in sugar cane), and Hanamā'ulu Stream gulch were probably used for dryland agriculture (probably including crops such as sweet potato and breadfruit [Handy and Handy 1972]). Known functional activities occurring in the Kalepa Ridge area included burial, quarry or flake reduction, and ceremonial activities. The location of a now destroyed *heiau* (Kalauokamanu) was noted by Bennett (1931) and a quarry or flake reduction activity area subsequently reused as a burial site (Site 1827) has been noted by Rosendahl (1990).

Prehistoric settlement within coastal areas of this general southeastern area of Kaua'i, the Lands of Hanamā'ulu, Kalapaki, Nawiliwili, Niumalu, and Wailua, appears to have been concentrated at Huleia Valley-Nawiliwili Bay and Wailua River Valley-Wailua Bay. According to Joesting (1984), the Wailua area was a highly desirable place of residence and was the principal residence of Kaua'i's high chiefs. The chiefly importance of the Wailua area is further evidenced by the number of *heiau* concentrated within that general area (Malae, Poliahu, Holoholoku, and Hikinaakala are among the many *heiau* named) (Thrum 1907). Because the Wailua River Valley provides a permanent fresh water source and contains large tracts of fertile alluvial and colluvial soils, it is ideally suited for the cultivation of native crops to sustain a large population. Such a population would provide the labor force such as a complex chiefdom would need in order to function.

In much the same way as Wailua operated, the Huleia Valley probably also supported a substantial prehistoric population. This is evidenced by an extensive agricultural system of taro terraces and a large fishpond (Alekoko Fishpond) in Huleia Valley (Handy 1940, Neller and Palama 1973, Ching et al. 1973). Important nearby ceremonial sites include, but are not limited to, Kuhiau Heiau, Ninini Heiau, and Ahukini Heiau (Thrum 1907, Bennett 1931, Stauder 1973). Kuhiau Heiau, in Nawiliwili, has been described as the largest and most famous on Kaua'i in its day (Stauder 1973) (Thrum 1907).

GENERAL RESEARCH TOPICS

With regard to the scientific research value of sites and features within the Hanamā'ulu project site, the general goal of future research should be to obtain information on the culture history and lifeways of the Hawaiian population that occupied the project area. Future archaeological research should include the following:

1. Definition of the nature (temporary, semi-permanent, or permanent) and sequence (single or recurrent) of occupation within the project area to determine if the inhabitants were local residents, or were simply transiting through the area to places such as Wailua Bay or Nawiliwili Bay;

2. Definition of the marine resources and the methods, techniques, and technologies of marine resource exploitation;

3. Detailed historical documentary research aimed at expanding current knowledge regarding the nature of the identified Historic Period sites and their relationship to Lihu'e Plantation or sugar cane cultivation; and

4. Examination and analyses of archaeological data with traditional and historic references.

GENERAL SIGNIFICANCE ASSESSMENTS AND RECOMMENDED GENERAL TREATMENTS

Significance assessments and recommended general treatments for all identified sites are summarized in *Table* 8. Significance categories used in the site evaluation process are based on Rules Governing Procedures for Historic Preservation Review (Chapter 284, Hawai'i Administrative Rules; DLNR 2001). The DLNR-SHPD uses these criteria for evaluating cultural resources. Sites determined to be potentially significant for information content fall under Criterion D, which defines significant resources as ones that "...have yielded, or may be likely to yield, information important in prehistory or history." Sites potentially significant as representative examples of site types are evaluated under Criterion C, which defines significant resources as those which "...embody the distinctive characteristics of a type, period, or method of construction...or that represent a significant and distinguishable entity whose components may lack individual distinction."

Sites with potential cultural significance and value (Criterion E) are evaluated under guidelines prepared by the Advisory Council on Historic Preservation (ACHP) entitled "Guidelines for Consideration of Traditional Cultural Values in Historic Preservation Review" (Draft Report, August 1985). The guidelines define cultural value as "...the contribution made by

a historic property to an ongoing society or cultural system. A traditional cultural value is a cultural value that has historical depth." The guidelines further specify that "[a] property need not have been in consistent use since antiquity by a cultural system in order to have traditional cultural value."

All of the project sites were evaluated using the criteria mentioned above. Also, all sites were evaluated on the basis of major ongoing research issues revolving around general questions of chronology, settlement and exploitative patterns, site and assemblage variability, material culture and technology, diet and economy, and socio-religious values.

Six of the total ten sites identified (Sites 1838, 1839,1840,1841,1843, and 2068) are assessed as significant only under Criterion D (information content), with no further work required (*Table 8*). These sites have been recorded and described at such a level as to sufficiently mitigate their possible destruction.

Table 8. Summary of General Significance Assessments and Recommended General Treatments

Site No.*	Integrity	Significance Evaluations					General Recommendations			
		A	B	C	D	E	FDC	NFW	PID	PAI
1838	-	-	-	-	+	-	-	+	-	-
1839	+	-	-	-	+	-	-	+	-	-
1840	+	-	-	-	+	-	-	+	-	-
1841	-	-	-	-	+	-	-	+	-	-
1843	-	-	-	-	+	-	-	+	-	-
1845	+	+	-	+	+	-	+	-	+	-
1846	+	+	-	-	+	-	+	-	-	-
2066	-	-	-	-	+	+	+	-	-	#
2067	+	-	-	-	+	+	-	-	-	+
2068	-	-	-	-	+	-	-	+	-	-

General Significance Categories:

A = Important for historical contribution to significant events and/or broad patterns of history
B = Important for association with the lives of important individuals in history
C = Excellent example of site type at local, region, island, State, or National level
D = Important for information content
E = Culturally significant

Recommended General Treatments:

FDC = Further data collection necessary (detailed recording, surface collections, and limited excavations, and possibly subsequent data recovery/mitigation excavations)
NFW = Not further work of any kind necessary, sufficient data collected, archaeological clearance recommended, no preservation potential
PID = Preservation with some level of interpretive development recommended (including appropriate related data recovery work)
PAI = Preservation "as is", with no further work (and possible inclusion into landscaping), or possibly minimal further data collection necessary

**State Inventory of Historic Places numbers: four-digit numbers prefixed by 50-30-08 or 11 (50=State of Hawaii; 30=Island of Kaua'i; 08 or 11=USGS 7.5' series quad map "Kapaa" or "Lihu'e, Hawaii")*

#Possible Preservation "As Is"

No further work is recommended for Site 1838 since it has been previously tested and is now eroded to such a degree that further research would not be feasible.

The newly identified historical refuse dump (Site 2068) has been measured, described, photographed, and plotted, and no further work is recommended.

Sites 1839 and 1840 have been tested, and data collected from these sites during the prior survey and current project is considered sufficient. Their preservation is not essential.

One site (Site 1845), a historic bridge distinctive due to its multiple arched style of construction, is assessed as significant under Criteria A, C, and D (A-important for historical contribution to significant events and/or broad patterns of history; C-excellent example of a site type; D-important for information content). Further data collection, including limited historical research, followed by preservation with some level of interpretive development is recommended.

Site 1846, another concrete bridge site, is assessed as significant under Criteria A and D and is recommended for further data recovery in the form of limited historic research in order to further determine its relationship to historic events, for example, its relationship to the cane and associated railroad operations.

Site 2066, which contains the shrine/possible burial, although it will not be impacted, is recommended for further work in the form of limited historical research to determine the relationship of the upright at the site to a possibly existing cemetery and historic house site.

The historic cemetery (Site 2067) is recommended for preservation "as is," although it is outside the current project.

One area that may contain prehistoric subsurface agricultural deposits is located outside the project area, inland of the Radisson Kauai Beach Resort. This area consists of a low swale and drainage, and sometimes contains standing water (an area suitable for wetland agriculture).

The evaluations and recommendations presented within this final report have been based on a variable-coverage surface and limited subsurface inventory survey of the project area. Due to the limitations of such surveys, there is always the possibility, however remote, that potentially significant, unidentified surface or subsurface cultural remains will be encountered during the course of future investigations in the area. In such situations, archaeological consultation should be sought immediately.

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APPENDIX A: SITE DESCRIPTIONS

The following site descriptions are from two sources: the descriptions for Sites 1838, 1839, 1840, 1841, 1843, 1845, and 1847 are from the 1990 survey fieldwork, and the descriptions for newly identified Sites 2066, 2067, and 2068 are from the current field work. All previously identified sites were relocated and inspected during the recent fieldwork. If necessary, updated information on the sites is presented here so that both the site's condition in 1990 and its current condition in 2001 are clearly defined. Photographs taken during the 2001 survey are not presented when they are virtually identical to those taken during the 1990 survey; they are, however, on file at the PHRI Hilo office.

SITE NO.: State: 1838 PHRI: T-1
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Undulating terrain of sand mounds and ponds southwest of site.
VEGETATION: Grass, ironwood trees, ground vines.
CONDITION: Fair-good
INTEGRITY: Altered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Possible cultural layers.
DESCRIPTION: The site consists of two culture deposits (Features A and B). The overall dimensions are c.70.0 m by 10.0 m.

FEATURE A: Cultural deposit
FUNCTION: Habitation
DIMENSIONS: 2.40 m by 0.60 m
DESCRIPTION: The cultural deposit is a mound that may have been pushed by a bulldozer. The north-northeast face of the mound is exposed by natural erosion, revealing a stratigraphy of four layers. The cultural deposit is a dark, gray/black, charcoal-flecked layer with scattered waterworn shells and coral fragments. The deposit (Layer III) contained a high concentration of marine midden and coral fragments. East of the exposed area of the deposit are deep pockets that may have been caused by erosion.

FEATURE B : Cultural deposit
FUNCTION: Habitation
DIMENSIONS: 1.70 m by 1.70 m
DESCRIPTION: This is a dark grayish-black sandy surface layer with dense of coral and shell fragments scattered on the surface.

Feature B is on a fairly level area on top of a south-southwest slope. The southwest side of the feature is a natural swamp or pond; *naupaka* and beach heliotrope are present around the feature. A road is immediately north-northeast of Feature B. Vehicle tracks were observed on the feature.

Updated Information: Feature A has been has been further eroded since the 1990 survey and is now approximately 9.00 m by 7.00 m by 0.40 m. A cultural layer is still slightly visible, but the overall condition is now poor. Feature B was not found. The general area is heavily used for picnicking, with scattered modern trash. Compare photographs *Figure A-1* (1990) and *A-2* (2001) taken from the same vantage point.

SITE NO.: State: 1839 PHRI: T-2
SITE TYPE: Complex (2 Features)
TOPOGRAPHY: Generally flat with a slight slope toward the ocean; basalt boulders scattered throughout.
VEGETATION: Ironwood (ground is covered with ironwood needles)
CONDITION: Fair
INTEGRITY: Unaltered
PROBABLE AGE: Prehistoric
FUNCTIONAL INTERPRETATION: Temporary habitation
DESCRIPTION: The site consists of a wall (Feature A), and a terrace (Feature B) (*Figures A-3, A-4, A-5*). The overall dimensions of the site are c. 20.0 m at 220° by 10.0 m.

FEATURE A: Wall
FUNCTION: Temporary habitation
DIMENSIONS: 8.40 m by 1.70 m by 0.75 m
DESCRIPTION: The feature is constructed with basalt boulders and small basalt cobbles and is stacked two courses high. It is oriented c. 45.0 m southeast of Site 1840, heading south at 220° from the feature. This feature is on generally flat terrain, sloping slightly toward the ocean. Ironwood trees in the vicinity.

FEATURE B : Terrace
FUNCTION: Indeterminate
DIMENSIONS: 9.20 m by 7.50 m by 0.47 m
DESCRIPTION: This terrace is connected to an earth berm. It is located c. 15.0 m north at 40° of Feature A, and 16.0 m north of the ocean. It is on a generally flat area, sloping slightly toward the ocean, about 16.0 m north.

Updated Information: Features A and B are virtually unchanged since the previous survey. A newly identified site, Site 2068, was recorded approximately 28 m to the northeast.

SITE NO.: State: 1840 PHRI: T-3
SITE TYPE: Retaining wall
TOPOGRAPHY : Top edge of N-S running coastal bluff sloping slightly to the east. Red clay with scattered boulders.
VEGETATION: False ironwood, grasses, and *'Ilima*.
CONDITION: Good
INTEGRITY: Altered
PROBABLE AGE: Historic

Figure A-1. Site1838, Feature A, View to NNE (1990)

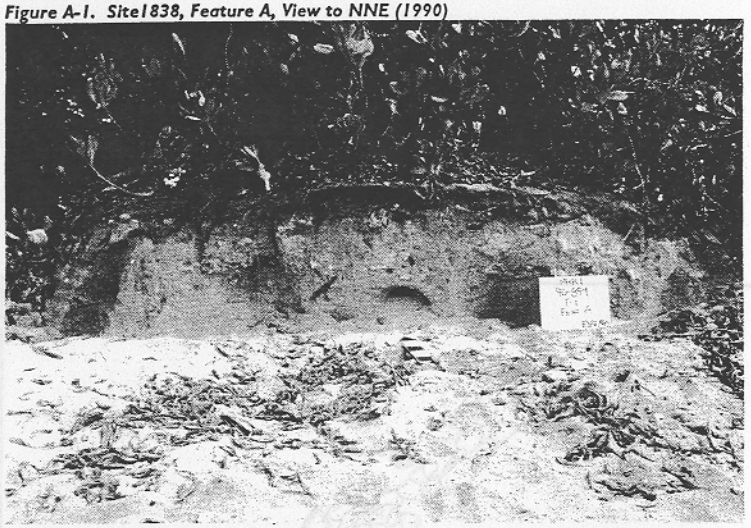


Figure A-2. Site 1838, Feature A, View to NNE (2001)

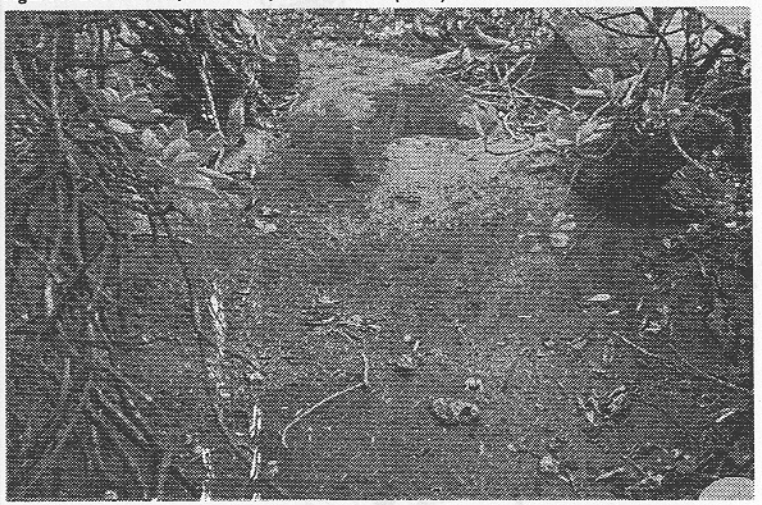


Figure A-3. Site 1839, View to WSW (1990)

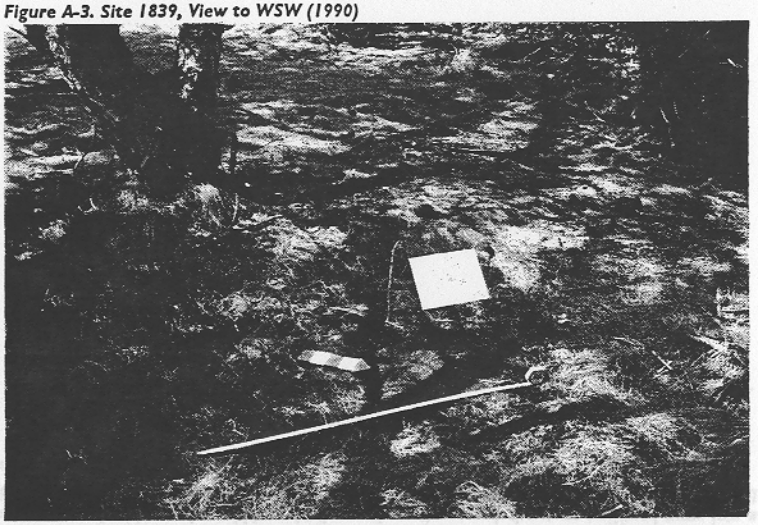
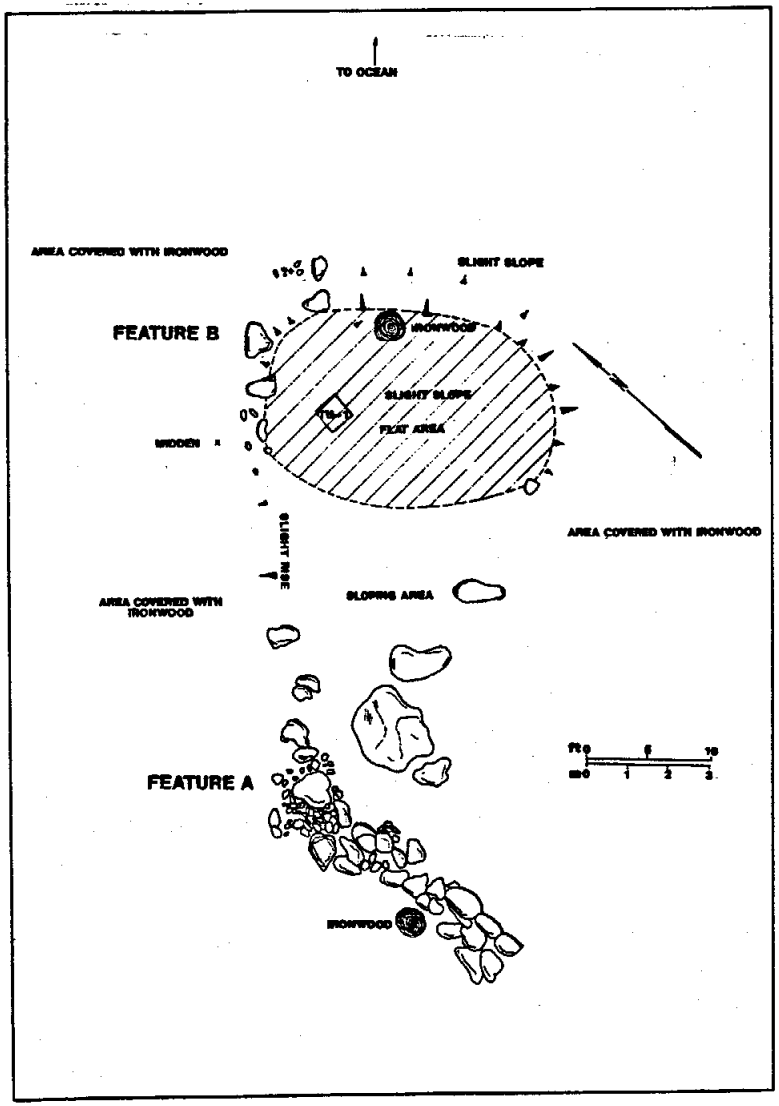


Figure A-4. Site 1839, Feature A, View to SW

Figure A-5. Site 1839



FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 15.50 m by 11.00 m by 0.60 m
DESCRIPTION: This structure is composed of stacked small to medium basalt boulders. The boulders are stacked two-four courses c. 0.75 m to 1.10 m high (*Figures A-6, A-7, A-8*). The wall is vertically faced on the east-northeast side, facing a dirt roadcut. Behind the wall to the west-southwest, is a pile of red clay mixed with recent rubbish (mostly car parts); this pile averages c. 6.0 m in width and ends abruptly at a north-south running ditch that is presumed to be for sugar cane field drainage. The maximum height of this mound is c. 2.5 m above the north-to-south roadcut, and about 1.4 m above the high point of the wall. The wall runs at 342° to 162°, with a slight westerly jog of c. 3.0 m at the north end. The high point is c. 5.0 m from the south end. There is also a crude clearing mound c. 12.0 m east of the north end of the wall, at 83°. This mound is oval (c. 1.9 m northwest to southeast by 1.4 m by 0.6 m) and constructed with small to medium basalt boulders.

Updated Information: This wall is virtually unchanged from the 1990 survey.

SITE NO.: State: 1841 PHRI: T-4
SITE TYPE: Road
TOPOGRAPHY: Rocky and sloping, above steep southeast rocky cliff
VEGETATION: False ironwood, *naupaka*, succulent ground cover
CONDITION: Fair
INTEGRITY: Intact
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 250.0 m by 6.0 m by 3.0 m
DESCRIPTION: This is a semi-collapsed section running north-northeast to south-southwest; present along the coast edge from the north point of Hanamā'ulu Bay (*Figures A-9 and A-10*). There is a ledge that slopes gradually up, running north-northeast from the point, which has been mostly cleared of medium and large boulders to create a roughly level surface. The boulders have been stacked along the seaward edge to create a retaining wall/breakwater; this breakwater is from two to eight courses and averages c. 0.50 m to 2.75 m high. Some sections are faced on the ocean side, and a few short sections extend above the ledge and are faced on the inside also. The wall sections vary from c. 0.50 m to 0.80 m in height by 0.60 m to 1.25 m in width. The surfaces of the cleared areas are irregular but roughly level. There are no machinery scars visible on the structure. The "pathway" is very obscure near the point. A few short sections inland appear paved with angular cobbles. At the north-northeast end, the stone trail/road turns into a bulldozed dirt road. The site tag is located on top of a faced retaining wall eight courses high and about 0.50 m southwest of the northeast end. The road cut rises c. 3° to 4°.

Updated Information: This site is unchanged from its 1990 condition.

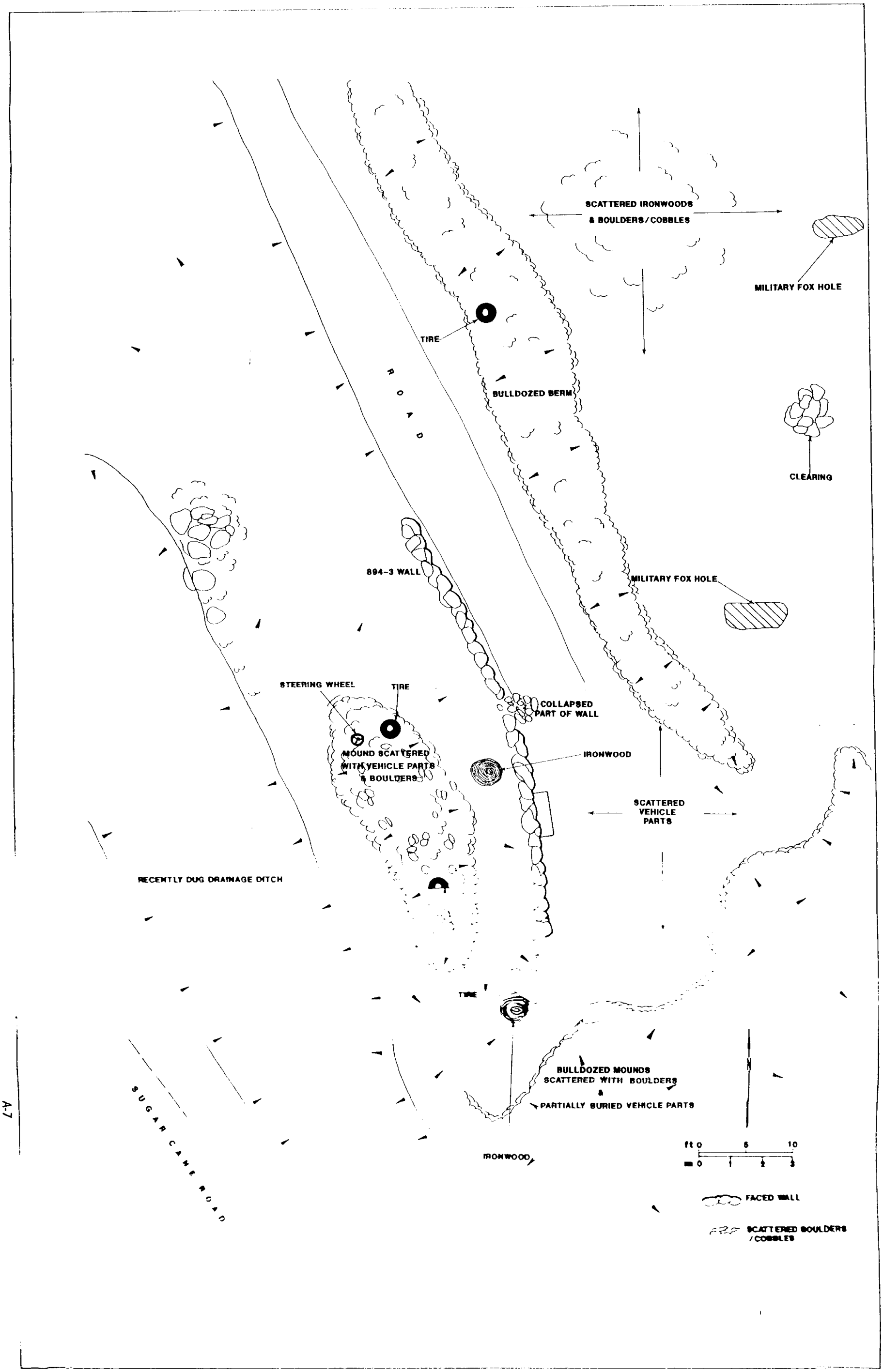


Figure A-6. Site 1840

Figure A-7. Site 1840, View to W

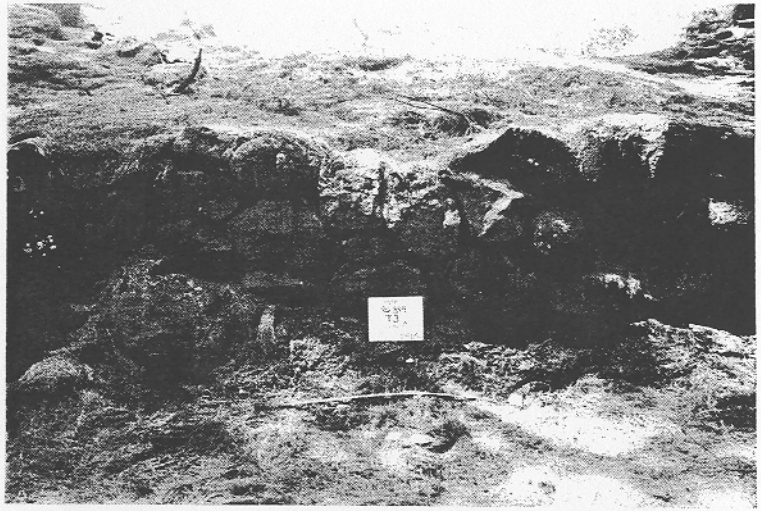


Figure A-8. Site 1840, Test Unit 1, View to W

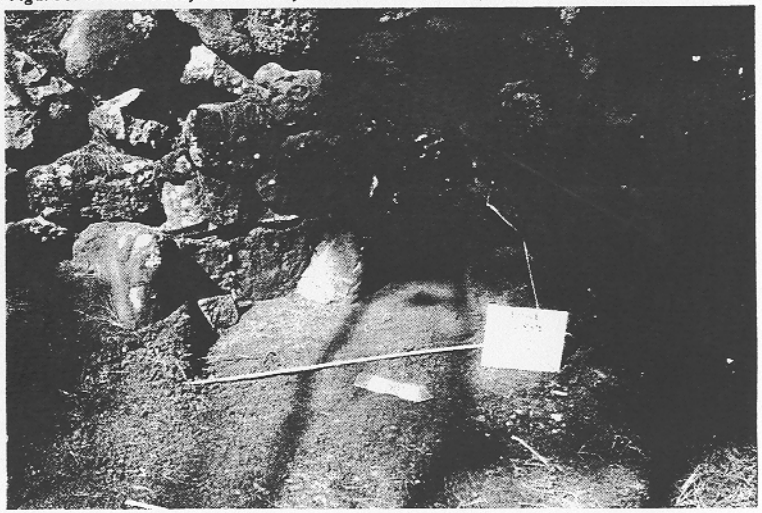
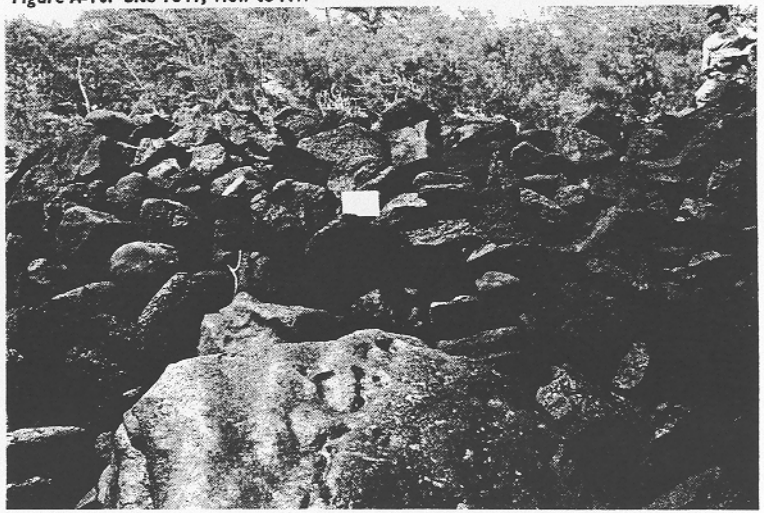


Figure A-9. Site 1841, View to S

Figure A-10. Site 1841, View to NW



SITE NO.: State: 1843 PHRI: T-6
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: On a shelf of land that fronts a steep slope, that rounds the north point of Hanamā'ulu Bay.
VEGETATION: Ironwood, Java plum, *noni* (*Morinda citrifolia*), *koa-haole*, grasses, and vines.
CONDITION: Poor-Fair
INTEGRITY: Altered
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Agriculture
DESCRIPTION: The site consists of a concrete wharf (Feature A), a road (Feature B), and a concrete wall (Feature C). The overall dimensions are c. 32.0 m by 17.0 m.

FEATURE A : Concrete wharf
FUNCTION: Transportation
DIMENSIONS: 17.00 m by 5.20 m by 1.80 m
DESCRIPTION: The concrete wharf is rectangular. It is reinforced with basalt cobbles and large steel beams that run perpendicular to its length at the water line. Feature A is probably associated with a paved road rounding the point, and served as docking facilities for agriculture (loading sugar cane). This feature probably continued farther into the bay at one time. The pilings extend farther into the bay (for ships). This feature extends into the water near the north point of Hanamā'ulu Bay.

A separate wall section runs parallel to the east and abuts a large cobble/small boulder basalt paved road (designated Feature B).

FEATURE B: Road
FUNCTION: Transportation
DIMENSIONS: 19.00 m by 15.00 m by 1.30 m
DESCRIPTION: This is a beach road partially paved with cobbles and small basalt boulders. It apparently begins at the concrete wharf (Feature A) and runs east then makes a turn around the north point of Hanamā'ulu Bay and runs roughly north-northeast. Feature B is present in many forms of varying condition: discrete walls to broken alignments, bare rock to muddy areas to paved areas with waterworn basalt boulders cobbles.

FEATURE C : Concrete wall
FUNCTION: Transportation
DIMENSIONS: 15.80 m by 2.70 m by 0.40 m
DESCRIPTION: This feature is a foundation-like wall with a lower similar concrete wall running parallel (c. 70.0 m) along the length of the south side. The main wall is composed of concrete mortared, dressed basalt, one course, very large and brick-like. The lower wall seems to be made primarily of concrete. This feature is near the foot of the steep slope and is partially buried by talus and covered with dense vegetation. The feature's main wall contains corners at both ends that turns 90° north toward the slope. The walls are obliterated by debris from the slope and by vegetation. A solid area of concrete at the east end may have been an interior slab (room, platform, etc.). A partial wall section is observed at the west end of this feature's main wall, also forming a corner, but it is also densely covered.

Updated Information: Feature A is largely intact, and appears much the same as in 1990 (*Figures A-11 and A-12*); however, the tree is no longer present and several large boulders are now present. The southwest corner of the slab has also been further impacted by storm action, possibly by hurricane Iniki (*Figures A-13 and A-14*). Less paving is now visible on Feature B, probably due to storm action. The entire Feature C appears to have been affected by storm action; the westernmost concrete section has been displaced c. 5 m farther west (*Figure A-15 [1990], Figure A-16 [2001]*).

SITE NO.: State: 1845 PHRI: T-8
SITE TYPE: Railroad Bridge
TOPOGRAPHY: Near a stream or a lowland marsh, where it enters the ocean.
VEGETATION: Java plum, *koa-haole*, *hau*, grass, and vines.
CONDITION: Good
INTEGRITY: Unaltered
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 57.80 m by 3.08 m by 7.50 m
DESCRIPTION: The bridge is constructed of steel reinforced concrete, supported on three points (*Figure A-17*). Two arches meet at the bottom of a middle support pillar. This bridge spans a marsh and is supported by two hillocks, one at each end. The bridge spans a modern road on the northeast half and a swampy lowland stream on the other half.

Updated Information: This site has remained unchanged since the 1990 survey.

SITE NO.: State: 1846 PHRI: T-9
SITE TYPE: Concrete bridge
TOPOGRAPHY: Between two drainage ditches and south of a previously identified sand dune
VEGETATION: *Hau*, sword grass, and *koa-haole*; *hau* and sword grass are predominant.
CONDITION: Fair-good
INTEGRITY: Unaltered
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Transportation
DIMENSIONS: 9.40 m by 5.00 m by 5.60 m (approximately)
DESCRIPTION: This site consists of two concrete bridges, probably associated with a railroad and built over and between what seems to be two drainage ditches (*Figure A-18*). The bridges are oriented north-northwest to south-southeast and are constructed of steel-reinforced concrete. The bridge span is a rectangular concrete structure that is supported by a triangular base at each end. Both bridges are heavily covered in vegetation.

One bridge is c. 9.4 m long north-northwest to south-southeast by 2.45 m wide by 3.5 m above the drainage channel. The other bridge is c. 6.0 m long north-northwest to south-southeast by 5.0 m wide and 5.6 m above drainage floor. The bridges are c. 10.0 m to 15.0 m apart.

Figure A-11. Site 1843, Feature A, View to SW (1990)

Figure A-12. Site 1843, Feature A, View to W (2001)

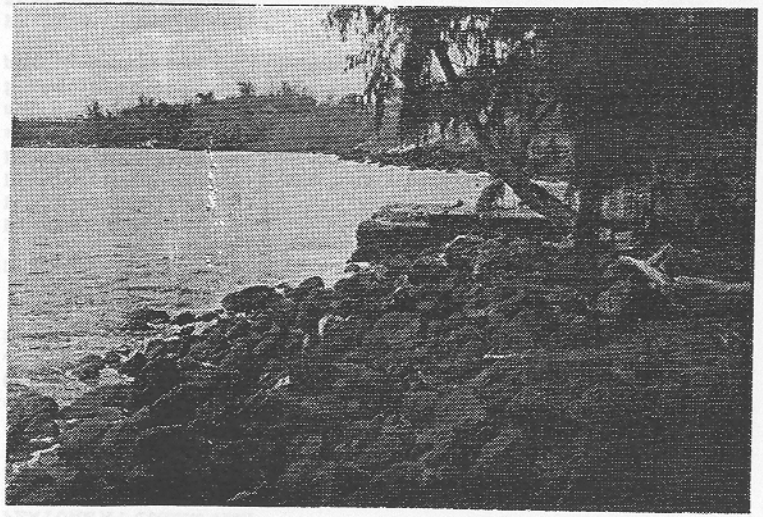


Figure A-13. Site 1843, Feature A, View to ESE (1990)

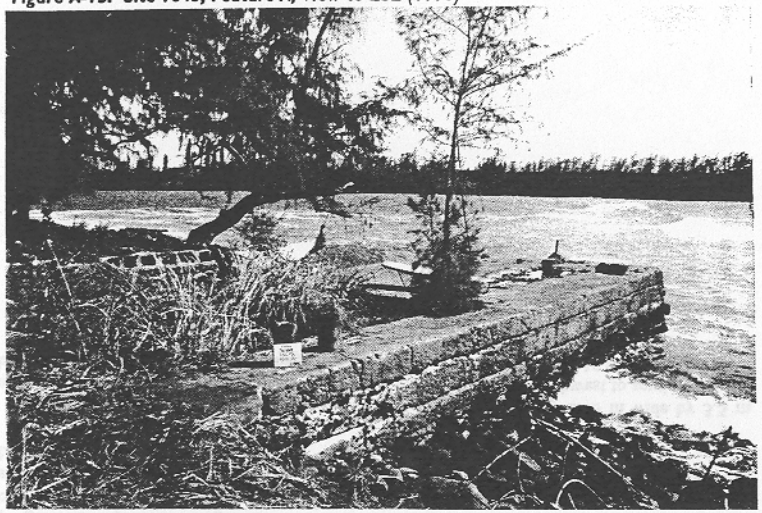


Figure A-14. Site 1843, Feature A, View to W (2001)

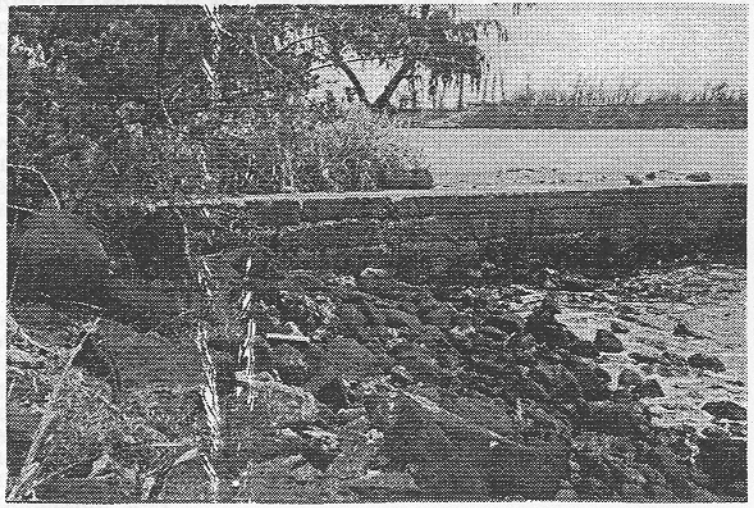


Figure A-15. Site 1843, Features B and C, View to E (1990)

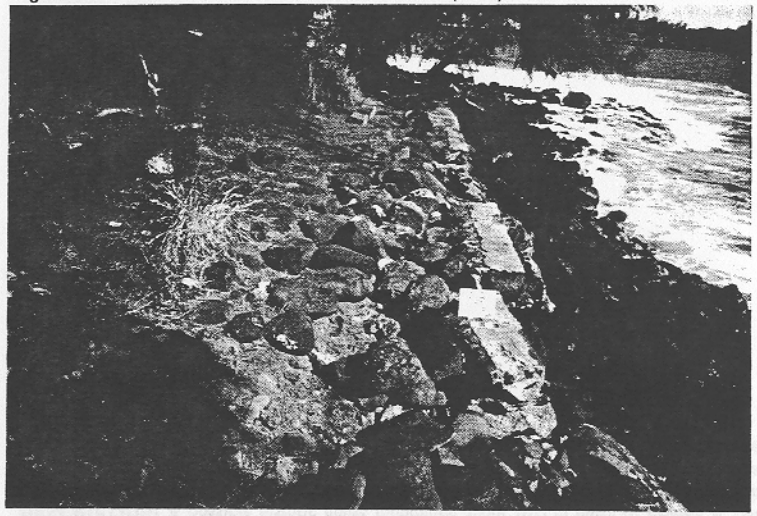


Figure A-16. Site 1843, Features B and C, View to E (2001)

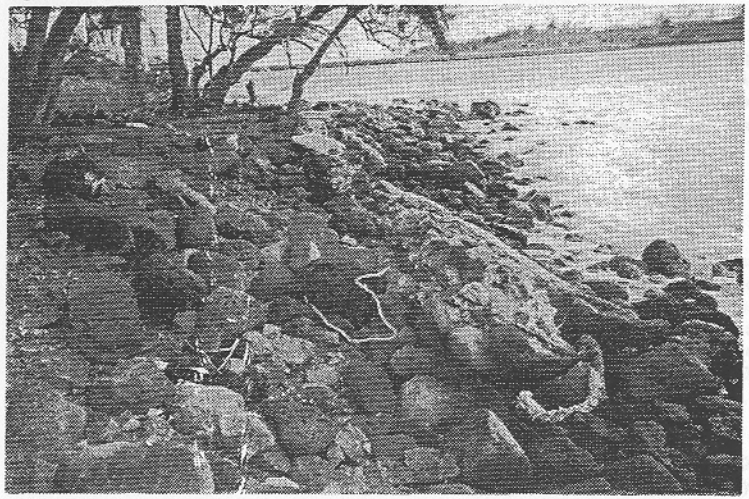
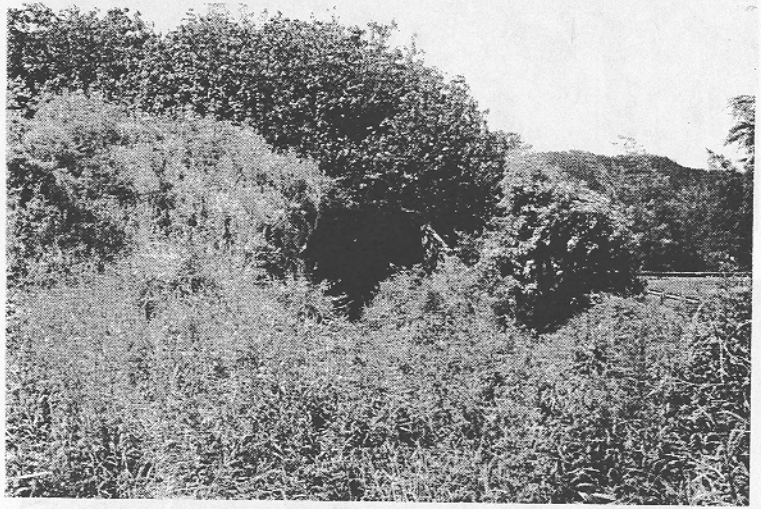


Figure A-17. Site 1845, View to WSW (1990)

Figure A-18. Site 1846, View to W (1990)



Updated Information: Although the bridges remain intact, they are overgrown with dense *hau*, which has replaced the previous vegetation. Compare *Figure A-18 (1990) to Figure A-19 (2001).*

SITE NO.: State: 2066 PHRI: T-11
SITE TYPE: Complex (3 Features)
TOPOGRAPHY: On a slight slope
VEGETATION: *Koa-haole*, grass, Java plum, and various grasses
CONDITION: Poor
INTEGRITY: Absent
PROBABLE AGE: Pre-historic to Historic
FUNCTIONAL INTERPRETATION: Multiple
DIMENSIONS: Approximately 25.00 by 20.00 m
DESCRIPTION: The site consists of an upright (Feature A) (*Figure A-20*), a road (Feature B), and a possible historic house foundation (Feature C). The overall dimensions are c. 28.00 by 15.00 m.

FEATURE A: Upright
DESCRIPTION: This is an upright stone 0.75 m long and 0.45 m wide surrounded by scattered pieces of coral. About one dozen coral pieces immediately surround the upright, while another 6+ piees are scattered up to 15.00 m to the north. The upright and coral may be a component of an historic cemetery known to have existed in this area: a Lihu'e informant stated that he knew of the cemetery in this area as a child, and that members of the Lester Rego family were interred there (personal communication, Dirge Kane 2001). However, no other graves or gravestones were identified in the area.

FEATURE B: Road
FUNCTION: Transportation
DIMENSIONS: C. 29.00 m by 3.20 m
DESCRIPTION: This is an old dirt road with side earthen berms leading down from the cane road south to the bluff. It is approximately 29 m long and 3.2 m wide and is heavily overgrown. The road may be associated with cane production and transportation down to Hanamā'ulu Bay, since this area was in active cane production until recently. It may also be associated with Feature C.

FEATURE C: Possible Historic House Foundation
DESCRIPTION: A possible historic house foundation about 20.0 m north of Feature A and adjacent to Feature B. It is possible that the northern foundation stones are simply road push from construction of the bordering cane road, and the southern foundation stones are remnants of a terrace. Features A, B, and C may be associated, or they may be temporally distinct (*Figure A-21*). All three features are outside of the area to be developed.

Figure A-19. Site 1846, View to W (2001)

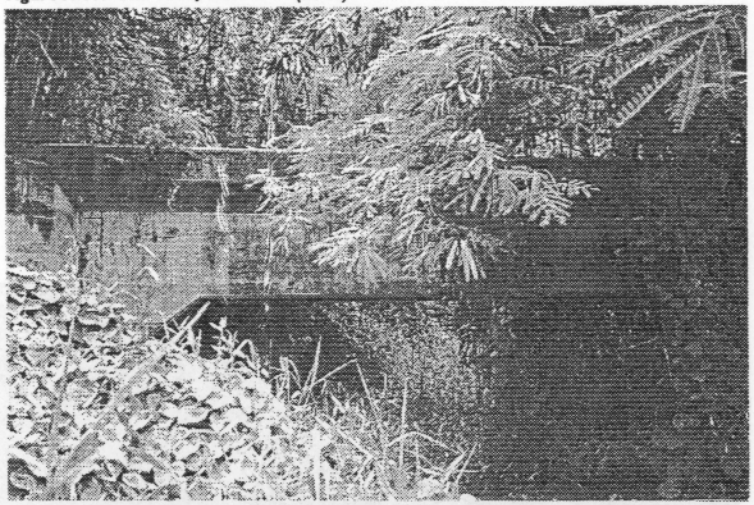
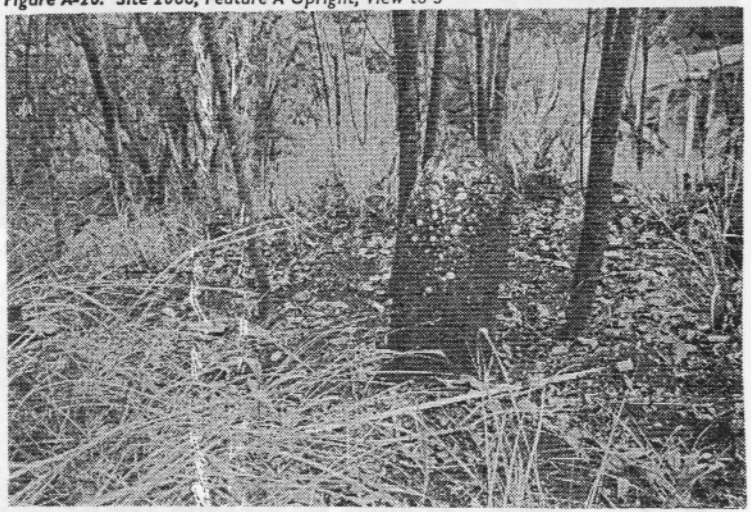


Figure A-20. Site 2066, Feature A Upright, View to S



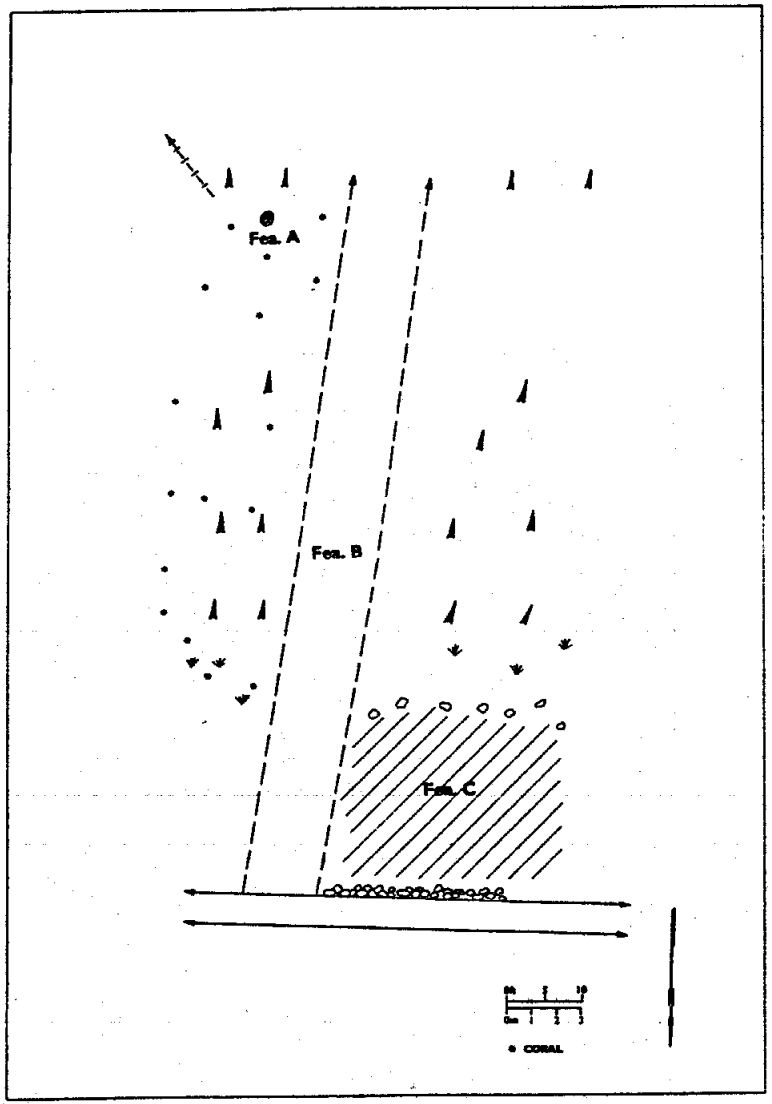


Figure A-21. Site 2066

SITE NO.: State: 2067 PHRI: T-12
SITE TYPE: Historic Cemetery
TOPOGRAPHY: On a fairly steep slope
VEGETATION: *Java Plum*, various grasses, vines, breadfruit trees
Condition: Fair
INTEGRITY: Intact
PROBABLE AGE: Historic
FUNCTIONAL INTERPRETATION: Burial
DIMENSIONS: Approximately 60.0 m by 60.0 m
DESCRIPTION: This is a semi-maintained cemetery with recent offerings (flowers and plastic flowers) and an associated probable house foundation (*Figures A-22 and A-23*). There are approximately nine to eleven graves. The oldest visible grave with a headstone appears to date from the late 1880s, while the most recent visible grave with a headstone indicates 1952 as the year of death. This site is not within the current project area.

SITE NO.: State: 2068 PHRI: T-13
SITE TYPE: Historic Trash Dump
TOPOGRAPHY: On a small bluff overlooking the ocean
VEGETATION: *Naupaka*, various grasses, ironwood trees
CONDITION: Poor-Fair
INTEGRITY: Altered
PROBABLE AGE: Historic (1880's to 1910's)
FUNCTIONAL INTERPRETATION: Refuse disposal
DIMENSIONS: 12.00 m N-S by 7.00 E-W
DESCRIPTION: This is a historic dump on a small bluff overlooking the ocean, approximately 28.00 m and 32 degrees from Site 1839 (*Figure A-24*). It appears that pothunters have visited the site looking for bottles; there is a 1.0 m by 1.0 m hole placed approximately in the site center; no whole bottles exist, they probably have been collected. The refuse materials were doubtless dumped from the bluff above. Materials include: approximately 300 pieces of ceramic of various glazes; several oriental rice bowl fragments; about 1,000 medium bottle fragments, several of which are purple, and about 1,000 smaller fragments; about 30 medicine bottle fragments; several cup and beer mug fragments; several artistic glass fragments; several pieces of crockery and *majolica* pottery fragments; several fairly large rusted machinery parts; and several unidentified faunal bone fragments. The age of the materials appears to be from the 1880s to the 1910s.

Figure A-22. Site 2067, Two Gravestones

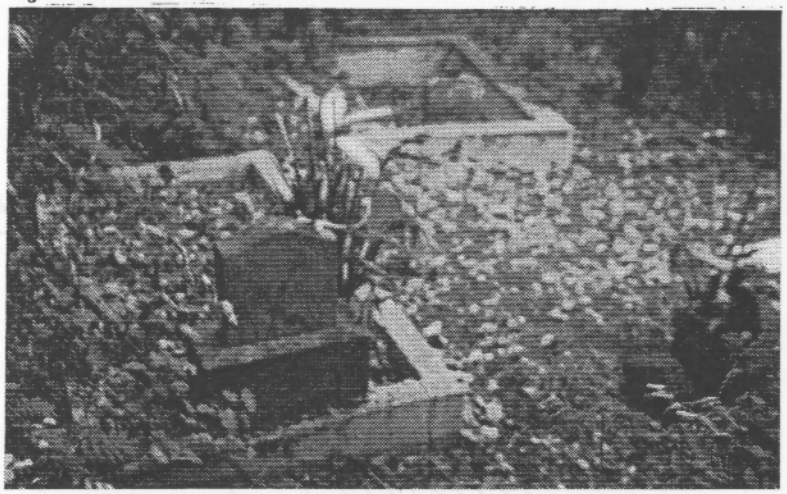


Figure A-23. Site 2067, Probable House Foundation

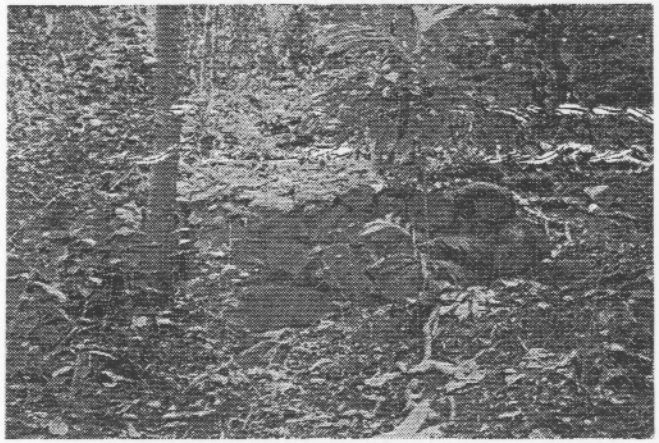
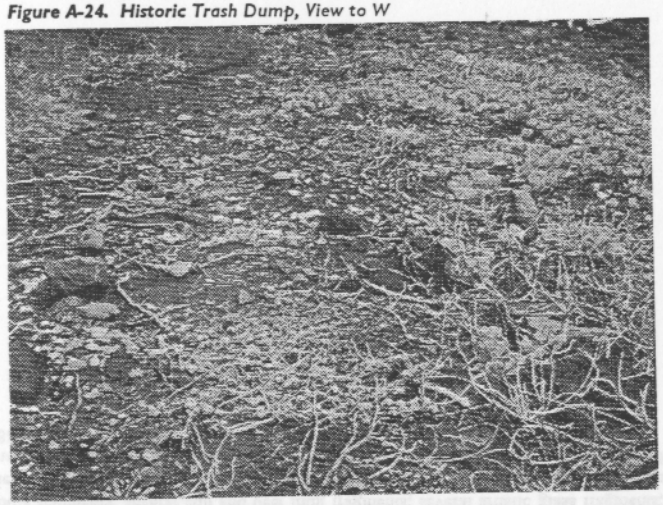


Figure A-24. Historic Trash Dump, View to W



APPENDIX B:

HISTORICAL DOCUMENTARY RESEARCH

Ocean Bay Plantation at Hanamā'ulu
Land of Hanamā'ulu, Lihu'e District, Island of Kaua'i (TMK:4-3-7-3:1;4-3-9-5:5)

by Lehua Kalima and Helen Wong Smith

Kaua'i has always been unique among the Hawaiian Islands as a somewhat separate kingdom due to its distance from the rest of the islands. In *Archaeology of Kauai*, William Bennett writes:

> It seems...that there was much more communication between all parts of Kauai than between Kauai and the other islands. In other words Kauai may be considered as a cultural unity (Bennett 1929:54).

The District of Lihu'e has been the setting of numerous stories. In the book, *Kauai: The Separate Kingdom*, Ernest Joesting writes, "There is no explanation for the choice of the name Lihu'e...The name can be interpreted as meaning "cold chill," although it might well have had another meaning in ancient times..." (Joesting 1984:154).

It should be noted that old maps and documents at the time of the Great Mahele (c. 1848) refer to the district as Puna, not Lihu'e. This is the name often given to the southeastern portion of an island, such as the well-known Puna District on the Island of Hawai'i.

Hanamā'ulu translates literally as "tired (as from walking) bay," and it is said to be the birthplace of the hero Kawelo (Puku'i et al. 1974). Few sources refer specifically to Hanamā'ulu, and the information contained in them is general in nature; this document therefore also includes information from the nearby *ahupua'a* of Niumalu and Wailua relevant to the project area. Niumalu translates literally as shade [of] coconut trees" (Puku'i et al. 1974). Wailua means "two waters" (Puku'i et al. 1974).

Hanamā'ulu is mentioned in *Olelo No'eau*, a book of Hawaiian sayings and epithets:

> *No Hanama'ulu ka ipu puehu.*
> (The quickly emptied container belongs to Hanama'ulu.)
>
> Said of the stingy people of Hanama'ulu, Kaua'i - no hospitality there. At one time, food containers would be hidden away and the people of Hanama'ulu would apologize for having so little to offer their guests (Puku'i 1983: No. 2230).

Another traditional saying mentions Wailua as a land of large streams (Puku'i 1983:1648):

> *Ka wai halau o Wailua.*
> (The expansive waters of Wailua)

TRADITIONAL REFERENCES

According to Abraham Fornander, who has written extensively about the legends and mythical origins of Kaua'i:

> The legendary history of Kauai is very unsatisfactory in any effort to restore historical form and sequence. The legends are disconnected and the genealogies are few...That the ruling families of Kauai were the highest tapu chiefs in the group is

> evident from the avidity with which chiefs and chiefesses of the other islands sought alliance with them. They were always considered as the purest of the "blue blood" of the Hawaiian aristocracy...But of the exploits and transactions of most of the chiefs who ruled over Kauai during this period, there is little preserved to tell (Fornander 1917:271-2).

The Wailua area figures in numerous legends, while, the other *ahupua'a* are rarely mentioned. Donald Matsumori, in a report on the history of Wailua and Kapaa, states "...all the kings of Kaua'i from ancient times to Kaumualii were born at Wailua. The legend of the Naha Stone names Wailua as the place of its origin" (1973:1).

The Naha stone is a famous stone that was lifted by Kamehameha as a boy, a testament to his strength at such a young age. It was prophesied that whoever lifted the stone would become the ruler of Hawai'i.

Joesting (1984) adds that:

> The lower portion of the Wailua River, that portion where the waters flow into the Pacific Ocean, was one of the most desirable places to live in ancient Hawaii. It had been chosen as the capital by kings and was the home of the high chiefs of Kauai. Together with Waialua, on Oahu, it was considered to be one of the two most sacred areas in all the Islands . . . Wailua Nui Hoano, or Great Sacred Wailua, was the name given to the ocean-bordered portion of this expansive valley. The sacred section extended inland for some two miles on the southern side and three miles on the north . . . The ancient significance of Wailua is shown through the legends of men who sailed there and back again to Tahiti before the thirteenth century. Other legends talk of the frequent journeys of people from the other islands to Wailua .

According to Judge Lyle Dicke (1916) of the Hawaiian Historical Society:

> When, in a Hawaiian story, the hero is made to visit Kauai, the Wailua beach at the mouth of the river is usually where the landing takes place. Here all the prehistoric voyagers from Kahiki who came to Kauai landed and here the prophet Naula-Maihea was thrown alive by a whale, which had swallowed him near Oahu. There of the Naha Stone of Hawaii names Wailua, Kauai, as the place from which the stone came. In the story of Laieikawai it was Poloula, chief of Wailua, who gave the prophet Hulumaniani a canoe and rowers to seek the cause of a mysterious rainbow on Oahu. There are at least three Hawaiian cat's cradles or hei which have reference to Wailua (1916:14).

Dicke also tells a tale of the brothers of Maui, the demigod, who was responsible for many super-human feats in the Hawaiian Islands:

> Maui wished to bring the Hawaiian Islands together and for that purpose to catch the powerful fish Luehu, which, if hooked, would cause all the islands to draw together...As soon as Luehu was caught, the Hawaiian Islands began to draw together. As Kauai and Oahu came near great crowds gathered on the shore of Oahu and cheered. This did not disturb the brothers of Maui at first (who were pulling the islands together), who paddled steadily but when the cheerers exclaimed at the beauty of the woman behind Maui, all the brothers turned at once to look (this they weren't supposed to do at risk of losing the fish). Immediately the great fish became loose from the hook and the islands slid apart as they had been. Only two islands had actually touched each other. The point near Nawiliwili lighthouse had touched

Kaena Point on Oahu and as they drew apart a piece of Oahu was caught on Kauai and a piece of Kauai on Oahu. This rock off Kaena point is still called "Pohaku o Kauai," Rock of Kauai. Because of their turning back, Maui's brothers, on their return to Wailua, turned to stones which are set across the mouth of the Wailua River (ibid:18).

Another tale deals with Puniakaia and the people of Wailua:

> Puniakaia of Kaneohe, Oahu, had a pet fish that he had raised from its childhood, named Uhumakaikai. When fishing at Wailua, Puniakaia bet his bones against four pieces of land that inside 15 days he would catch more fish than the people of Wailua and all their pigs and dogs could carry away and eat, and sent word to the fish Uhumakaikai to help him win his bet. On the 14th day, when he had caught no fish, the Wailua people made preparations to kill him and prepared an *imu*, wood and stones, to bake him, but at daylight the next day fish were seen coming to Wailua both from north and south. The fish covered the sand at Wailua and extended deep into the sea. The fish Uhumakaikai came, too, and Puniakaia picked it up and kissed it and for love of it returned to his Oahu home, giving the whole of Kauai to the owner of the canoe that had brought him to Wailua (ibid:19).

In a report by Cox (1977) on Wailua *ahupua'a* the author emphasized that Wailua was a place of central importance on the island and the primary residence and major religious center for the *ali'i nui* of the island. In the legends of the first *ali'i* to reach Hawai'i, Mo'ikeha is said to have picked Wailua as his home (Cox 1977:4).

Besides tales of the marvelous feats associated with an area, tales are also told of bizarre or scary things. Wailua is mentioned in this story by Skinner:

> Hawaii has its "haunts" and "spooks," just as do some countries that do not believe in such things. One of the spectres troubles a steep slope near Lihu'e, Kauai. An obese and lazy chief ordered one of his retainers to carry him to the top of the slope on his shoulders. It was a toilsome climb, the day was hot, hence it is no wonder that just before he gained the summit the man staggered, fell, and sent his dignified and indignant lord sprawling on the rocks. This was a fatal misstep, for the chief ran the poor fellow through with his spear. The ghost possibly laments because it did not lose its burden sooner and with more emphasis.

Another place that the natives avoid is the Sugar Loaf on Wailua River, Kauai. Hungry robbers broke a taboo and ate some bananas that had been consecrated to a local god, Kamalau. Missing the fruit, the deity turned himself into the rock known as the Sugar Loaf, which is sixty feet high, that he might watch his plantation without being identified. The thieves noticed the rock; they, however, could not recall that it had been there on the day before, and suspecting something kept away. The sister of the god, believing him to be lost, leaped into the river and became a stone herself. And so, having rid themselves of the flesh, these two are free to wander in the spirit (Skinner 1900:224).

EARLY HISTORICAL ACCOUNTS

William Bennett, an archaeologist who studied many areas of Hawai'i in the early part of this century, noted that it was hard to link archaeological finds on the island to individual chiefs and political events due to the incompleteness of the genealogical record:

> Two factors separate the archaeological history of Kauai from the political history: the scarcity and inaccuracy of the genealogies, and the lack of accurate legendary

> knowledge about the ruins and artifacts. Some of the heiaus are said to have been built by such and such a chief, but it has been possible to place few of these chiefs in chronological sequence.

Bennett also noted Kauai's political independence:

> As to actual history the most significant point is that Kauai remained politically independent up to 1824. The island was never conquered, though in 1810 Kaumualii ceded the island to Kamehameha I to prevent an invasion. With the death of Kaumualii in 1824 the independence of Kauai ceased (Bennett 1931:7-8).

At this point, it might be of interest to relate in greater detail the events surrounding and following the cession of Kauai. According to Kamakau:

> By the mid-1700s, Kaumualii had become Ruling Chief of Kaua'i, and the lands of the entire island were his. In 1810 Kaumualii sailed to Honolulu to acknowledge the sovereignty of the King of Hawai'i. It appears that no change took place in the established land tenure as Kaumualii returned to Kaua'i still in charge of his lands. There was a promise on his part, however, that the island would be left eventually to the Kamehameha line.
>
> On the death of Kamehameha I, Liholiho came to Kaua'i to check on the loyalty of Kaumualii. Kaumualii proposed in a formal manner to surrender himself, his island, and all that he had to Liholiho. Bingham (1822:244) recorded the colorful scene: "...Do with them as you please. Place what chief you please as governor here." Liholiho: "...I did not come to take away your island. I do not wish to place anyone over it. Keep your island and take care of it just as you have done, and do what you please with your vessels."
>
> Kaumualii was married to Kaahumanu, one of the strongest political forces in the kingdom. To strengthen the political tie with Kaua'i, she also wed Kealiiahonui, son of Kaumualii. Kaumualii died in May 1824, leaving his Kaua'i lands to the Kamehameha heir. Apparently though, lands in the hands of Kaua'i chiefs were to be administered by them. Sept. 13, 1824, Hoapili wrote from Waimea to Kamehameha II in London: "...Your servant Kaumualii is dead. He left word that Paalua (also known as Kalanimoku, who with Kaahumanu were the two strongest political forces) was to take care of your land..." This indicates Kaumualii fulfilled the land agreement of 1810. The lands were to be held in trust by Kaahumanu and Kalanimoku for Kamehameha II and that those chiefs who had lands would keep them, those who were landless would remain so. This disposition of land brought about the Insurrection of 1824 when landless chiefs attempted to overthrow the forces of Kamehameha II. The revolt brought disaster for all Kaua'i chiefs as they lost their holding to the relatives & retainers of the Kamehameha line, who took over the lands of Kaua'i (Kamakau 1961:269).
>
> Landless Kauai chiefs induced Kaumualii's son Humehume, to join them in revolt; but reinforcements from the other islands under Kalanimoku defeated the insurgents. "...and the loafers and hangers-on (*palaualeo*) of Oahu and Maui obtained the rich lands of Kauai" (ibid.).

Little information can be found to help determine which chiefs obtained land after the uprising. It appears that the Crown and near relatives received the bulk of the lands. The government on Kauai was placed in the hands of Kaikioewa, whose loyalty to the Kamehameha line was unquestioned. Emilia, his wife, became governess after Kaikiowea's death in 1839 and held the post until 1842.

Several early western visitors recorded their impressions of the *ahupua'a* in the vicinity of the project area. These journals and accounts of their visits have proven to be valuable sources of information on the early historical period of Hawai'i. In 1793 Captain George Vancouver landed on Kauai and noted three rivers emptying out into the sea, two at Wailua and one at Kapaa. He wrote that this was "the most fertile and pleasant district of the island" and the "principal residence of the king" (Joesting 1984:50).

Vancouver also estimated the birth of Kaumuaalii to be in about the year 1780. Tradition tells us that he was born at the birthstones of Wailua Valley (ibid:59).

Wailua is also noted as the ancient capital, although it did not possess an anchorage or landing. It was also known as the residence of Deborah Kapule, a queen, whose home served as a stopping point for travelers on their way to or from Hanalei between 1830 and 1850. This is where the Coco Palms Hotel is presently located (ibid:141).

Handy (1940) describes traditional agricultural land use in the area:

> Coconut planted near sea level throughout; in valley bottoms in Hanamā'ulu ...Wauke planted in inner valley slopes, especially Koolau, *Puna* [emphasis Handy], Kona. Olona; wet median forests from 1,000-2,000' elevation; Koolau and Puna [emphasis Handy] (1940:59).

Farming in the Hanamā'ulu area included the raising of taro, sweet potatoes, breadfruit and coconuts. The Hanamā'ulu stream flows through a broad gulch extensively terraced in olden times. Before the advent of sugar cane, the stream delta was very likely an important area for wet taro cultivation. Upland slopes would have been ideal for planting sweet potato (Handy and Handy 1972).

HEIAU SITES

Bennett briefly describes two *heiau* sites in the Hanamā'ulu area:

> Site 102. Kalauokamanu heiau, in Hanamā'ulu above the present mill. Described by Thrum as "A large walled heiau that stood above the present mill; destroyed about 1855. Of pookanaka class.
>
> Site 103. Dune burials. In the sand dunes that run along the shore half way between Hanamā'ulu and Wailua River are many burials (Bennett 1931:125).

Thrum (1907) lists 124 *heiau* for the island of Kauai, several in the Wailua area:

> **Malae** - Central Wailua - A walled and paved heiau 273 x 324 feet in size of traditional Menehune construction. The place of its altar is pointed out near the center toward the west wall, and around on all sides ran a ledge about six feet wide whereon the people are said to have sat during its ceremonies. The outer walls are yet standing, in good order, from 7 to 10 feet or more in height, its corners buttressed with 13 foot walls. Kapule (Queen Deborah) changed this heiau about 1830, and erected division walls for cattle and calf pens with its inner structures and stone pavements. A portion is now planted in cane.

> **Poliahu** - Upper Wailua - This heiau of medium size is situated within sight of Malae, and was connected with it in its working. In fair condition.
>
> **Holoholoku** - Wailua - Of Pookanaka class, site not identified. Tradition credits this heiau as being the repository, until comparatively modern times, of the first kaeke, or drum, introduced into these islands.
>
> **Hikinaakala** - Wailua Kai - The ruins of this heiau stand along the shore near the south side of the stream, 395 feet long, 56 feet at rear and 80 feet on the front. It shows three distinct divisions paved; the inner section still in fair condition 120 feet in depth. End and S.E. corner walls are 6 feet high and 11 feet thick, of heavy stones. Two large boulders stand near the middle near the division wall of this section. The outer or front section of 80 feet includes a width that runs back beyond the division wall.

In 1934 the *Garden Island Press* newspaper published an article mentioning various *heiau* in the general vicinity of the project area:

> Replete with folklore and legend, the fertile, well-watered lowlands of Wailua-kai were used naturally as the king's seat even into historical times. Remaining monuments of stone, heiaus now largely in ruins, are numerous and of unusual significance throughout this Wailua region.
>
> Passing toward the mountains directly through this grove of swaying cocoanut palms, the traveler comes upon a low hill, Puu-ki, the river-side ridge of which was known to ancient Hawaiians as Ka Lae o ka Manu, the crest of the bird, or Bird Ridge. At the foot of this hill lies the side and the original wall and sacrificial stone of what is quite properly believed to be the oldest heiau on the island of Kauai. Here, it is said, the first human sacrifice ever made on this island was performed, and to this temple was brought the first drum, kaeke, fashioned from the hollowed stump of a cocoanut tree with shark-skin stretched taut over its head.
>
> Also associated with these *heiau* are the Birthstones (Pohaku Hoohanau) adjacent to Holoholoku, the Bellstone near Poliahu, the *puuhonua*, or refuge spot (Hauola) adjacent to Hikinaakala, and the petroglyphs along the southern bank of the river near Hikinaakala.
>
> Another *heiau* located in Hanamā'ulu is Kalauokamanu. This was situated just west of the Lihu'e Plantation Yard and adjacent to a cane haul road. It is said to be of the *pookanaka* class and was destroyed in 1855.

LAND TENURE

In 1848, during the reign of Kamehameha III, the traditional Hawaiian land ownership system was replaced with a more Western-style system. This radical restructuring was called The Great Mahele (division). The Great Mahele separated and defined the undivided land interests of the King and the high-ranking chiefs, and the *konohiki*, who were originally those in charge of tracts of land on behalf of the king or a chief (Chinen 1958:vii and Chinen 1961:13). More than 240 of the highest-ranking chiefs and *konohiki* in the kingdom joined Kamehameha III in this division. The first Mahele was signed on Jan. 27, 1848 by Kamehameha III and Princess Victoria Kamamalu, and by her guardians Mataio Kekuanaoa and Ione Ii. The last Mahele was signed by the King and E. Enoka on March 7, 1848 (Chinen 1958:16).

The Mahele did not convey title to any land. The chiefs and *konohiki* were required to present their claims to The Land Commission to receive awards for lands quitclaimed to them by Kamehameha III. They were also required to pay commutations to the government in order to receive royal patents on their awards. Until an award was issued, title remained with the government. The lands awarded to the chiefs and *konohiki* became known as Konohiki Lands. Because there were few surveyors in Hawai'i at the time of the Mahele, the lands were identified by name only, with the understanding that the ancient boundaries would prevail until the land could be surveyed. This expedited the work of the Land Commission and speeded the transfers (Chinen 1961:13).

During this process all land was placed in one of three categories: Crown Lands (for the occupant of the throne), Government Lands, and Konohiki Lands. These were all "subject to the rights of native tenants," (Laws of Hawai'i, 1848:22). Native tenants were the common Hawaiian people who lived on the land and worked it for their subsistence. Questions concerning the nature of these rights began to arise as the King, the government, and *konohiki* began selling parcels of land. On December 21, 1849 the Privy Council attempted to clarify the situation by adopting four resolutions intended to protect the rights of native tenants referred to in the 1848 law (Chinen 1958:29).

These resolutions authorized the Land Commission to award fee simple title to all native tenants who occupied and improved any portion of Crown, Government, or Konohiki lands. These awards were to be free of commutation except for house lots located in the districts of Honolulu, Lahaina, and Hilo (ibid.).

Before receiving their awards from the Land Commission, the native tenants were required to prove that they cultivated the land for a living. They were not permitted to acquire wastelands or lands which they cultivated "with the seeming intention of enlarging their lots." Once a claim was confirmed, a survey was required before the Land Commission was authorized to issue any award. These lands became known as "Kuleana Lands" (ibid:30). Until its dissolution on March 31, 1855, the Land Commission issued thousands of awards to the native tenants for their *kuleana*; even so, less than 30,000 acres of land were awarded to the native tenants as Kuleana Lands.

The *ahupua'a* of Wailua has 48 listees in the Indices of Awards (Board of Commissioners 1929) and was declared to be Crown Land, "To be the private lands of his majesty Kamehameha III, to have and to hold to himself, his heirs, and successors, forever...1848." These crown lands reverted to the Territory of Hawai'i with the enactment of the Organic Act of 1900, and have since been called Government lands. The present owner is the County of Kaua'i.

The Indices to Land Commission Awards, contains the following awards for Hanamā'ulu:

LCA	Awardee	Acreage
3648	Kala	1.25 Acs 30 rods
3650	Kaluhiwaha	3 roods, 35 rods
3649	Kamalo	1.75 Acs 20 rods
7713	V. Kamamalu	9177 Acs (Ap 2) ahp
3644	Kaualupa	1.25 Acs 23 rods
3558	Keke	3 roods 1 rod
3600	Keolanui	1.75 Acs 30 rods
3653	Kolu	1 Ac 37 rods
5089	Kuhaimoana	3 roods 17 rods
3640	Kumakahaohao	1 Ac 1 rood 12 rods
3271	Lalahilimoku, Leimoku	1 Ac 1 rood 21 rods
3657	Niho	1 Ac 1 rood 13 rods
3423	Paka	1.50 Acs 33 rods
3426	Pelekane	1 Ac 17 rods
3371	Naehu	1.25 Ac 19 rods (Kapaia)
3647	Kapuohi	4 Acs 32 rods (Moala)
3647	Kapuohi	38 rods (Papuaa)

The fourth name on the list, V. Kamamalu, is Victoria, sister of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Moses Kekuaiwa, and half sister of Ruth Keelikolani (Board of Commissioners 1929:3). She was awarded Hanamā'ulu Ahupua'a. Whenever *ali'i* procured an entire *ahupua'a*, they were bound to respect the rights of the existing tenants. These tenants, if they filed a claim the Board of Commissioners to Quiet Land Titles, could continue to cultivate and live on their parcels. The following are excerpts from testimonies for awards to individuals in Hanamā'ulu:

LCA 3558 to Keke, Foreign Testimony vol. 13:160
Kaualapa sworn, he has seen...consists of three lois in the ili of Waiaoao and then it also a small kula adjoining. Claimant has also a house lot at Hoeua...Claimant had his land from his friend Pekue in 1846. His house lot he had from Keo. Claimant held a house lot at Opai which was disputed by Keo the Konohiki. Claimant agreed to give him the lot above described at Hoeua.

LCA 3600 to Keolanui, Foreign Testimony vol. 13:153
...in the ili of Palaka and consists of [not listed or illegible] lois and house lot, all family but one piece bounded thus...Claimant had his land from Daniela Oleloa, in the days of good old Kaihiaena & has occupied it ever since without opposition...

LCA 3653 to Kolu, Foreign Testimony vol. 13:151
...it consists of four lois in the ahupuaa of Hanamā'ulu and consists of four loi in the ili of Maulele, with small kula adjoining the kula is not cultivated being exhausted to the depredations of cattle. Claimant has also a house lot in the village of Kamakahanahana which is surrounded by a fence. No. 1 is bounded...Koloa - auwai of Keoki. No. 2 is kula of Kamakahanahana...Claimant had his land from Keo, konohiki, in the days of Kaikioewa had peaceable possession ever since his claim has never been disputed. Keo says I am a luna under Kanoa and know the land and gave the land to Claimant according to the testimony of Keolauui which all true.

LCA 3426 to Pelekane, Foreign Testimony vol. 13:156
....consists of 4 loi and in the ili of Kapuhala. Claimant has also a house lot near the sea shore at a place called Kaho ....Lot 2 (bounded by)...North - fish pond...land from his konohiki Pau soon after Kanoa came to Kauai and occupied it in peace till Keo and became konohiki again in 1849 who took away from Claimant two lois and gave them to Aumoana Keke sworn declares the testimony of Lalahilimoku to be all true. Keo sworn says it is true that Pelekane held and occupied said from lois...

LCA 3371 to Naehu and heirs, Foreign Testimony vol. 13:155
...consists of 10 lois and small kula adjoining on which Claimants house in the ili of Kapaia. Claimamt had his land from his son-in-law Kailihania soon after Kanoa came to Kauai and he occupied it in peace till his death which occurred in 1849. He gave land to his daughter Kaipu.

LCA 3647 to Kapuohi, Foreign Testimony vol. 13:151
...consists of 8 lois and 23 loi not now cultivated. These lois lie in two pieces, being divided koeles [small land unit farmed by a tenant for the chief]. No. 1 contains one loi called Moala in the ili of Waiea. No. 2 contains all the other lois. No. 3 house lot in the ku of Papuaa....Claimant had his land from Pau, the konohiki about 5 years ago. That part of the Claimant's land lying south of the Hanamā'ulu stream had never been disputed to this day. But the land laying on the Wailua side is disputed

by the konohiki. Witness say there never was any dispute about until within the last few days. He says Claimant gave the land to his friend Luakini who held it several years till his death about a year or [missing or illegible] ago when he returned the land to Kapuohi the present Claimant. Papawaa, sworn says, I am a Kamaaina of Hanamā'ulu and know the land of Claimant and never heard of any dispute about the claim till Tuesday last when I heard that Keo disputed it and I believe the testimony of Kupule is all true.

LCA 3271 to Lalahilimoku, Foreign Testimony vol. 13:161
...consists of six lois in the ili of Kuka. Claimants house lot is in the village of Puako...had his land from Daniela Aleloa in the days of Kaikioewa and has occupied it ever since in peace...

LCA 3423 to Paka, Foreign Testimony vol. 13:155
...consists of 8 loi in the ili of Peaiki and small kula adjoing. Claimant also has a house in Peaiki...land from Keo his konohiki in the days of Kaikioewa...

Found in the Land File of the State Archives were various references to Hanamā'ulu:

Interior Dept., Aug. 19, 1862 - In letter from M. Kekuanaoa to W. Webster, informing that the above land which is claimed as belonging to the King has been surveyed and awarded by the Land Commissioner and a Royal Patent issued to V. Kamamalu, &c.

Interior Dept., Aug. 4, 1863 - In letter from H. A. Widemann to Webster, that he had seen his name on a lease to the Lihu'e Plantation for the above lands, which leads him to think he has something to do with Victoria's lands.

Interior Dept., July 20, 1870 - In letter from Paul Isenburg [sic] to J. O. Dominis enclosing a draft for $7250 being the purchase price for the above ahupua'a &c.

Interior Dept., Oct. 4, 1870 - In letter from Duncan McBryde to C.C. Harris, that Mr. Isenburg [sic] has inquired of him if he knew the mauka Boundary of the Crown Land of Wailua that part which adjoins the above ahupua'a lately sold to Lihu'e Plantation. Desiring to know whether the said ahupua'a was held by the late Princess Victoria by Royal Patent according to survey by Pease, or by the Ancient Boundary, &c.

Interior Dept., July 20, 1871 - In letter from E. Krull to the Commissioner of Crown Lands stating that he is holding the Wailua Estate under two leases from the Hawaiian Govt. first from J. Young to Thos. Brown for 99 years & second from Kamehamahea IV, to Hoffschlaeger for 50 years but since a royal patent had been granted to the Lihu'e Plantation for the above ahupua'a containing about 800 acres which is included in his 2 leases & which hampers the pasturage of his cattle, he desires to have said leases cancelled & asking that he be allowed to enter into a new Indenture of lease for the same lands with the exception of the lands granted to said plantation for a term of 25 years at a yearly rate of not more than $300.

Interior Dept., Bk 15 p. 109 - In list of Konohiki lands, showing that V. Kamamalu is owner of the above land & that it has a sea coast frontage of 3.55 miles.

Public Instruction, Jan 24, 1891 - J. K. Burkett to Min of Public Instruction - Have talked with Mr. Wilcox & Mr. Isenberg in regard to a lot for a school house at the above place, &c.

Public Instruction, Feb. 11, 1893 - A. S. Wilcox to Min of Pub Instr Think it best to send a copy of the former survey of the above school lot, as the corner stones have all disappeared & will be difficult to find the exact spot without it &c.

Public Instruction, April 3, 1907 - Registar of Conveyances to Supt. of Publ Inst. Submitting Abstract of Title in re a portion of R.P. 4481, Land Claim Award No. 7718, Ap. 2, Part 7, of land situate at the above tract, Kauai, claimed to be owned by the Lihu'e Plantation Co. Ltd. &c. Notes of Survey of School lot in said tract, attatched.

Public Instruction, Aug 25, 1909 - Supt of Pub Instr to J.K. Farley To assist the Dept in suggesting valuation of 2.03 acres of school lot at the above tract, valued at $300 per acre &c. Doc's relating therto attached.

Executive Pinkham, Aug 4, 1915 - Commissioner of Public Lands to Governor Pinkham Informing that the Lihu'e Plantation Co., delivers to the Koloa Sugar Co., waters rising & flowing on the above lands, paying a little over $10,000 a year &c.

THE SUGAR PLANTATION

Koloa, Kaua'i was home to the first Sugar Plantation in the islands. A brief history of Lihu'e Plantation Company is presented here, taken from the *Pacific Commercial Advertiser* 50th Anniversary Edition, July 2, 1906:

Lihu'e sugar plantation is interesting because of its phenomenal success and the many obstacles which have been encountered and overcome all through its progress, and especially during the early years when the sugar industry in Hawai'i was in its experimental stages.

The early records of the plantation show that in 1854 Messrs. Henry Peirce [sic], Wm. L. Lee, Wm. C. Parke, Edwin O. Hall, C. R. Bishop, C. W. Austin, W. H. Bates formed a co-partnership under the name of Henry A. Peirce & Co. whose business should be to plant sugar cane, manufacturing sugar, and all other branches of business theretofore carried on by the proprietors of the said plantation, which indicates that the plantation had been in operation prior to that date. Mr. Rice was the manager. The mill which stood on the present site, was run by water power; the crop amounted to 120 tons of sugar. The plantation store stood near the site of the present manager's residence on the road to Koloa, and was conducted by Mr. Samuel T. Alexander. In front of the store was a large open space surrounded by a grove of koa and kukui trees where natives from all parts of the island congregated on Saturday afternoons, bringing products of all kinds for sale. Wailua produced hau rope; Kapaa was noted for its rush hats and mats, while bullock cart loads of melons were brought from Anahola and Kealia. The taro and sugar cane from Wahiawa was regarded by the natives as especially fine in quality and was in demand for the use of the chiefs not only in Kauai, but in Honolulu as well. The salt produced in the ponds of Makaweli took the color of the soil blown from the land and was regarded as a luxury because of its red tings. Opihi's from the mountains were then, as today, regarded by Hawaiian epicures as particularly toothsome, and all these staple supplies, foods and delicacies found their way to Lihu'e market.

It was Mr. Rice who first introduced irrigation on the cane fields in Hawai'i. The average yield of sugar per acre was, at that time, one and one-half tons and was insufficient to make the industry a profitable one, and he conceived the idea of bringing the waters of the Kilohana stream on to the plantation for irrigation, and he built a ditch for that propose. Even with irrigation the outlook for he place was evidently dark, for in 1861 a proposition was considered to abandon the planting of sugar cane. Mr. Paul Isenberg was an employee of the plantation at the time and it was due to his advice and efforts that the proposition to abandon was given up, and planting was continued.

In the year 1862 Mr. Rice died and Mr. Isenberg succeeded to the management of the estate. Mr. Isenberg was a man of strong character, clear foresight and indomitable will and energy, who, by his perseverance and example, not only pulled Lihu'e plantation through difficulties of extraordinary success, but he inspired his neighbors with pluck to plod along to a successful issue against conditions, at times, most discouraging. So great was his faith in the future of the sugar industry in Hawai'i that, when later he had acquired an interest in the plantation, and his proposal to purchase the *Hanamā'ulu* (emphasis the *Advertiser*) lands was opposed by his partners, he entered into an agreement with them whereby any loss which might be incurred in the planting of these lands was to be borne by him individually, whereas any profit arising from the same was to go in as a general realization to the several partners. The tract in question contains 17,000 acres and was bought for $8,500, which price was regarded by some members of the firm as too high.

Men of Mr. Isenberg's discernment rarely err in such matters. It was this purchase which gave to Lihu'e plantation its present water supply, and added thousands of acres of fine cane land....

The Hanamā'ulu lands referred to above were purchased during the sixties. In 1877 Mr. A. S. Wilcox was given a contract to plant the tract on shares; the mill was erected by Lihu'e plantation....and in 1899 Mr. A. S. Wilcox, giving up Hanamā'ulu, the cultivation of that place was taken up by Lihu'e plantation, since which time the two places have been run in conjunction, although the cane of the respective places have been ground at its own mill....Mr. Wolters (manager) succeeded in increasing the crop of the combined places, Lihu'e and Hanamā'ulu, to 18,000 tons (Pacific Commercial Advertiser 1906:60-61).

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APPENDIX B

Cultural Impact Assessment Study-Ocean Bay Plantation at Hanamā'ulu, Land of Hanamā'ulu, Līhu'e District, Island of Kaua'i

PHRI, Inc.

December 2001

Report 2182-091501

Cultural Impact Assessment Study
Ocean Bay Plantation at Hanamāʻulu

Land of Hanamāʻulu, Līhuʻe District
Island of Kauaʻi

Technical Report for Environmental Impact Statement

PHRI
Paul H. Rosendahl, Ph.D., Inc.
Archaeological • Historical • Cultural Resource Management Studies & Services

Cultural Impact Assessment Study
Ocean Bay Plantation at Hanamā'ulu

Land of Hanamā'ulu, Līhu'e District
Island of Kaua'i (TMK:4-3-7-3:1;4-3-9-5:5)

Technical Report for Environmental Impact Statement

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Contents

Introduction • 1
- *Study Identification • 1*
- *Study Purpose • 1*
  - *General Purpose • 1*
  - *Specific Purpose and Objectives • 1*
- *Cultural Impact Assessment and OEQC Guidelines • 3*
  - *Background • 3*
  - *Discussion • 5*
- *Present Study Scope • 6*
  - *Level of Study Effort and Rationale for Study Approach • 6*
  - *Study Scope and Tasks • 7*
  - *Project Personnel and Roles • 7*
- *Study Methodology • 8*
  - *Guidance Documents • 8*
  - *Information Sources • 9*
  - *Summary of Potential Informants Contacted • 9*

Ocean Bay Plantation at Hanamā'ulu Project • 13
- *Project Setting and Background • 13*
- *Project Description • 15*

Summary of Historical Documentary Research • 16

Findings • 20
- *Traditional and Customary Cultural Practices and Beliefs • 20*
- *Identification of Traditional Cultural Properties • 21*
- *Contemporary Cultural Practices and Beliefs • 21*
- *Current Cultural Concerns • 21*

Conclusion • 22
- *Identification of Cultural Practices, Beliefs, and Properties • 22*
- *Evaluation of Identified Cultural Practices, Beliefs, and Properties • 2*
- *Assessment of Potential Project Effects • 24*
  - *Discussion • 24*
  - *Concluding Assessment • 24*
- *Recommendations • 25*

References Cited • x

Illustration

Figure 1. Project Area and Site Location Map • 14

Tables

Table 1. List of Potential Informants • 10
Table 2. Summary of Informant References to Cultural Practices • 20

Appendix

Appendix A. Outline of General Informant Interview Content • A-1

EXECUTIVE SUMMARY

This cultural impact assessment study as a technical report for an Environmental Impact Statement (EIS) to be submitted in support of development applications for the proposed Ocean Bay Plantation at Hanamā'ulu golf course and residential development, located on approximately 460-acres in the Land of Hanamā'ulu, Lihu'e District, Island of Kaua'i (TMK:4-3-7-3:1; 4-3-9-5:5). The general purpose is to comply with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000, and which among other things requires that environmental assessments (EA) and impact statements (EIS) identify and assess the potential effects of any proposed project upon the "...cultural practices of the community and State...."; more specifically, they should address the issue of potential project impacts upon traditional native Hawaiian cultural uses and practices, in accordance with the OEQC "Guidelines for Assessing Cultural Impacts" adopted in November 1997.

The specific purpose of the present study is to assess the potential impacts of the proposed project upon the cultural resources–the practices, features and/or beliefs–of native Hawaiians or any other ethnic group, that are currently associated with the Hanamā'ulu project area. To accomplish this purpose, several specific objectives were established: (a) identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners or groups; (b) collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices; (c) assess the potential impacts of the proposed project upon identified cultural practices; and (d) recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.

The basic study methodology involved contacting and consulting with as many as possible potentially knowledgeable individuals and group representatives. A final revised "List of Potential Informants" included some 56 potential information sources. Of the 56 individuals, some 41 individuals, representing many different groups and organizations, were contacted and consulted. The extent of this effort indicates it likely that the full range of traditional native Hawaiian cultural practices currently associated with the Hanamā'ulu project area has been identified.

Cultural practices identified as currently occurring within and immediately adjacent to the project area appear to be entirely associated with the immediate shoreline area and inshore waters. These practices primarily involve a variety of marine resource exploitation activities and recreational activities. This general finding was not unexpected, given the almost total modification and alteration of the inland portion of the project area by over a century of historic period sugarcane cultivation.

The traditional native Hawaiian cultural practices identified appear to represent only one of two general types of behaviors; i.e., practices with active behaviors involving both observable activities with material results and their implicit inherent values or beliefs. None of the informants contacted explicitly identified any specific examples of the other type of behaviors; i.e., those practices with more passive behaviors which seek to produce nonmaterial results. No potential traditional cultural properties of any kind were identified by any of the contacted informants. The only cultural practice that would seem to be a contemporary practice rather than a traditional and customary cultural practice was the funerary practice of scattering of cremated remains into shoreline waters. A single informant noted this practice.

Based on an evaluation of the traditional native Hawaiian cultural practices identified as currently associated with the Ocean Bay Plantation project area at Hanamā'ulu, and an assessment of the potential impacts of the proposed project upon those identified practices, the present identification study has concluded that the proposed golf course and residential development project–in which the planned development would be done almost entirely within the existing limits of the inland portion of the project area that was previously altered and greatly modified by historic period sugarcane, should have no significant or adverse effect on the existing cultural practices identified as currently associated with the shoreline area and immediately adjacent inshore waters. Given the nature and development limits of the proposed project, and with the specific exception of possible short-term construction period restrictions, the continued exercise of all traditional and customary native Hawaiian rights for access and gathering practices would not in any way be constrained, restricted, prohibited, or eliminated. This conclusion is made with the qualification that public shoreline access for the continuation of the identified cultural practices will remain intact.

PREFACE

The present study, which is the result of work done by PHRI over a four month period beginning in early August 2001, is based largely on contacts and consultations made with potentially knowledgeable individuals and group representatives, with additional information obtained from other readily available documentary sources and previously prepared reports. The general purpose of the study is to comply with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000, and which among other things requires that environmental assessments (EA) and impact statements (EIS) identify and assess the potential effects of any proposed project upon the "...cultural practices of the community and State...." More specifically, the purpose of the study is to address the issue of potential project impacts upon current native Hawaiian cultural uses and practices within the Hanamā'ulu project area in accordance with the OEQC "Guidelines for Assessing Cultural Impacts" adopted in November 1997.

The overall rationale that has guided the present study was that the level of study effort should be commensurate with the potential of the proposed project for making any adverse impacts upon any native Hawaiian cultural practices currently conducted by cultural practitioners within the Hanamā'ulu project area. Thus the present identification study is believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area. The potential for the project to result in significant or adverse effects upon any current native Hawaiian cultural practices, beliefs, or features would likely to be minimal or indeterminate; that is, given (a) over a century of historic period sugarcane cultivation of the inland portion of the project area, and (b) mandatory preservation of public shoreline access for purposes of recreation and marine resource exploitation, it was thought very unlikely that the continuation of any current practices would be in any way constrained, restricted, prohibited, or eliminated.

I would like to acknowledge the efforts made by those who have helped achieve the successful completion of the present study within the specific constraints of time and scope. First, I would like to thank the many individuals and group representatives who were contacted by and consulted with our study project team – especially those *kama'āina* and cultural practitioners who shared aspects of their specific knowledge of the Hanamā'ulu project area. Second, I would like to acknowledge the efforts of the other member of our study project team. As a native Hawaiian and a graduate of the Kamehameha Schools, PHRI Cultural Specialist Wanda Pua-Kaipo has taken positive advantage of this opportunity to bring together her two of her many interests – native Hawaiian culture and the management of traditional Hawaiian archaeological resources – and explore how the two elements interact and operate in the everyday world; I believe she has accomplished much in that direction, and I am pleased to find that she has exceeded my expectations with her efforts. I anticipate working together on future projects.

Paul H. Rosendahl
Hilo, Hawai'i

INTRODUCTION

STUDY IDENTIFICATION

At the request of Mr. Jeff Overton of Group 70 International and on behalf of their client, EWM Kaua'i, LLC, Paul H. Rosendahl, Ph.D., Inc. (PHRI) has prepared this cultural impact assessment study as a technical report for an Environmental Impact Statement (EIS) to be submitted in support of development applications to State and County regulatory agencies for the proposed Ocean Bay Plantation at Hanamā'ulu golf course and residential development, located on approximately 460-acres in the Land of Hanamā'ulu, Līhu'e District, Island of Kaua'i (TMK:4-3-7-3:1; 4-3-9-5:5).

STUDY PURPOSE

General Purpose

The general purpose of this cultural impact assessment is to assess the potential impacts of the proposed Ocean Bay Plantation at Hanamā'ulu project on any identified cultural resources in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. *Chapter 343 (Haw.Rev.Stat.)* was amended by the State legislature because of the perceived need to assure that the environmental review process explicitly addressed the potential effects of any proposed project–i.e., "cultural impacts"–upon the cultural resources of the different groups comprising the multi-ethnic community of Hawaii.

Cultural resources include a broad range of often overlapping categories of cultural items –places, behaviors, values, beliefs, objects, records, stories, and so on. A traditional cultural property ("TCP") is one specific type of cultural resource that falls within the purview of the historic preservation review process. A "TCP" is a historic property or place that is important because it possesses "traditional cultural significance":

> "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices....
>
> A traditional cultural property, then, can be defined generally as one that is...[important/significant]...because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1990:1).

In addition, it is important to realize that sometimes a traditional cultural property may not have a visible physical manifestation:

> Although many traditional cultural properties have physical manifestations that anyone walking across the surface of the earth can see, others do not have this kind of visibility, and more important, the meaning, the historical importance of most traditional cultural properties can only be evaluated in terms of the oral history of the community (Sebastian 1993:22).

There are at least two significant differences that distinguish traditional cultural properties as a subset within the larger sphere of cultural resources. First, while cultural resources such as practices and beliefs may be spatially associated with general types of geographical areas, such as the coastal shoreline and inshore area at Hanamā'ulu, a traditional cultural property is a specific physical entity or feature with a definable boundary, such as a specific location on a point on the Hanamā'ulu shoreline. Second, while cultural resources such as practices and beliefs can include general cultural behaviors such as the gathering of various plants for general subsistence or ceremonial uses, a traditional cultural property is a specific

place or feature directly associated with specific behaviors the continuity of which over time, in either actual practice or remembrance, can be demonstrated.

Based on these two significant distinctions, it is possible to suggest three types of practitioner claims relating to cultural practices, beliefs, and features that are likely to be encountered in the course of conducting a cultural impact assessment study. These claims can be referred to as (a) traditional cultural property claims, (b) traditional and customary cultural practice claims, and (c) contemporary or neo-traditional cultural practice claims.

Traditional cultural property claims would be those which lie within the purview of the current historic preservation review process (DLNR 2001a,b); that is, they are claims involving the traditional practices and beliefs of a local ethnic community or members of that community that (a) are associated with a definable physical property (an entity such as a site, building, structure, object, or district), (b) are founded in the history of the local community, (c) contribute to the maintenance of the cultural identity of the community, and (d) demonstrate a historical continuity of practice or belief up to the present–through either actual practice or historical documentation. Furthermore, to qualify as a legitimate traditional cultural property within the historic preservation context, a potential traditional cultural property must be able to demonstrate its historical significance in terms of established evaluation criteria, such as those of the National Register of Historic Places and/or the Hawai'i Register of Historic Places.

Traditional and customary cultural practice claims would be those native Hawaiian claims which lie within the purview of Article XII, Section 7, of the Hawai'i State Constitution ("Traditional and Customary Rights"), and various other state laws and court rulings, particularly as reaffirmed in 1995 by the Hawai'i State Supreme Court in the decision commonly referred to as the "PASH decision," and as further clarified more recently in its 1998 decision in State of Hawai'i v. Alapa'i Hanapi and its 2000 decision in Ka Pa'akai o Ka 'Aina et al. v. Land Use Commission, State of Hawai'i et al. The notable points of the decisions in PASH and in Hanapi can be summarized as follows: (a) the reasonable exercise of ancient Hawaiian usage is entitled to protection under Article XII, Section 7 of the Hawai'i State Constitution; and (b) those persons claiming their conduct is constitutionally protected must prove that they are a native Hawaiian as defined in PASH, that the claimed right is constitutionally protected as a traditional or customary native Hawaiian practice, and that the exercise of the right is occurring on undeveloped or less than fully developed property. Ka Pa'akai generally reaffirms the same points as in the PASH and Hanapi decisions and, in addition, (a) indicates the explicit responsibility of the regulatory agency involved in any application review to arrive at affirmative and substantive conclusions regarding potential impacts upon traditional and customary native Hawaiian cultural practices and resources, and (b) suggests an "analytical framework" for the identification of and potential impacts upon any such cultural practices and resources.

While traditional cultural property claims, as defined above, would certainly fall within the general domain of traditional and customary cultural practice claims, not all traditional and customary cultural practice claims would necessarily qualify as traditional cultural property claims. Traditional and customary cultural practice claims subsume a broad range of cultural practices and beliefs associated with a general geographical area or region, rather than a clearly definable property or site–for example, the gathering of marine resources from along a section of shoreline for traditional subsistence or ceremonial purposes, in contrast to the gathering of a specific marine resource species for a specific use by current generation members of a family that had obtained the same resource from the same recognized site for several generations.

Contemporary, or "neo-traditional", cultural practice claims overlap with neither traditional property claims nor traditional and customary practice claims. Contemporary cultural practice claims would be those made by cultural practitioners relating to current practices or beliefs for which no clear specific historical basis in traditional culture can be clearly established or demonstrated; for example, the conducting of ritual ceremonies of uncertain authenticity at sites or features for which no such prior use can be demonstrated.

Specific Purpose and Objectives

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed Ocean Bay Plantation at Hanamā'ulu project upon the cultural resources–the practices, features and/or beliefs–of native Hawaiians or any other ethnic group, that are associated with the 460-acre Ocean Bay Plantation at Hanamā'ulu project area. To accomplish this purpose, several specific objectives were established:

1. Identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners or groups;
2. Collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices;
3. Assess the potential impacts of the proposed project upon identified cultural practices; and
4. Recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.

Thus, the overall goal or objective of the present cultural impact assessment study is to identify any native Hawaiian or other cultural practices currently being conducted within the 460-acre Ocean Bay Plantation at Hanamā'ulu project area that might potentially be in some manner constrained, restricted, prohibited, or eliminated if the proposed project were to be constructed. The types of practices to be identified would be inclusive; that is, claims for all three types of practices–traditional cultural property, traditional and customary cultural practices, and contemporary cultural practices–would be identified and considered.

CULTURAL IMPACT ASSESSMENT AND OEQC GUIDELINES

As indicated previously, the general purpose of this cultural impact assessment is to assess the potential impacts of the proposed Ocean Bay Plantation at Hanamā'ulu project on any identified cultural resources in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. Among other things, this amendment requires that environmental assessments (EA) and impact statements (EIS) identify and assess the potential effects of any proposed project upon the "...cultural practices of the community and State...." Guidelines previously prepared and adopted by the State Office of Environmental Quality Control (OEQC 1997) provide compliance guidance. Both *Act 50* and the OEQC *Guidelines for Assessing Cultural Impacts* mandate consideration of potential cultural impacts upon all the different groups comprising the multi-ethnic community of Hawaii. This inclusiveness, however, is generally understated, and the emphasis–as indicated by a background review of the cultural impact assessment issue–and the intent and evolution of both the legislative action and the guidelines–is clearly meant to be primarily upon aspects of Native Hawaiian culture–particularly traditional and customary access and use rights.

Background

To understand the cultural impact assessment issue, particularly as it is addressed in the present study, a summary review of the intent and evolution of the OEQC guidelines is necessary. The guidelines evolved out of what are commonly referred to as "PASH/Kohanaiki" issues – issues relating to native Hawaiian traditional and customary access and land use rights as they were reasserted by a State Supreme Court decision in August 1995 and further clarified in its 1998 decision in State v. Hanapi – and the need for appropriate means to address these issues within the State environmental impact review process. For a good discussion of the issues and options involved, the "Report on Native Hawaiian Traditional and Customary Practices Following the Opinion of the Supreme Court of the State of Hawai'i in Public Access Shoreline Hawai'i v. Hawai'i County Planning Commission" prepared by the PASH/Kohanaiki Study Group (1998) should be consulted.

Initial attempts to address various issues relating to native Hawaiian traditional and customary access and land use rights within the framework of the State environmental impact review process were made in the form of proposed changes to the State EIS law as contained in Chapter 343 (HRS). These attempts to require a formal cultural impact assessment failed to pass the State legislature in 1996 and 1997.

A subsequent, second attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights was made in the form of proposed changes in the "Administrative Rules" for compliance with Chapter 343 (DOH Title 11, Chapter 200). This attempt to require an explicitly defined cultural impact assessment also failed, as the governor declined to approve the proposed amendments.

The third attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights within the State environmental impact review process resulted in the current OEQC "Guidelines for Assessing Cultural Impacts" (OEQC 1997b). Draft guidelines were initially issued for public review and comment on September 8, 1997. The Environmental Council formally adopted the guidelines in their final form on November 19, 1997.

The relationship of the OEQC guidelines to the State Supreme Court "PASH decision" was clearly stated on the front page of the September 8, 1997 issue of the OEQC bulletin, *"The Environmental Notice,"* when the draft guidelines were first issued for public review and comment:

> For years, a controversy has simmered over developer's responsibility to perform a "Cultural Impact Study" prior to building a project. The recent Supreme Court "PASH" decision reaffirmed the state's duty to protect the gathering rights of native Hawaiians. In light of these events, the Environmental Council has drafted a guidance document to provide clarity on when and how to assess a project's impacts on the cultural practices of host communities.

It should be noted that the guidelines for cultural impact assessment are meant to include consideration of all the different groups comprising the multi-ethnic community of Hawai'i; however, this inclusiveness is generally understated, and the clear emphasis is meant to be upon aspects of native Hawaiian culture.

More than 20 letters were received by OEQC in response to the publication of the draft guidelines, and relevant comments were said to have been incorporated into a final version of the guidelines (OEQC n.d.). The final guidelines (OEQC 1997b) were formally adopted by the Environmental Council on November 19, 1997. The final guidelines are virtually identical to the draft guidelines initially published on September 8, 1997, and the degree to which any of the received comments on the draft guidelines were considered prior to issuance of the final guidelines is uncertain. In fact, the overall process through which the guidelines were prepared and adopted brings out several important questions relating to such topics as (a) the source or basis utilized for the content of the guidelines, (b) the background and qualifications of the preparer(s) of the guidelines, (c) the criteria to be used for the adequacy of cultural impact assessment studies prepared in response to the guidelines, and (d) the legal question of how compliance can be required when the standards are guidelines.

According to the Chair's Report contained in *The 1997 Annual Report of the Environmental Council*, the guidelines were drafted by the Cultural Impacts Committee:

> The Committee drafted guidelines recommending a methodology to assess the impact of proposed actions on cultural resources, including Native Hawaiian cultural resources, values, and beliefs. The guidelines also specify the contents of a cultural impact assessment.
>
> To prepare the Guidelines, the Committee reviewed public testimony and solicited input from interested parties. Expertise from the DLNR's Historic Preservation Division as well as Federal regulations governing the "Protection of Historic Properties" were used to model the draft guidelines.
>
> The draft cultural impact guidelines were published for review and comment in the Sept. 8 *Environmental Notice*, and over 20 letters were received. Relevant comments were incorporated into a final draft version of the guidelines, which were adopted as a policy document by the Environmental Council on November 19, 1997 (OEQC n.d.:5).

Direct inquiries to OEQC (Gary Gill, Director) and SHPD (Dr. Holly McEldowney, Staff Specialist in the History and Culture Branch) provided additional background information relating to the formulation of the cultural impact assessment guidelines. The principal author or compiler of the guidelines was Arnold Lum, Esq., a member of the Environmental Council's Cultural Impacts Committee. Mr. Lum was also a staff attorney at the Native Hawaiian Legal Corporation. OEQC staff also assisted in the preparation of the guidelines. Several internal drafts were prepared, reviewed, and revised. Preparation of the guidelines relied to some degree upon National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990) for basic content information. Other sources, including the SHPD draft rules for conducting ethnographic surveys and dealing with traditional cultural properties (DLNR n.d.), were consulted; in fact, a copy of the SHPD draft rules was provided to OEQC and the Cultural Impacts Committee by SHPD Administrator, Dr. Don Hibbard. Professional staff in the SHPD-History and Culture Branch took part in the preparation and review of the guidelines. Certainly the inclusion of such professional anthropological and historical expertise in the preparation of the guidelines

was appropriate; however, much of the professional advice on the extent to which detailed expectations–regarding study scope, content, methodology, documentation, and impact assessment–should be explicitly addressed in the guidelines was apparently discounted.

The most recent attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights within the State environmental impact review process has resulted in the recent amendment to *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. While no specific administrative rules for the implementation of this amendment have been adopted, it is generally accepted that the *Guidelines* previously prepared and adopted by the State Office of Environmental Quality Control (OEQC 1997) are meant to provide compliance guidance.

Discussion

The OEQC *Guidelines* consist of three basic sections. The first section is an introduction which notes the various statutory and other bases for addressing potential impacts upon cultural resources within the context of the environmental assessment review process, and "...encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area" (OEQC 1997b:1). The second section of the guidelines discusses methodological considerations for conducting cultural impact assessments, and presents a recommended six-step protocol to be followed by the assessment preparers. The third section of the guidelines outlines eleven topics or "matters" that a cultural assessment should address; these topics basically represent the desired content and organization of a cultural impact assessment report.

As "guidelines," the OEQC *Guidelines* would seem to have neither the specific statutory authority of law, nor the regulatory authority of administrative rules. As guidelines, they can be regarded as providing general guidance; that is, they represent general suggestions and recommendations as to how to approach the assessment of potential cultural impacts. The guidelines provide little or no guidance relative to many important questions, perhaps the most significant of which would be the following:

1. How would project-specific determinations be made as to whether or not a cultural impact assessment study might even be necessary or appropriate–given the specific nature and location of a proposed project;
2. If a cultural impact assessment study is to be conducted, how does one determine what constitutes an appropriate project-specific level of effort – that is, the general scope of work or objectives for the study, and the specific tasks or activities required to accomplish successfully the scope of work or objectives;
3. What criteria are to be used for determining the credibility and reliability of potential cultural information sources (generally referred to as "informants" or "knowledgeable individuals");
4. If specific cultural practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be applied for evaluating (a) the descriptive adequacy and (b) the cultural authenticity of the identified practices, beliefs, or features;
5. If specific culturally authentic practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be used for assessing the nature and extent of potential impacts of a proposed project on the identified practices, beliefs, or features–that is, "no effect," "no adverse effect," or "adverse effect;"
6. If a project is determined to have potentially adverse impacts upon specific identified culturally authentic practices, beliefs, or features, what criteria are to be used for evaluating the adequacy and appropriateness of alternative potential mitigation actions;
7. Within the purview of what regulatory office or agency would the review and acceptance or rejection of a completed cultural impact assessment study legitimately fall; and

8. What standards or criteria are to be used to evaluate the overall adequacy or acceptability of a completed cultural impact assessment study?

Consideration of these questions, and their implicit implications, has direct relevance to the present cultural impact assessment study. These implications relate most importantly to (a) the level of study effort believed appropriate for the project-specific context, and (b) the rationale adopted for both the study overall, as well as for the identification and evaluation of identified cultural practice claims, the assessment of potential project-specific impacts, and the formulation of any specific recommendations for further study or other mitigation actions.

PRESENT STUDY SCOPE

Level of Study Effort and Rationale for Study Approach

The scope of work and methodology for the present cultural impact assessment are based on the general assumption that the level of study effort appropriate in any project-specific context should involve the consideration of several factors, the most relevant of which are the following: (a) the probable number and significance of known or suspected cultural properties, features, exploitable natural resources, practices, or beliefs within or associated with the specific project area; (b) the potential number of individuals (potential informants) with cultural knowledge of the specific project area; (c) the availability of historical and cultural information for the specific project area or immediately adjacent lands; (d) the physical size, configuration, and natural and human modification history of the specific project area; (e) the present or recent modern land use of the specific project area; and (f) the potential effects of the project on known or expected cultural properties, features, practices, exploitable natural resources, or beliefs within or related to the specific project area.

Consideration of these factors within the specific nature and context of the proposed 460-acre Ocean Bay Plantation at Hanamā'ulu project, as well as consultation with professional staff in the State Historic Preservation Division–History and Culture Branch, indicated that the appropriate level of study for an adequate assessment of potential cultural impacts would be a relatively lesser level of study effort that could be characterized as an identification study. The distinctive characteristics of an identification study are that it would be limited to (a) the identification of native Hawaiian or other ethnic group cultural practices, beliefs, properties, features, or exploitable natural resources associated with and/or present within or related to the specific project area that are currently being conducted by and/or known to individual cultural practitioners or groups, and (b) the collection of information reasonably sufficient so as to define the general nature, location, and likely authenticity of identified cultural claims.

An identification study would not involve the considerably greater level of study effort–both calendar months and hours of labor–needed to carry out what could be characterized as a full documentation study. The distinctive characteristics of the latter, which would commonly be referred to as a full ethnographic or oral history study, would be (a) the collection of detailed information regarding identified native Hawaiian or other ethnic group cultural practices by means of formal oral history interviews which are usually tape recorded and transcribed, and (b) the analysis and synthesis of all collected data – from interviews, as well as relevant historical documentary and archival research–within the general cultural-historical context of traditional native Hawaiian or other ethnic group culture and the defined specific geographical area of a specific project.

The overall rationale guiding the present identification study has been that the level of study effort should be commensurate with the potential of the proposed project for making any adverse impacts upon any native Hawaiian or other ethnic group cultural practices currently conducted by cultural practitioners within the project area. The identification study presented here is believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area. The potential for the project to result in adverse impacts upon any current native Hawaiian or other ethnic group cultural practices, beliefs, or features would seem likely to be minimal or indeterminate; that is, given the past land use history of the project area and the general nature of the proposed project, it is very unlikely that the continued exercise of any current practices would be in any way constrained, restricted, prohibited, or eliminated.

Because the project is believed unlikely to have any determinable adverse impacts on any current native Hawaiian or other ethnic group cultural practices associated with Ocean Bay Plantation at Hanamā'ulu project area, the level of study effort comprising the present identification study is believed sufficient.

Adequate evaluation and documentation of such practices for the present study do not require intensive ethnographic studies that would document the specific details of each identified cultural practice. Neither are exhaustive efforts needed to evaluate the authenticity of identified cultural practices, or to determine whether such practices represent traditional and customary cultural practices or more recently established contemporary cultural practices. Whatever the nature of any current native Hawaiian or other ethnic group cultural practices associated with the Ocean Bay Plantation at Hanamā'ulu project area, the proposed project, as currently conceived, should not be likely to significantly affect the continuation of such practices.

Study Scope and Tasks

An action plan was initially prepared for providing overall direction to the conduct of the cultural impact assessment identification study. This action plan included the following tasks:

1. Project team members assemble preliminary working lists of potential contacts, informants, and information sources (groups and individuals);
2. Compare preliminary lists and assemble prioritized final list of potential contacts, informants, and information sources;
3. Review final list with client and client representatives;
4. Conduct limited background review of readily available historical and cultural documents and reports;
5. Make initial contacts with potentially knowledgeable informants;
6. Conduct initial communications, meetings, and/or informal interviews with potentially knowledgeable informants;
7. Review and evaluate initial findings, and develop revised list of principal knowledgeable informants and cultural practice associations;
8. Select principal knowledgeable informants with whom subsequent formal oral history interviews would be appropriate for documentation purposes;
9. Develop outline of general informant oral history interview topic areas for subsequent formal oral history interviews; and
10. Prepare cultural impact assessment identification study report.

Project Personnel and Roles

The identification study project team consisted of two individuals: PHRI Cultural Specialist Wanda Hoke Pua-Kaipo, and PHRI Principal Paul H. Rosendahl. Initial potential contact lists were formulated, compared, and finalized, and project team members were assigned primary responsibility for attempting to contact specified potential informants. The list was continually revised and expanded, as potential informants were contacted, information was obtained, and the contacted individual in turn suggested additional referrals to be contacted. The list eventually stabilized as contact referrals became largely repeated and new names became rare. The majority of the contacts were made, and information obtained, by Mrs. Pua-Kaipo. While repeated attempts were made to contact all individuals placed on the revised list of potential informants, a few did not respond to repeated attempts or could not be contacted at all.

The present identification study report was prepared by Dr. Rosendahl, with the assistance of Mrs. Pua-Kaipo. Mrs. Pua-Kaipo was primarily responsible for preparing the sections dealing with (a) study methodology–particularly that portion dealing with potential informants contacted, (b) identification of native Hawaiian practices associated with the Hanamā'ulu project area, and (c) the broader issues and concerns of the local Hawaiian community, while Dr. Rosendahl assumed primary responsibility for preparation of most of the other sections of the report, including (a) the introduction, background, and study approach and rationale, and (b) the conclusions. The sections that summarize the background and nature of the proposed project overall, and the historical background for the project area were largely adapted from existing sources.

STUDY METHODOLOGY

Guidance Documents

Several references were utilized as basic guidance documents for the conduct of the present cultural impact assessment identification study. The principal sources were the following:

1. The OEQC *Guidelines for Assessing Cultural Impacts* (OEQC 1997);
2. The *Native Hawaiian Rights Handbook* (MacKenzie 1991), and more specifically the discussions of traditional and customary rights contained in the two chapters on access rights (Lucas 1991a) and gathering rights (Lucas 1991b);
3. The *Report on Native Hawaiian Traditional and Customary Practices Following the Opinion of the Supreme Court of the State of Hawai'i in Public Access Shoreline Hawaii v. Hawai'i County Planning Commission* prepared by the PASH/Kohanaiki Study Group (1998);
4. The text of several relevant decisions of the Hawai'i Supreme Court, including the decision commonly referred to as the "PASH decision" (1995), and the decisions in State of Hawai'i v. Alapa'i Hanapi (1998) and Ka Pa'akai o Ka 'Aina et al. v. Land Use Commission, State of Hawai'i et al. (2000);
5. The federal regulations of the Advisory Council on Historic Preservation for the *National Register of Historic Places* (CFR 1981) and the *Protection of Historic Properties* (CFR 1986);
6. National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990); and
7. Recent versions of the State Historic Preservation Division (SHPD) draft administrative rules, including Chapter 275: *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS* (DLNR 2001a), Chapter 284: *Rules Governing Procedures for Historic Preservation Review to Comment on Chapter 6E-42, HRS, Projects* (2001b), and Chapter 284--*Rules Governing Procedures for Ethnographic Inventory Surveys, Treatment of Traditional Cultural Properties, and Historical Data Recovery* (DLNR n.d.).

While the general nature and content of the first four referenced sources are self-explanatory, further comment should be made regarding the final three items. In the absence of any formally adopted administrative rules, SHPD currently utilizes National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990), as its principal source of guidance for reviewing and evaluating the adequacy and acceptability of traditional cultural property study reports prepared in connection with various permit applications for which SHPD regulatory review is required. Bulletin No. 38 provides detailed guidance for the assessment of traditional cultural properties within the framework of the National Register significance criteria evaluation process (NPS 1990).

The SHPD draft administrative rules relating to ethnographic surveys and traditional cultural properties (DLNR n.d.) have existed in finalized draft version since at least early 1997; however, they have never been circulated openly, much less formally provided for public review, comment, and eventual adoption by the Department of Land and Natural Resources. This situation is unfortunate because the draft rules go well beyond National Register Bulletin No. 38 in providing detailed guidance for conducting traditional cultural property studies, and more specifically for dealing with the identification, evaluation, and documentation of native Hawaiian traditional cultural properties and their associated cultural practices and beliefs.

In the absence of any formally adopted administrative rules, SHPD can also be said to basically follow the federal regulations of the Advisory Council on Historic Preservation for guidance in the evaluation of significance--as contained in Section 60.4 ("Criteria for evaluation") of the "National Register of Historic Places" (CFR 1981), and for guidance in the assessment of potential effects--as contained in Section 800.9 ("Criteria of effect and adverse effect") of the "Protection of Historic Properties" (CFR 1986).

Information Sources

The principal sources of information utilized for this study were various individuals identified in the List of Potential Informants *(Table 1)*. An effort was made to identify and contact individuals potentially knowledgeable of the project area with regard to traditional cultural properties, traditional and customary cultural practices, and/or contemporary ("neo-traditional") cultural practices. Potentially knowledgeable individuals were evaluated by means of an initial contact and preliminary interview to determine which--if any--individuals had site-specific knowledge and might be candidates for formal ethnographic interviews.

The Project Team formulated an initial list of potential informants. An attempt was made to identify as many potential informants as possible. This list was comprised of individuals associated with State agencies, associations, community groups, Hawaiian Civic Clubs, *hālau hula* (*hula* schools), as well as individuals from a wide number of backgrounds and expertise. Individuals contacted were asked to provide referrals and, based on this networking; the initial contact list was expanded to include 55 individuals. Given the limited time frame, a conscious effort was made to contact as many people as possible within the Hawaiian community on Kaua'i. A special effort was made to contact *kūpuna* (elders), other knowledgeable individuals, and cultural practitioners, such as *kumu hula* (*hula* teachers), cultural specialists, teachers, and crafts people.

Additional sources of information consulted were prior archaeological reports and maps of the general Hanamā'ulu, Līhu'e, and Wailua areas. No new or additional historical documentary work was done

Summary of Potential Informants Contacted

A final List of Potential Informants contacted for the present study is contained in *Table 1*. Numerous attempts were made to contact everyone on the Potential Informant List. Repeated attempts were made either by phone or through intermediaries. Attempts were made to follow up on all leads that were given. Those people not successfully contacted are indicated as such and these names remain on the list to show the broad spectrum of people for whom contacts were attempted. All informant interviews were done informally by telephone, and written notes were kept. A previously prepared outline of general informant interview topics was utilized for general interview guidance (see *Appendix A*, at end). For the present study, all informants were contacted by phone; no formal taped interviews were done for this identification study.

The informants represented diverse backgrounds and community groups, and included various ethnicities in addition to native Hawaiians. Their expertise included, but was not limited to, cultural resource specialists, historians, researchers, *kumu hula*, and *kūpuna*. Any potential informant who might have had an interest in the area, use the area or have site-specific knowledge of the project area was also included in the study. Of the 56 informants included in the final revised "List of Potential Informants," a total of 41 informants were contacted and 15 were unsuccessfully contacted. Virtually every one of the 41 contacted individuals was able to provide one or more referrals. Of the 41 individuals contacted, four were unable to provide any useful information; 26 provided limited general and cultural information; and 11 provided useful information specific to the project area and have potential for follow-up and/or possible interviews. None of the informants contacted were able to provide more detailed information regarding usage, folklore, and cultural practices within or immediately adjacent to the project area. Several of these last 11 informants have good interview potential, and consideration for interviews and further follow-up is recommended. Also, Of the 15 potential informants that not successfully contacted, three were reported by other informants as being knowledgeable; i.e., having good interview potential, and are recommended for follow-up.

Following are brief profiles of informants identified and evaluated as knowledgeable individuals and who are recommended as potential candidates for more detailed formal oral history interviews that would record the cultural practices and beliefs associated with project. These individuals were selected because of their site-specific knowledge of the Hanamā'ulu project area, knowledge of local place names and folklore, family ties to the area and/or their use of project area for cultural purposes.

Stanley Kahuahine – Retired from a career in the Marines and as General Manager for Princeville, Stanley currently resides in Kapa'a. He grew up living at Hanamā'ulu Beach with his dad and family. Stanley and his *'ohana* fished from Hanamā'ulu Bay to Ha'ena throughout his early years, and still occasionally fish Hanamā'ulu Bay.

Table 1. List of Potential Informants

	Name	Contact None	Contact WPK	Contact PHR	Expertise	Potential	Affiliation	Additional Comments
1	Ako, Val	-	+	-	NH,C/P	2/R	LR	Brother of Kino Kanaharui (Kona, Hawaii Island)
2	Bekeart, Dolly	-	+	-	PE	0	ALC	Amfac Land Manager
3	Blake, Hartwell	+	-	-	LGL	0	CK	Kauai County Council Attorney
4	Burgess, Stella	-	+	-	NH	0/R	LR	Cultural Director, Hyatt Poipu Hotel
5	Durant, John	+	-	-	NH	0	LR	Nephew to Leopold Durant
6	Durant, Leopold "Butch"	-	+	-	NH	2	LR	
7	Durant, Roland	+	-	-	NH	0	LR	Son to Leopold Durant
8	Furukawa, Mike	-	+	-	PE	1/R	GFP	Grove Farms; former Amfac Property Manager
9	Gomes, Stephen	-	+	-	PE	1/R	LR, ALC	Retired Amfac Irrigation Superintendent.
10	Hashimoto, Annie	+	-	-	NH	0	KHCC	Hawaiian Civic Club
11	Hong, Walton D.Y., Esq	-	-	+	LGL	R	LR	Project attorney for EWM Kauai, LLC
12	Ishimoto, Hiseo	-	+	-	PE	1/R	LR	Retired Amfac Land Division employee
13	Kahalekomo, Janet	-	+	-	NH	1/R	LR	Lionel Kaohi's sister
14	Kalikea, Sarah	+	-	-	NH	3	LR	Nawiliwili resident
15	Kalikea, Annie	-	+	-	-	0	LR	
16	Kaluahine, Stanley	-	+	-	NH	3/R	LR	Retired General Manager, Princeville
17	Kane, Dirge	-	+	+	NH	2	LR	Possible burials information
18	Kane, Pomai	-	-	+	NH	2	LR	Wife of D.Kane
19	Kaohi, Lionel	-	+	-	NH	1/R	KHCC,LR	Kaumualii Hawaiian Civic Club
20	Kaohi, Lydia	-	+	-	NH	1/R	KHCC,LR	Wife of Lionel Kaohi
21	Kapaka-Arbolea, LaFrance	-	+	+	NH	3/R	LR, OHA, K/NIBC	OHA Kauai Office Coordinator
22	Kauka, Sabra	-	+	-	NH,CRS	1/R	HNHN, HDP, HK	
23	Kalekona, Allica	-	+	-	NH,PE	3/R	LR	
24	Kalekona, Clay	-	+	-	NH	0/R	LR	
25	Killeu, Charlie	+	-	-	NH	3	LR	No phone
26	Killeu, Lily Pia	+	-	-	NH	3	LR	No phone
27	Killeu, Walter	-	+	-	NH	1/R	LR	
28	Kikuchi, Bill	-	+	-	HPS	0	KCC	Anthropology/Archaeology Professor
29	Leite, Shirley Matsushima	-	+	-	NH	3/R	past LR	Mother is Rego family; sister to Lester and Joyce Matsushima
30	Lovell-Obatake, Cheryl	-	+	-	NH, CP, CRS	3/R	K/NIBC, LR, HPL, NWC,CAC	Former K/NIBC member
31	Madrid, Angel	+	-	-	PE	0	LR	Former Amfac Land Division employee
32	Maly, Kapa	-	+	-	CRS, HDR	0/R	KPA	Cultural Specialist; former Kauai resident; local family ties thru wife
33	Matsushima, Lester	-	+	-	NH	3	LR	Burials information, Rego family
34	McElderoney, Holly	-	-	+	CRS, EHIST HDR,HPS	0/R	SHPD	Cult./Hist. Staff
35	McKeague, Kawika	-	+	+	NH, PLN	1/R	G70	G70 employee; nephew of Nani Rogers
36	McMahon, Nancy	-	-	+	HPS	0/R	LR,SHPD	Kauai staff archaeologist
37	Moniz, Elodie	-	+	-	PE	0/R	LR	Amfac employee (36 years)
38	Morikawa, Cindy Killeu	+	-	-	NH	3	LR	Husband Yasu is fisherman; Killeu family fished area
39	Morikawa, Wendy	+	-	-	NH	0	LR	Sister to Yasu Morikawa
40	Morikawa, Yasu	+	-	-	NH	3	LR	Local shoreline fisherman
41	Nagao, Alan	-	+	-	C/P	2/R	LR	Fisherman; Hanama'ulu resident
42	Nilone-Salvador, Lurline	-	+	-	NH,CRS	0/R	KS	
43	Oana, Stanley	-	+	-	NH	2/R	LR, HBC, MOH	Hanama'ulu resident
44	Penui, Margaret	+	-	-	NH	0	LR	
45	Pia, John	-	+	-	NH	3/R	LR, AACE	Brother to Lily Pia Killeu
46	Pratt, David	+	-	-	PE	0	GFP	Grove Farms
47	Rayno, Peter	-	+	-	PE	3/R	LR	Retired Amfac employee
48	Rego, Bobby	-	+	-	NH	2/R	LR	Uncle to Lester and Joyce Matsushima
49	Rego, John	+	-	-	NH	0	LR	245-2240 (h?)
50	Rogers, Nani	+	-	-	NH	0	LR	Aunt to Kawika McKeague
51	Sarita, Eddie	-	+	-	PE	3/R	LR	Hanamaulu Valley resident; retired Amfac employee
52	Sasaki, Joyce Matsushima	-	+	-	NH	3/R	LR	Mother is Rego family; sister to Lester Matsushima and Shirley Leite
53	Wann, Presley	-	+	-	NH	1	LR,K/NIBC	Waialua area
54	Youn, Avery	-	+	-	NH,PLN	1/R	LR	Architect; extensive work at Nukolii; past County Planning Director
55	Youn, Healani	-	+	-	NH, KH	1/R	LR	Past Ms. Aloha Hula; sister to Avery Youn; *kumu hula*
56	Yoshida, Laurie	-	+	+	CR	R	LR,SP-LY	Community relations advisor to EWM Kauai, LLC

Table 1. (Cont.)

KEYS

Expertise:
- C/P Cultural Practitioner
- CRS Community Relations
- CRS Cultural Resources Specialist
- HDR Historical Documentary Researcher
- HPS Historic Preservation/Cultural Resources Management Specialist
- LGL Legal (Attorney)
- NH Native Hawaiian
- PLN Planner
- PE Plantation Employee

Potential:
- 0 None
- 1 Limited information; possible follow-up contact
- 2 Useful information; probable follow-up contact
- 3 Good information; definite follow-up; potential formal interview informant
- R Provided referral(s) to other potential informants and/or information sources

Affiliation:
- AACE Anahola Ancient Cultural Exchange
- ALC Amfac Land Company, Limited
- CAC Citizen Advisory Committee
- CK County of Kauai
- DLNR Department of Land and Natural Resources
- G70 Group 70 International
- GFP Grove Farm Properties
- HBC Hanama'ulu Beautification Committee
- HK Hale Kupono
- HDP Hoculu Ka Ola Na Pua
- HNH Hui Nasuao o Hawaii Nei
- HPL Hawaii Patriotic League
- HRP Hyatt Regency Poipu Hotel
- KHCC Kaumualii Hawaiian Civic Club
- KCC Kauai Community College
- K/NIBC Kaua'i/Ni'ihau Islands Burial Council
- KPA Kumu Pono Associates (Hilo)
- KS Kamehameha Schools
- LR Local Resident
- MoH Malama-o-Hoopili
- NWC Nawiliwili Watershed Council
- OHA Office of Hawaiian Affairs
- OK Onipea Kaelle
- PLN Planner
- SHPD State Historic Preservation Division (DLNR)
- SP-LY Successful Planning-Laurie Yoshida

Other:
- PHR Paul H. Rosendahl (PHRI)
- PHRI Paul H. Rosendahl, Ph.D., Inc.
- WPK Wanda Pua-Kaipo

LaFrance Kapaka-Arbolea – Kaua'i Office Coordinator for the Office of Hawaiian Affairs, LaFrance was raised by her grandmother, Helen Kapaka, in Hulē'a Valley. *Tutu* Kapaka was a practitioner of *ho'oponopono*. Through this practice, LaFrance became acquainted with many of the old time families of the Hanamā'ulu area.

Cheryl Lovell-Obatake – Raised in Nāwiliwili, Cheryl manages kuleana land in Nāwiliwili, Kalapaki and Niumalu. She is former Chair of the Kaua'i/Ni'ihau Island Burial Council, and current Chair of the Nāwiliwili Watershed Council. Cheryl was also a member of the Citizen Advisory Committee and participated in many meetings involving the Kaua'i General Plan, particularly Chapter 3, which deals with caring for land, water and culture. Both Cheryl and her 'ohana fish the shoreline along the project area.

Lester Matsushima – Lester was born and raised in Hanamā'ulu, as were his parents. He worked for the plantation and pineapple canneries before leaving Kaua'i to join the Air Force. He returned to Kaua'i after retiring from the military, and worked for Federal Civil Service Air Defense at Kōke'e, from which he is currently retired. Lester's great grandfather, Wahinealohakeo, was the last konohiki from the Hanamā'ulu Bay area.

John Pia – Born and raised in Hanamā'ulu, John retired as a construction heavy equipment operator and supervisor for E.F. Nielson & Aina Site. John and his wife, Suzanne, currently operate the non-profit Anahola Ancient Cultural Exchange summer program for Hawaiian kids utilizing *kūpuna*. John's sister Lily, who is in her 60s, still currently gathers 'opihi from the project area shoreline, and Lily's family also actively fishes the area.

Eddie Sarita – A member of the Hanamā'ulu Beautification Committee, Eddie grew up in Hanamā'ulu in the 1950s and 1960s. He worked for 25 years with Amfac, and is currently the Manager of Kaua'i Convention Center. Eddie remembers the Hanamā'ulu area in great detail, and particularly fishing practices from his younger years.

OCEAN BAY PLANTATION AT HANAMĀ'ULU PROJECT

PROJECT SETTING AND BACKGROUND

The Ocean Bay Plantation project area consists of c. 460 acres of former sugarcane lands located in the Land of Hanamā'ulu in the District of Līhu'e on the Island of Kaua'i (*Figure 1*). It is bound on the south by Hanamā'ulu Bay; on the east by the Pacific Ocean; on the west by the Hanamā'ulu-Ahukini Cut-off Road and Kuhio Highway, and on the north by Kaua'i Beach Road. Virtually all of the project area was under sugarcane cultivation for more than a century, but has stood abandoned and overgrown since sugarcane cultivation was discontinued approximately fifteen to twenty years ago.

The terrain within most of the project area is generally level. Koloa series soils (Foote et al. 1972) are present immediately inland of the coastline; these soils developed in material weathered from basic igneous rock, and overlie hard rock. Four general types of the Koloa series soils are present: Līhu'e silty clay (0-8% slopes), Līhu'e silty clay (8-15% slopes), Līhu'e gravelly silty clay (0-8% slopes), and Koloa stony silty clay (15-25%).

There are three general types of soil present within the immediate coastline: area: Rough Broken Land, Rock Outcrop, and Beaches (Foote et al. 1972). The Rock outcrop land consists of exposed basalt and andesite bedrock, which covers more than 90% of the surface (Foote et al. 1972). Within the southern half of the project area, the lands classified as Beaches are composed solely of basalt cobble and boulder areas that are constantly awash with waves. Present within the coastal flats at the northeast corner of the project area are three general types of soil: Mokulē'ia fine sandy loam, Koloa stony silty clay (8-15% slopes), and Beaches. Within the coastal flats, the land classified as Beaches is composed of light-colored sands derived from coral and seashells.

Rainfall in the general vicinity of the project area ranges between 40-50 inches per year, and the mean annual temperature in the project area vicinity ranges from 70-75 degrees F (Armstrong 1983:63). Vegetation in the immediate coastline and the coastal flats at the northeast corner of the project area, adjacent to the existing beach access road, consists mainly of ironwood (*Casuarina equisetifolia* L.), *naupaka-kahakai* (*Scaevola sericea* Vahl), introduced grasses, and tree heliotrope (*Heliotropium anomalum* H. & A. var. *argenteum* Gray). Because the section of land inland of the Radisson Kauai Beach Resort Hotel is a low-lying drainage, or intermittent wetland sometimes containing standing water, vegetation in this area includes various reeds, sedges, grasses, and *hau* (*Hibiscus tiliaceus* L.). Present within this area are three general types of soils: Mokuleia clay loam (poorly drained variant), Līhu'e silty clay (25-40% slopes, eroded), and Hanalei silty clay (0-2% slopes) (Foote et al. 1972). Hanalei series soils are generally suitable for taro, pasture, sugarcane, and vegetable crops, and Hanalei silty clay (0-2% slopes) specifically "...occurs on stream bottoms and flood plains" (Foote et al. 1972:38). Līhu'e series soils are generally suitable for irrigated sugarcane, pineapple, pasture, and orchards (Foote et al. 1972:82).

The area inland of the county parkland appears to have been modified sometime in the past, as evidenced by the presence of secondary growth species such as *koa-haole* (*Leucaena glauca* (L.) Benth.) and Indian Pluchea (*Pluchea indica* [L.] Less.). Present within this area are general types of soil: Mokuleia clay loam (poorly drained variant), Līhu'e silty clay (25-40% slopes, eroded), Līhu'e gravelly silty clay (8-15% slopes), and Fill Land (Foote et al. 1972). Fill Land "...consists of areas filled with material from dredging, excavation from adjacent uplands, garbage, and bagasse and slurry from sugar mills. Generally, these materials are dumped and spread over marshes, low-lying areas along the coastal flats, coral sand, coral limestone, or areas shallow to bedrock" (Foote et al. 1972: 31).

Paul H. Rosendahl, Ph.D., Inc. (PHRI) recently completed an archaeological inventory survey for the Ocean Bay Plantation at Hanamā'ulu project (Corbin et al. 2001). The basic objective of the survey was to provide information sufficient for (a) preparation of an Environmental Impact Statement for the proposed development of the project site, and (b) compliance with the regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the County of Kaua'i. The current survey report (Corbin et al. 2001) is a revised and upgraded version of an earlier PHRI report (Walker et al. 1991). The present Hanamā'ulu project area had been previously surveyed in 1990 by PHRI for an EIS that was to have been prepared in connection with AMFAC/JMB Hawaii, Inc.'s Līhu'e/Puhi/Hanamā'ulu Master Plan Project.

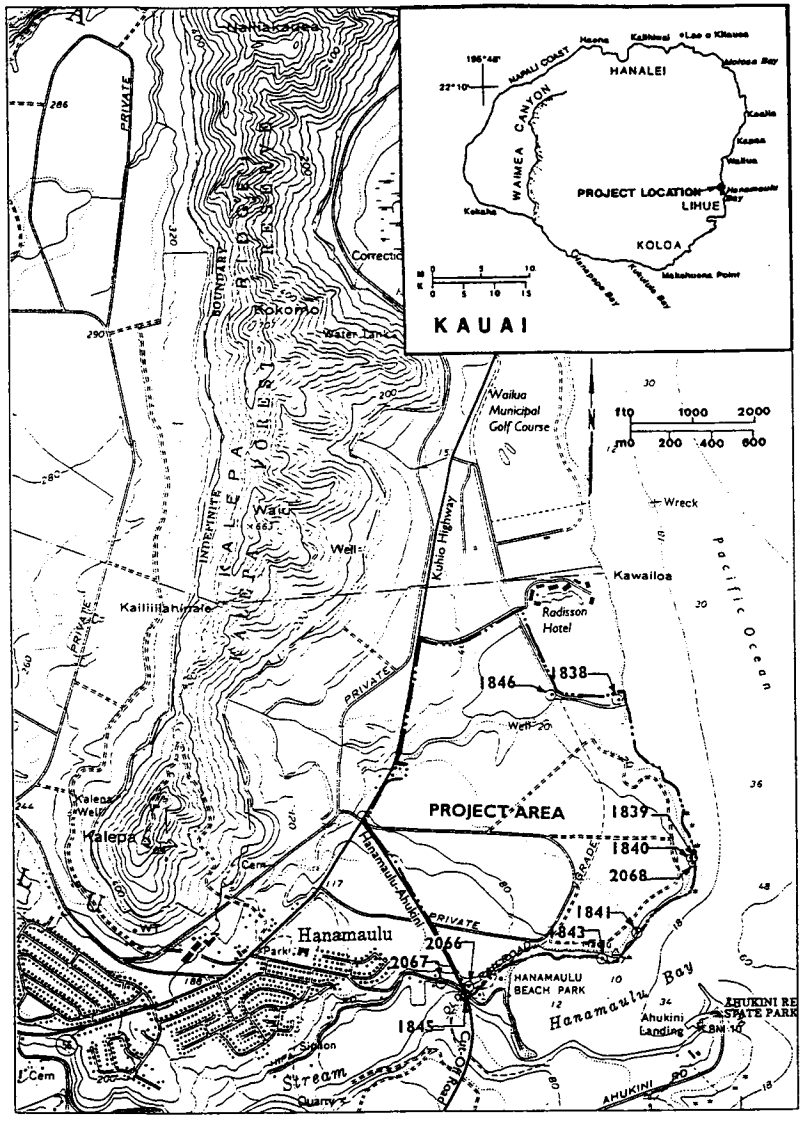

Figure 1. Project Area and Site Location Map.

The 1990 inventory survey included virtually the entire current project site. The 1990 inventory survey report (Walker et al. 1991) was completed but was never submitted to SHPD for formal review. In June 2001, PHRI consulted with Dr. Ross Cordy, SHPD Archaeology Branch Chief, regarding the prior 1990 field survey and report, and formulated the specific tasks needed to upgrade the prior survey and report as appropriate for the Ocean Bay Plantation at Hanamā'ulu project. PHRI then proceeded with the appropriate supplemental fieldwork in August 2001, and subsequently revised and upgraded the earlier report to the current version (Corbin et al. 2001).

Four site complexes and six single-feature sites were identified within or in the immediate vicinity of the Ocean Bay Plantation at Hanamā'ulu project area. (See *Figure 1* for location of sites.) The sites and complexes were composed of a variety of formal feature types. The most common feature types were bridges (two), cultural deposits (two), and cemeteries (one, possibly two). Other feature types in the area included concrete foundations, a retaining wall, and a terrace. Transportation constituted one-quarter of the functional site types. This function was almost certainly connected to the sugarcane production and distribution that took place in the area. Temporary and possible permanent habitation constituted one-half of the functional types. These related to the prehistoric use of the project area for habitation at the coast, doubtless for the procurement of marine resources.

Of the ten sites identified within or immediately adjacent to the Ocean Bay Plantation at Hanamā'ulu project area, six were assessed as significant for information content, and no further work or preservation was recommended (Sites 1838, 1839, 1840, 1841, 1843, 2068). One site (Site 1845), a historic concrete railroad bridge, was assessed as significant under multiple criteria, and further data collection followed by preservation with some level of interpretive development was recommended. Another concrete bridge site (Site 1846) was also assessed as significant under multiple criteria, and further data recovery in the form of limited historical research without subsequent preservation was recommended. Site 2066, a complex with a distinctive upright basalt boulder, was recommended for further data recovery in the form of limited historical research and possible preservation. Site 2067, a historic cemetery located just outside the current project area, was recommended for preservation "as is" and would be avoided and protected during project development.

PROJECT DESCRIPTION

[Note: The following summary has been adapted from the Environmental Impact Statement Preparation Notice (EISPN) published in the September 8, 2001 issue of the OEQC bulletin, *The Environmental Notice*.]

The applicant, EWM Kaua'i, LLC, proposes to develop the 460-acre property as a mixed-use residential and golf course community. The low-density master-planned community would maintain the open space character and sense of place of the surrounding area, and would include large open-space buffer areas along the coastline, the existing wetland, and the existing highway. Proposed for the project area single and multi-family residential lots, an 18-hole golf course and associated clubhouse facility, and a small-scale commercial center. Project implementation is anticipated to be phased over a 10-15 year period, with initial site clearing, grading, and infrastructure tentatively scheduled to begin in 2003. The golf course and clubhouse, and a portion of the single family residential lots would be developed during the first two years, while the remaining single and multi-family lots would be incrementally developed over the following 5-10 years.

SUMMARY OF HISTORICAL DOCUMENTARY RESEARCH

[Note: The following summary has been adapted from Kalima and Smith 2001.]

Hanamā'ulu is mentioned in *Olelo No'eau*, a book of Hawaiian sayings and epithets:

> *No Hanama'ulu ka ipu puehu.*
>
> (The quickly emptied container belongs to Hanamā'ulu.)
>
> Said of the stingy people of Hanamā'ulu, Kaua'i - no hospitality there. At one time, food containers would be hidden away and the people of Hanamā'ulu would apologize for having so little to offer their guests (Puku'i 1983: No. 2230).

Hanamā'ulu translates literally as "tired (as from walking) bay," and it is said to be the birthplace of the hero Kawelo (Puku'i et al. 1974). Few legendary sources refer specifically to Hanamā'ulu; what legendary information exists is indirect and primarily concerns the nearby *ahupua'a* of Wailua. In a report by Cox (1977) on Wailua, the author emphasized that Wailua was a place of central importance on the island and the major religious center for the *ali'i nui* of the island (Cox 1977:4).

Handy (1940) describes traditional agriculture in the Hanamā'ulu area:

> Coconut planted near sea level throughout; in valley bottoms in Hanamā'ulu... *Wauke* planted in inner valley slopes, especially Koolau, Puna (1940:59).

Farming in the Hanamā'ulu area included raising taro, sweet potato, breadfruit and coconuts. Hanamā'ulu Stream flows through a broad gulch extensively terraced in olden times. Before the advent of sugar cane, the stream delta was very likely an important area for wet taro cultivation. Upland slopes would have been ideal for planting sweet potato (Handy and Handy 1972).

Archaeologist W.C. Bennett briefly describes two *heiau* in the Hanamā'ulu area:

> Site 102. Kalauokamanu heiau, in Hanamā'ulu above the present mill. Described by Thrum as "A large walled heiau that stood above the present mill; destroyed about 1855. Of *po'okanaka* class.
>
> Site 103. Dune burials. In the sand dunes that run along the shore half way between Hanamā'ulu and Wailua River are many burials (Bennett 1931:125).

Bennett, an archaeologist who studied many areas of Hawai'i in the early part of this century, noted that it was hard to link archaeological finds on Kaua'i to individual chiefs and political events due to the incompleteness of the genealogical record and Kauai's independence from the other islands, which have relatively better-documented political records. There is also little information to help determine early land ownership (Bennett 1929).

In 1848, during the reign of Kamehameha III, the traditional Hawaiian land ownership system was replaced with a more Western-style system referred to as the Great Mahele. During the Mahele all land was designated as Crown Lands, Government Lands, or Konohiki Lands. These lands were all "subject to the rights of native tenants" (Laws of Hawai'i 1848:22), the common Hawaiian people who lived on and worked the land. Eventually, fee simple title was awarded to all native tenants who occupied and improved any portion of Crown, Government, or Konohiki lands; the Land Commission issued thousands of awards to the native tenants. The Indices to Land Commission Awards(Board of Commissioners 1929) contain the following awards for Hanamā'ulu; the fourth name on the list, V. Kamamalu, is Victoria, sister of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Moses Kekuaiwa, and half sister of Ruth Keelikolani, and she was awarded Hanamā'ulu Ahupua'a:

LCA	Awardee	Acreage
3648	Kala	1.25 Acs 30 rods
3650	Kaluhiwaha	3 roods, 35 rods
3649	Kamalo	1.75 Acs 20 rods
7713	V. Kamamalu	9177 Acs (Ap 2) ahp
3644	Kaualupa	1.25 Acs 23 rods
3558	Keke	3 roods 1 rod
3600	Keolanui	1.75 Acs 30 rods
3653	Kolu	1 Ac 37 rods
5089	Kuhaimoana	3 roods 17 rods
3640	Kumakahaohao	1 Ac 1 rood 12 rods
3271	Lalahilimoku, Leimoku	1 Ac 1 rood 21 rods
3657	Niho	1 Ac 1 rood 13 rods
3423	Paka	1.50 Acs 33 rods
3426	Pelekane	1 Ac 17 rods
3371	Naehu	1.25 Ac 19 rods (Kapaia)
3647	Kapuohi	4 Acs 32 rods (Moala)
3647	Kapuohi	38 rods (Papuaa)

The following are excerpts from testimonies for awards to individuals in Hanamā'ulu:

> **LCA 3558 to Keke, Foreign Testimony vol. 13:160** - Kaualapa sworn, he has seen...consists of three lois in the ili of Waiaoao and then it also a small kula adjoining. Claimant has also a house lot at Hoeua.... Claimant had his land from his friend Pekue in 1846. His house lot he had from Keo. Claimant held a house lot at Opai which was disputed by Keo the Konohiki. Claimant agreed to give him the lot above described at Hoeua.
>
> **LCA 3600 to Keolanui, Foreign Testimony vol. 13:153** - In the ili of Palaka and consists of [not listed or illegible] lois and house lot, all family but one piece bounded thus...Claimant had his land from Daniela Oleloa, in the days of good old Kaihiaena & has occupied it ever since without opposition...
>
> **LCA 3653 to Kolu, Foreign Testimony vol. 13:151** – It consists of four lois in the ahupuaa of Hanamā'ulu and consists of four loi in the ili of Maulele, with small kula adjoining the kula is not cultivated being exhausted to the depredations of cattle. Claimant has also a house lot in the village of Kamakahanahana which is surrounded by a fence. No. 1 is bounded...Koloa - auwai of Keoki. No. 2 is kula of Kamakahanahana...Claimant had his land from Keo, konohiki, in the days of Kaikioewa had peaceable possession ever since his claim has never been disputed. Keo says I am a luna under Kanoa and know the land and gave the land to Claimant according to the testimony of Keolauui which all true.
>
> **LCA 3426 to Pelekane, Foreign Testimony vol. 13:156** - ....consists of 4 loi and in the ili of Kapuhala. Claimant has also a house lot near the sea shore at a place called Kaho ....Lot 2 (bounded by)...North - fish pond...land from his konohiki Pau soon after Kanoa came to Kauai and occupied it in peace till Keo and became konohiki again in 1849 who took away from Claimant two lois and gave them to Aumoana Keke sworn declares the testimony of Lalahilimoku to be all true. Keo sworn says it is true that Pelekane held and occupied said from lois...
>
> **LCA 3371 to Naehu and heirs, Foreign Testimony vol. 13:155** - ...consists of 10 lois and small kula adjoining on which Claimants house in the ili of Kapaia. Claimant had his land from his son-in-law Kailihania soon after Kanoa came to Kauai and he occupied it in peace till his death, which occurred in 1849. He gave land to his daughter Kaipu.
>
> **LCA 3647 to Kapuohi, Foreign Testimony vol. 13:151** - ...consists of 8 lois and 23 loi not now cultivated. These lois lie in two pieces, being divided koeles [small land unit farmed by a tenant for the chief]. No. 1 contains one loi called Moala in the ili of Waiea. No. 2 contains all the other lois. No. 3 house lot in the ku of Papuaa....Claimant had his

land from Pau, the konohiki about 5 years ago. That part of the Claimant's land lying south of the Hanamā'ulu stream had never been disputed to this day. But the land laying on the Wailua side is disputed by the konohiki. Witness say there never was any dispute about until within the last few days. He says Claimant gave the land to his friend Luakini who held it several years till his death about a year or [missing or illegible] ago when he returned the land to Kapuohi the present Claimant. Papawaa, sworn says, I am a Kamaaina of Hanamā'ulu and know the land of Claimant and never heard of any dispute about the claim till Tuesday last when I heard that Keo disputed it and I believe the testimony of Kupule is all true.

LCA 3271 to Lalabilimok, Foreign Testimony vol. 13:161 - ...consists of six lois in the ili of Kuka. Claimants house lot is in the village of Puako...had his land from Daniela Alelea in the days of Kaikioewa and has occupied it ever since in peace...

LCA 3423 to Paka, Foreign Testimony vol. 13:155 - ...consists of 8 loi in the ili of Peaiki and small kula adjoining. Claimant also has a house in Peaiki...land from Keo his konohiki in the days of Kaikioewa....

Found in the Land File of the State Archives were various references to Hanamā'ulu:

Interior Dept., Aug. 19, 1862 - In letter from M. Kekuanaoa to W. Webster, informing that the above land which is claimed as belonging to the King has been surveyed and awarded by the Land Commissioner and a Royal Patent issued to V. Kamamalu, &c.

Interior Dept., Aug. 4, 1863 - In letter from H. A. Widemann to Webster, that he had seen his name on a lease to the Lihue Plantation for the above lands, which leads him to think he has something to do with Victoria's lands.

Interior Dept., July 20, 1870 - In letter from Paul Isenburg [sic] to J. O. Dominis enclosing a draft for $7250 being the purchase price for the above ahupua'a &c.

Interior Dept., Oct. 4, 1870 - In letter from Duncan McBryde to C.C. Harris, that Mr. Isenburg [sic] has inquired of him if he knew the mauka Boundary of the Crown Land of Wailua that part which adjoins the above ahupua'a lately sold to Lihue Plantation. Desiring to know whether the said ahupua'a was held by the late Princess Victoria by Royal Patent according to survey by Pease, or by the Ancient Boundary, &c.

Interior Dept., July 20, 1871 - In letter from E. Krull to the Commissioner of Crown Lands stating that he is holding the Wailua Estate under two leases from the Hawaiian Govt. first from J. Young to Thos. Brown for 99 years & second from Kamehamahea IV, to Hoffschlaeger for 50 years but since a royal patent had been granted to the Lihue Plantation for the above ahupua'a containing about 800 acres which is included in his 2 leases & which hampers the pasturage of his cattle, he desires to have said leases cancelled & asking that he be allowed to enter into a new Indenture of lease for the same lands with the exception of the lands granted to said plantation for a term of 25 years at a yearly rate of not more than $300.

Interior Dept., Bk 15 p. 109 - In list of Konohiki lands, showing that V. Kamamalu is owner of the above land & that it has a sea coast frontage of 3.55 miles.

Public Instruction, Jan 24, 1891 - J. K. Burkett to Min of Public Instruction - Have talked with Mr. Wilcox & Mr. Isenberg in regard to a lot for a school house at the above place, &c.

Public Instruction, Feb. 11, 1893 - A. S. Wilcox to Min of Pub Instr. Think it best to send a copy of the former survey of the above school lot, as the corner stones have all disappeared & will be difficult to find the exact spot without it &c.

Public Instruction, April 3, 1907 - Registar of Conveyances to Supt. of Pub Inst. Submitting Abstract of Title in re a portion of R.P. 4481, Land Claim Award No. 7718, Ap. 2, Part 7, of land situate at the above tract, Kauai, claimed to be owned by the Lihue Plantation Co. Ltd. &c. Notes of Survey of School lot in said tract, attached.

Public Instruction, Aug 25, 1909 - Supt of Pub Instr to J.K. Farley To assist the Dept in suggesting valuation of 2.03 acres of school lot at the above tract, valued at $300 per acre &c. Doc's relating thereto attached.

Executive Pinkham, Aug 4, 1915 - Commissioner of Public Lands to Governor Pinkham Informing that the Lihue Plantation Co., delivers to the Koloa Sugar Co., waters rising & flowing on the above lands, paying a little over $10,000 a year &c.

Kaua'i was home to the first sugar plantation in the islands. A brief history of Lihue Plantation Company, which included Hanamā'ulu lands, is presented here:

> The early records of the plantation show that in 1854 Messrs. Henry Peirce [sic], Wm. L. Lee, Wm. C. Parke, Edwin O. Hall, C. R. Bishop, C. W. Austin, W. H. Bates formed a co-partnership under the name of Henry A. Peirce & Co. whose business should be to plant sugar cane, manufacturing sugar...which indicates that the plantation had been in operation prior to that date. Mr. Rice was the manager. The mill... was run by waterpower; the crop amounted to 120 tons of sugar...It was Mr. Rice who first introduced irrigation of the cane fields in Hawai'i.... The average yield of sugar per acre was, at that time, one and one-half tons and was insufficient to make the industry a profitable one...Even with irrigation the outlook for the place was evidently dark, for in 1861 a proposition was considered to abandon the planting of sugar cane. Mr. Paul Isenberg was an employee of the plantation at the time and it was due to his advice and efforts that the proposition to abandon was given up, and planting was continued. In the year 1862 Mr. Rice died and Mr. Isenberg succeeded to the management of the estate...his perseverance and example, not only pulled Lihue plantation through difficulties of extraordinary success, but he inspired his neighbors with pluck to plod along to a successful issue against conditions, at times, most discouraging. So great was his faith in the future of the sugar industry in Hawai'i that, when later he had acquired an interest in the plantation, and his proposal to purchase the Hanamā'ulu lands was opposed by his partners, he entered into an agreement with them whereby any loss which might be incurred in the planting of these lands was to be borne by him individually, whereas any profit arising from the same was to go in as a general realization to the several partners. The tract in question contains 17,000 acres and was bought for $8,500, which price was regarded by some members of the firm as too high (*Pacific Commercial Advertiser* 50th Anniversary Edition, July 2, 1906.)

In 1877 Mr. A.S. Wilcox was given a contract to plant the Hanamā'ulu lands; the mill was erected by Lihue Plantation. In 1899, Hanamā'ulu cultivation was taken up by Lihue Plantation (*Pacific Commercial Advertiser* 1906:60-61). The Lihue Plantation eventually merged with the Kekaha Plantation almost 100 years later in 1995 and continued in business as Amfac Sugar Kaua'i, under the ownership of Lihue Plantation Company, Ltd., the parent company of which, in turn, was Amfac Land Company, Ltd. The Hanamā'ulu lands were finally taken out of sugarcane cultivation by late 1998.

FINDINGS

TRADITIONAL AND CUSTOMARY CULTURAL PRACTICES AND BELIEFS

A number of cultural practices that most likely would be considered to be representative of traditional and customary native Hawaiian cultural practices were identified as currently occurring within the Hanamā'ulu project area. Identified practices and specific informant references are summarized in *Table 2*. While multiple informant references were encountered for about half of the practices reported, others were reported by only a single informant reference. *Table 1* should be consulted for informant reference names and information.

Table 2. Summary of Informant References to Cultural Practices

Practice	Informant Reference*
Collection of Shoreline Marine Resources	
Gathering *hā'uke'uke* (edible sea urchins)	41
Gathering *limu* (edible seaweeds) in general	16, 17
Gathering *limu kohu*	5, 33, 41
Gathering *limu wāwee'iole*	51
Gathering *'opihi* (limpets)	5, 16, 17, 33, 43, 47
Fishing (various forms)	
Fishing in general	5, 8, 16, 17, 21, 30, 33, 43, 47, 53, 55
Bottom fishing	30
Catching *akule, halalū, 'ōpelu,akule, moi, 'ama'ama*	16, 43
Catching lobster and *he'e*	23
Catching *'o'opu* from stream	29, 41
Crabbing (*kōhonu*, Samoan crab, etc.)	29, 41
Diving/spearfishing	51
Kilo, or spotting, for *akule* in Hanamā'ulu Bay	5, 30, 41, 45
Reef fishing (*āholehole, manini, hīnālea*, etc.)	5, 51
Throw net fishing	5
Collection of Other Shoreline Resources	
Gathering *pili* grass	41
Gathering wild spinach	29
Other Shoreline Practices	
Burial ground	5, 23, 29, 30, 33, 45, 48, 53
Funerary disposition, scattering cremated remains	21

*See Table 1 for informant names and information.

Cultural practices identified as currently occurring within and immediately adjacent to the Ocean Bay Plantation at Hanamā'ulu project area appear to be entirely associated with the immediate shoreline area and inshore waters. These practices primarily involve a variety of marine resource exploitation activities and recreational activities. This general finding was not unexpected, given the almost total modification and alteration of the inland portion of the project area by over a century of historic period sugarcane cultivation. Public access to the shoreline area is gained generally by means of walking from Hanamā'ulu Beach Park. Existing dirt roads leading from the public highway to the shoreline area pass through private land, and direct access along these roads has generally been closely controlled by means of locked gates or chains and exclusionary signage.

Several related general types of marine resource exploitation activities were identified by local informants, including (a) collection of shoreline resources such as *hā'uke'uke* (edible sea urchins), *limu* (edible seaweeds), and *'opihi* (limpets), (b) different forms of fishing for a variety of species, and

(c) collection of shoreline, or strand, resources such as *pili* grass and wild spinach (species uncertain). Another cultural practice identified by informants as associated with the shoreline area was the use of sandy areas and soil areas seaward of former sugarcane cultivation limits for human burials. None of the informants identified any specific traditional native Hawaiian beliefs associated with the project area.

IDENTIFICATION OF TRADITIONAL CULTURAL PROPERTIES

While attempting to identify cultural practices and beliefs associated with the Hanamā'ulu project area, effort was also expended toward the identification of any traditional cultural properties that might be present. No potential traditional cultural properties of any kind were identified by any of the informants contacted in the course of the assessment study. Hanamā'ulu project area

CONTEMPORARY CULTURAL PRACTICES AND BELIEFS

The only cultural practice that would seem to be a contemporary practice rather than a traditional and customary cultural practice was the funerary practice of scattering of cremated remains into shoreline waters. A single informant noted this practice.

CURRENT CULTURAL CONCERNS

In addition to the various cultural practices and activities identified in the course of the informant contacts and informal interviews, a number of issues and concerns related to the proposed Ocean Bay Plantation at Hanamā'ulu golf course and residential development project. Several informants expressed their opposition to "development" in general, including the presently proposed project.

A number of informants also mentioned more project-specific concerns. These included (a) provision for continued public shoreline access for a variety of activities; (b) land use practices related to the development and maintenance of the proposed golf course that were perceived to have potential adverse impacts to the quality of the shoreline and inshore waters, and the exploitable marine resources present (e.g., fertilizer and pesticide runoff; (c) adequate and appropriate shoreline setbacks for development elements; and (d) possible construction of a pathway along the shoreline for biking and hiking.

CONCLUSION

The basic purpose of this concluding section is to assess the findings of the present cultural impact assessment study to determine if any of the native Hawaiian cultural practices, beliefs, or features identified as being associated with the proposed Ocean Bay Plantation at Hanamā'ulu project area represent traditional and customary practices which might be affected by the proposed golf course and residential development. The specific objectives of this conclusion include the following:

1. Summarize the nature and variety of identified traditional native Hawaiian cultural practices;
2. Evaluate the significance of the identified traditional native Hawaiian cultural practices;
3. Assess the potential effects of the proposed golf course and residential development upon the identified traditional native Hawaiian cultural practices; and
4. Make recommendations for further work that might (a) mitigate any potentially adverse effects of the proposed development upon the identified traditional native Hawaiian cultural practices, beliefs, or properties, and/or (b) be otherwise appropriate.

IDENTIFICATION OF CULTURAL PRACTICES, BELIEFS, AND PROPERTIES

The number and variety of individuals and groups contacted and consulted during the present identification study, as evidenced by the individuals named in the "List of Potential Informants" *(Table 1)*, demonstrate an adequate, appropriate, and reasonable good-faith effort to identify the full range of traditional native Hawaiian cultural practices currently associated with proposed Ocean Bay Plantation at Hanamā'ulu project area. Of the 55 individuals that were included in the final revised "List of Potential Informants," some 40 individuals, representing many different groups and organizations, were contacted and consulted. This documented effort indicates it likely that the full range of current traditional native Hawaiian cultural practices associated with the project area has been identified, even though only the general nature of these practices has been determined but not documented in any detail. In the course of the identification study, informants representing diverse backgrounds and community groups were contacted and consulted, including individuals of ethnicities other than native Hawaiian. With the single exception of an apparently contemporary cultural practice (i.e., the funerary practice of scattering cremated remains into the inshore waters), traditional native Hawaiian cultural practices, features, and beliefs were the only ones identified by informants; no specific cultural practices, features, and beliefs of any other, non-native Hawaiian, cultural or ethnic groups were specifically mentioned by any of the informants as being associated with the Hanamā'ulu project area.

Traditional native Hawaiian cultural practices can be categorized as two general types: (a) practices with active behaviors involving both observable activities with material results and their inherent values or beliefs; and (b) practices with more passive behaviors that seek to produce nonmaterial results. The former type of behaviors – practices with active behaviors, for example, would involve practices like the gathering and collecting of different animal and plant resources for various purposes, such as subsistence, medicinal, adornment, social, and ceremonial possibly other uses. Uses such as these usually have associated beliefs and values (both explicit and implicit) relating to a pervasive general theme that flows throughout traditional native Hawaiian culture and binds it together. To native Hawaiians, the natural elements of the physical environment – the land, sea, water, winds, rains, plants, and animals, and their various embodied spiritual aspects – comprise the very foundation of all cultural life and activity – subsistence, social, and ceremonial; to native Hawaiians, the relationship with these natural elements is one of family and kinship. The latter type of behaviors – practices with more passive behaviors – involves more experiential activities focused on "communing with nature"; that is, behaviors relating to spiritual communication and interaction that reaffirm and reinforce familial and kinship relationships with the natural environment.

The traditional native Hawaiian cultural practices identified as currently associated with the Hanamā'ulu project area appear to represent only one of these two general types of behaviors; i.e., practices with active

behaviors involving both observable activities with material results and their implicit inherent values or beliefs. None of the informants contacted and informally interviewed explicitly identified any specific example of the latter type of behaviors; i.e., those practices with more passive behaviors which seek to produce nonmaterial results.

While attempting to identify cultural practices and beliefs associated with the Hanamā'ulu project area, effort was also expended toward the identification of any traditional cultural properties that might be present. No potential traditional cultural properties of any kind were identified by any of the informants contacted in the course of the assessment study.

EVALUATION OF IDENTIFIED CULTURAL PRACTICES, BELIEFS, AND PROPERTIES

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed Ocean Bay Plantation at Hanamā'ulu project upon the cultural resources–the practices, features and/or beliefs--of native Hawaiians, or any other ethnic group, that are associated with the 460-acre Ocean Bay Plantation at Hanamā'ulu project area

For purposes of evaluating the significance of the native Hawaiian cultural practices identified in association with Hanamā'ulu project area, it would be useful to consider them in terms of the three types of informant claims that were defined earlier (see page 2). With the single exception of an apparently contemporary cultural practice (i.e., the funerary practice of scattering cremated remains into the inshore waters), traditional native Hawaiian cultural practices, features, and beliefs were the only ones identified by informants. No information was obtained to suggest that any of the other practices might, or should, be regarded as contemporary, or neo-traditional claims. Furthermore, no specific cultural practices, features, and beliefs of any other, non-native Hawaiian, cultural or ethnic groups were specifically mentioned by any of the informants as being associated with the Hanamā'ulu project area.

The cultural practices identified by any informants as being associated with the Hanamā'ulu project area would constitute claims which would lie within the purview of Article XII, Section 7, of the Hawai'i State Constitution ("Traditional and Customary Rights"), particularly as reaffirmed in 1995 by the Hawai'i State Supreme Court in the decision commonly referred to as the "PASH decision," and as further clarified more recently in its 1998 decision in State of Hawai'i v. Alapa'i Hanapi and its 2000 decision in Ka Pa'akai o Ka 'Aina et al. v. Land Use Commission, State of Hawai'i et al. These would be claims of traditional and customary native Hawaiian access and use-rights that would include a broad range of cultural practices and beliefs associated with a general geographical area or region rather than a clearly definable property or site

A general familiarity with the content of traditional Hawaiian culture–both in its tangible material aspects and, perhaps to a somewhat lesser degree, its immaterial and behavioral aspects, indicated nothing unusual among the identified practices. None of the identified cultural practices were particularly unique to the Hanamā'ulu project area; similar practices traditionally took place in similar shoreline settings throughout the islands, and those identified at the Hanamā'ulu project area were apparently engaged in there by local residents primarily because the area is situated in close proximity to local communities and, until more recently closed off, was readily accessible by means of several existing dirt roads through old sugarcane lands.

Based on an evaluation of the findings of the present cultural impact assessment identification study made in reference to (a) the known content of traditional Hawaiian culture, and (b) the National Register Criteria as clarified by National Register Bulletin No. 38, it is believed that all of the traditional native Hawaiian cultural practices and implicit beliefs identified as being currently associated with the Hanamā'ulu project area can be considered to be culturally and historically significant. All would seem to qualify as traditional and customary cultural practices within the meaning of the Hawai'i State Constitution. No potential traditional cultural properties of any kind were identified by any of the informants contacted in the course of the assessment study. Finally, with the single exception of an apparently contemporary cultural practice (i.e., the funerary practice of scattering cremated remains into the inshore waters), none of the identified practices and implicit beliefs would seem to represent contemporary, or neo-traditional, cultural practices or beliefs.

ASSESSMENT OF POTENTIAL PROJECT EFFECTS

Discussion

The assessment of potential project effects upon the traditional native Hawaiian cultural practices identified as associated with proposed Ocean Bay Plantation at Hanamā'ulu project area has been done in general accordance with the guidance documents cited in the earlier "Study Methodology" section of this report. Of particular relevance were Part 800.9 ("Criteria of effect and adverse effect") of the federal regulations of the Advisory Council on Historic Preservation for the "Protection of Historic Properties" (CFR 1986), and Chapter 284: *Rules Governing Procedures for Historic Preservation Review to Comment on Chapter 6E-42, HRS, Projects* of the State Historic Preservation Division (2001b).

In order to assess the potential effects of the proposed golf course and residential development at Hanamā'ulu upon the traditional native Hawaiian cultural practices that have been identified in association with the project area, it is useful to review the scope and nature of the proposed development. The Ocean Bay Plantation project area consists of c. 460 acres of former sugarcane lands. Virtually all of the project area was under sugarcane cultivation for more than a century, but has stood abandoned and overgrown since sugarcane cultivation was discontinued approximately fifteen to twenty years ago. The background to the proposed project and the details of planned construction have been presented in an earlier section of the present report; of relevance here is the basic observation that the planned development would be done almost entirely within the existing limits of the inland portion of the project area that was previously altered and greatly modified by historic period sugarcane cultivation. With the possible exception of minor improvements such as appropriate landscaping, and pedestrian footpaths and/or bicycle paths, the shoreline portion of the project area would not be altered or developed, and public access to the shoreline would continue. While there may be temporary, or short-term, inconveniences associated with golf course and residential construction activities (for example, temporary restrictions upon access to specific parts of the shoreline area or along specific routes leading to the shoreline area), proposed construction would not result in any direct physical impacts causing any significant or long-term effects upon the existing physical environment of the shoreline portion of the project area

With regard to potential effects upon identified cultural practices having active behaviors involving both observable activities with material results and their inherent values or beliefs – that is, the gathering and collecting of marine resources and plant materials within the shoreline area and immediately adjacent inshore waters for various purposes, it is possible to determine that at least for the active behavior and material results, the proposed development project would have no significant effect at all. Given the specific nature and physical development limits of the proposed project, and with the specific exception of possible short-term construction period restrictions, the continued public shoreline access and the exercise of all traditional and customary native Hawaiian rights for access and gathering practices – and any other as yet unidentified practices – would not be in any way constrained, restricted, prohibited, or eliminated.

With regard to any potential effects upon cultural practices with more passive behaviors which involve experiential activities with nonmaterial results ("communing with nature"), as well as potential effects upon the inherent values or beliefs associated with active behaviors involving observable activities, assessment of potential effects is more difficult. This is because of the subjective nature of any adverse effects that might be perceived upon the practices, beliefs, and values involved. It simply is not possible to assess or quantify in any objective manner the significant or adverse effects upon such practices that informant's claim they might experience as a result of the proposed development. However, it should be noted that none of the informants contacted and informally interviewed explicitly identified any specific example of the latter type of behaviors; i.e., those practices with more passive behaviors which seek to produce nonmaterial results; therefore, the issue of potential effects upon cultural practices with more passive behaviors which involve experiential activities with nonmaterial results may well be a moot issue.

Concluding Assessment

Based on an evaluation of the traditional native Hawaiian cultural practices and implicit beliefs identified as currently associated with the Ocean Bay Plantation project area at Hanamā'ulu, and an assessment of the potential impacts of the proposed project upon those identified practices, the present identification study has concluded that the proposed golf course and residential development project–in which the planned development would be done almost entirely within the existing limits of the inland portion of the project area that was previously altered and greatly modified by historic period sugarcane,

should have no significant or adverse effect on the existing cultural practices identified as currently associated with the shoreline area and immediately adjacent inshore waters. Given the nature and development limits of the proposed project, and with the specific exception of possible short-term construction period restrictions, the continued exercise of all traditional and customary native Hawaiian rights for access and gathering practices would not in any way be constrained, restricted, prohibited, or eliminated. This conclusion is made with the qualification that public shoreline access for the continuation of the identified cultural practices will remain intact.

RECOMMENDATIONS

The present report concludes the cultural impact assessment for the proposed project. The assessment has determined that the proposed project should not have any significant effect, much less any adverse effect, on the traditional native Hawaiian cultural practices identified as currently associated with the shoreline area and immediately adjacent inshore waters of the Ocean Bay Plantation project area at Hanamā'ulu. Therefore, it is neither necessary nor appropriate to recommend any further actions that would usually be referred to as mitigation measures. However, in response to the opportunity offered by the identification of several individuals with site-specific knowledge of the Hanamā'ulu project area, knowledge of local place names and folklore, family ties to the area and/or their use of project area for cultural purposes, certain further work is recommended. The scope of this work goes beyond the level of study effort recommended in the OEQC guidelines for the assessment of potential cultural impacts by the proposed Ocean Bay Plantation project at Hanamā'ulu. The recommended work would focus on the formal recordation of the native Hawaiian cultural practices and potential traditional cultural property that have been identified as associated with the Hanamā'ulu project area. A work plan to guide the conduct of this recommended further work, and a proposed content outline for an appropriate report, can be prepared by PHRI and would be submitted to the State Historic Preservation Division for review and comment.

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APPENDIX A

OUTLINE OF GENERAL INFORMANT INTERVIEW CONTENT

Cultural Impact Assessment Study
Ocean Bay Plantation at Hanamā'ulu

Land of Hanamā'ulu, Lihue District
Island of Kaua'i
(TMK: 4-3-7-3:1; 4-3-9-5:5)

General Information

- Full name
- Telephone number
- Current residence and address
- Interview date, time, location
- Other participants

Biographical Information

- Age, birthdate, birthplace
- Immediate family composition
- Education
- Occupation
- Family background: parents, grandparents, residential ties
- Previous residences: childhood to present
- Any additional family background pertinent to informant knowledge

General Sources of Informant Knowledge

Knowledge of Specific Historic/Cultural Properties, Practices, and/or Beliefs

- Name(s) of property/place or area
- Description of property/place or area
    - Present physical characteristics, setting, location, uses
    - Original/prior physical characteristics, setting, location, uses
- Practices or beliefs associated with property/place or area
- Specific sources of informant knowledge
- Individuals, families, and/or groups associated with property/place or area
    - Specific nature of association
    - Time frame/depth and intensity of association

Perceived Impact(s) of Proposed Uses on Any Properties/Places/Areas, Practices, and/or Beliefs

Possible Mitigation Measures

Any Additional Information to Provide

Any Additional Thoughts or Concerns