STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

FEB 16 2010

TO: THE HONORABLE KATHERINE PUANA KEALOHA, ESQ.
DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH

FROM: LAURA H. THIELEN, CHAIRPERSON

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT FOR THE FOLLOWING PROJECT: INDIVIDUAL WASTEWATER SYSTEM IMPROVEMENTS (CONSTRUCTED WETLAND) AT HAENA STATE PARK, TMK: 5-9-08: por.001, HANALEI DISTRICT, KAUAI, HAWAII

The Board of Land and Natural Resources (Board) has reviewed the comments received from the 30-day public comment period which began on December 8, 2009. The Board has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, a hard copy of the Final EA and a disc that contains the Final EA and project summary. Please call Valerie Suzuki of the Engineering Division at 587-0275 or Catie Fernandez at PBR HAWAII at 521-5631 if you have any questions.

Enclosure

c: State Parks Division

HĀ'ENA STATE PARK

INDIVIDUAL WASTEWATER SYSTEM IMPROVEMENTS

CONSTRUCTED WETLANDS

FINAL ENVIRONMENTAL ASSESSMENT

Prepared for:

Approving Authority,
State of Hawai'i
Board of Land and Natural Resources
&
Applicant,
State of Hawai'i
Department of Land and Natural Resources
Engineering Division

Prepared by:

PBR HAWAII
& ASSOCIATES, INC.

February 2010

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February 2010

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
ALISH	Agricultural Lands of Importance
DLNR	State of Hawaiʻi Department of Land & Natural Resources
DOH	State of Hawaiʻi Department of Health
EA	Environmental Assessment
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
GP	County of Kauaʻi General Plan
HAR	Hawaiʻi Administrative Rules
HRS	Hawaiʻi Revised Statutes
KIUC	Kauaʻi Island Utility Cooperative
LSB	University of Hawaiʻi Land Study Bureau
NRCS	Natural Resource Conservation Service
OEQC	State of Hawaiʻi, Office of Environmental Quality Control
SHPD	State Historic Preservation Division
SMA	Special Management Area
TMK	Tax Map Key

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PROJECT OVERVIEW

Hāʻena State Park is a scenic wildland park measuring approximately 50.38 acres in area. The park features a beach for swimming and sunbathing, historical features that include a heiau and hula platform, wet caves and the Kalalau Trail Head to the Nā Pali Coast. The park facilities include a recently constructed comfort station that is served by a septic tank and leachfield.

The original comfort station at this site was built in 1979. Wastewater from this facility was discharged into a large capacity cesspool. In 2002, the Department of Land and Natural Resources (DLNR), Division of State Parks, constructed a septic tank and leachfield system to comply with the pending United States Environmental Protection Agency (EPA) prohibition of large capacity cesspools in 2004. The septic system and leachfield were placed in a functional location relative to the comfort station. The system was constructed in accordance with State of Hawaiʻi, Department of Health (DOH) regulations for individual wastewater systems. However, the comfort station, septic system and leachfield were in a known archaeological and cultural site. In 2006, State Parks initiated design of a new comfort station. As part of the project, State Parks applied for a Special Management Area (SMA) use permit at which time, concerns with the comfort station's location were raised by community members. Petitions to Intervene were filed by a number of community members (Petitioners). The Petitioners' concern was that the project would impact their ancestral remains or iwi kupuna. Specifically, the Petitioners were concerned that the leachfield allowed a subsurface flow of effluent at a known archaeological site which potentially desecrated cultural remains, kupuna iwi and other resources. The Petitioners expressed that the community needed to be involved in the project's design and several meetings were conducted in 2006 with DLNR. As a result of the community's involvement in the SMA use permit process, a *Resolution of Agreement between the State Department of Land and Natural Resources and Petitioners to Intervene* was established. The Resolution of Agreement (Appendix A) directed the DLNR to work with the community to design and construct a subsurface-flow constructed wetland system. This alternate system will utilize a new septic tank for primary treatment and incorporate a constructed wetland for secondary treatment. Use of the constructed wetland will thereby provide better water quality for disposal in a location where archaeological features are less likely to exist. The existing leachfield will remain to be used as a back up disposal system. A secondary outcome will be the opportunity to educate the general public about wetland functions and in particular, how native Hawaiian plants can play a role in engineered treatment facilities.

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1.0 INTRODUCTION

This Environmental Assessment (EA) has been prepared in compliance with Chapter 343, Hawaiʻi Revised Statutes (HRS) for the proposed Hāʻena State Park Comfort Station Constructed Wetlands.

1.1 PROJECT SUMMARY

Project Name:	Hāʻena State Park Individual Wastewater System Improvements (Constructed Wetlands)
Location:	Hāʻena State Park, Hāʻena Ahupuaʻa, Kauaʻi, Hawaiʻi
Applicant:	State of Hawaiʻi, Department of Land and Natural Resources, Engineering Division
Landowner and Tax Map Keys:	State of Hawaiʻi, TMK: 5-9-08: por. 001
Project Area:	Approximately 3,500 sf
Existing Uses:	Vacant park land, vegetated with non-native grasses and trees
Proposed Uses:	Constructed wetland for secondary treatment and disposal of wastewater for the Hāʻena State Park comfort station
Land Use Designations:	*State Land Use:* Conservation *Kauaʻi General Plan:* Park *County Zoning:* None
Special Management Area:	Within the Special Management Area
Need for Assessment:	Compliance with Chapter 343, Hawaiʻi Revised Statutes Use of State lands and funds Use within a Historic District as designated on the Hawaiʻi and National Registers of Historic Places
Permits/Approvals Required:	Compliance with Chapter 343, Hawaiʻi Revised Statutes Special Management Area Use Permit Shoreline Certification

Approving Agency: State of Hawaiʻi, Board of Land and Natural Resources

Determination: Finding of No Significant Impact (FONSI)

1.2 LOCATION

The Hāʻena State Park comfort station is located within Hāʻena State Park, ahupuaʻa of Hāʻena on the island of Kauaʻi. The site is adjacent to a parking area located at the terminus of Kūhiō Highway (Figure 1). Figure 2 shows a regional location map of the project site, Figure 3 is an aerial photograph of the area and site photos are shown in Figure 4.

1.3 LAND OWNERSHIP

The State of Hawaiʻi is the fee owner of the parcel identified as tax map keys: 5-9-08: por. 001. A tax map highlighting the project areas is provided in Figure 5.

1.4 IDENTIFICATION OF APPLICANT

The applicant is the State of Hawaiʻi, Department of Land and Natural Resources, Engineering Division. Project management is provided by State of Hawaiʻi, Department of Land and Natural Resources, Engineering Division.

Contact: Valerie Suzuki
Department of Land and Natural Resources
Engineering Division
Telephone: (808) 587-0275
Fax: (808) 587-0283

1.5 IDENTIFICATION OF ENVIRONMENTAL CONSULTANT

The State of Hawaiʻi, Department of Land and Natural Resources, Engineering Division's consultant for the project is PBR HAWAII.

Contact: Catie Fernandez, Planner
PBR HAWAII
1001 Bishop Street, Suite 650
Honolulu, Hawaiʻi 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.6 IDENTIFICATION OF APPROVING AGENCY

Because this is an agency action, the approving agency is the State of Hawaiʻi, Board of Land and Natural Resources.

Contact: Laura Thielen, Chairperson
Telephone: (808) 587-0404
Fax: (808) 587-0390

1.7 COMPLIANCE WITH STATE OF HAWAIʻI AND COUNTY OF KAUAʻI ENVIRONMENTAL LAWS

This document has been prepared in accordance with the provisions of the State of Hawaiʻi's Environmental Impact Statement Law, Chapter 343, HRS and Hawaiʻi Administrative Rules (HAR) Title 11, Department of Health, Chapter 200, Environmental Impact Rules. Section 343-5 HRS establishes nine (9) "triggers," which require the environmental review process. Implementation of the Hāʻena State Park Comfort Station Constructed Wetlands will involve: 1) the use of State land and funds, 2) the use of State lands classified as a conservation district; and 3) use within a Historic District as designated in the Hawaiʻi and National Registers of Historic Places.

1.8 IDENTIFICATION OF AGENCIES AND COMMUNITY GROUPS CONSULTED

Throughout the planning process for this project, the County of Kauaʻi and State of Hawaiʻi agencies as well as community groups, organizations and individuals were consulted. Appendix A includes a record of meetings held with community members regarding this project. In addition, other agencies were consulted for this EA process. Appendix E and F are correspondence with agencies and participants consulted for the project.

1.9 STUDIES CONTRIBUTING TO THIS ENVIRONMENTAL ASSESSMENT

The information contained in this report has been gathered from agency and community consultations, document and historical research, site visits, feasibility studies, wetlands studies and generally available information regarding the characteristics of the site and surrounding area. References can be found in Section 9 of this report.

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NOTES:

N-1. 6 FOOT TALL CHAIN LINK FENCE WITH LOCKABLE DOUBLE SWING GATE, SHALL BE INSTALLED AROUND THE WETLAND TO LIMIT PUBLIC ACCESS. FENCING WILL BE VINYL-COVERED TO REDUCE REFLECTIVITY AND VISIBILITY. VINYL SHALL BE BLACK.

N-2. CUT INTO EXISTING DISCHARGE LINE. VERIFY ELEVATION AND INSTALL TWO DIVERSION VALVES (SEE DETAIL THIS SHEET) TO ALLOW EMERGENCY DIVERSION OF EFFLUENT TO THE EXISTING SEPTIC TANK. DIVERSION SHALL ONLY BE UTILIZED IN THE EVENT THAT THE NEW SYSTEM IS UNABLE TO ACCEPT EFFLUENT.

N-3. WETLANDS BOUNDARY BASED UPON DRAFT REPORT "A WETLAND DELINEATION FOR A NEW COMFORT STATION PROJECT AT HAENA STATE PARK, KAUAI. OCTOBER 30, 2008 BY ERIC GUINTHER AND SUSAN BURR, AECOS, INC."

N-4. ELEVATION OF EXISTING DISCHARGE PIPING ESTIMATED. CONTRACTOR TO FIELD-VERIFY ELEVATIONS AND LOCATION. ESTIMATED INVERT AT EDGE OF COMFORT STATION = 16.20

N-5. PERCOLATION TESTING WAS PERFORMED BY WAYNE T. WADA ON DEC. 9, 2009. TEST PIT D SHOWED A PERCOLATION RATE OF 4.14 MIN/INCH. A DESIGN VALUE OF 5 MIN/INCH HAS BEEN USED.

N-6. PROTECT AREA OF EXISTING LEACH FIELD, NEW PIPING AND TANKS FROM VEHICLE TRAFFIC. PUMP TRUCKS OR OTHER MAINTENANCE VEHICLES SHALL NOT BE PERMITTED TO DRIVE ACROSS ANY PORTIONS OF THE SYSTEM.

CALCULATIONS BASED ON GUIDELINES FOR THE DESIGN OF NEW OR RECONSTRUCTED INDIVIDUAL WASTEWATER SYSTEMS FOR CITY OR COUNTY PARKS

Job: Ha'ena State Park

DAILY FIXTURE FLOW

	# Toilets	# Lavs	# Urinals	Total # Fixtures(1)	Flow/Per* (gal/use)	Use Interval* (every X min)	Uses/hr*	Hours per day*	Uses per day*	Flow per fixture (gal/day)	Total Flow (gpd)
Women's Room	2	1	0	2	3.5	5	12	12	144	504	1,008
Men's Room	1	1	1	2	3.5	5	12	12	144	504	1,008
										Total Flow =	2,016
										Design Flow =	**2,100**

NOTES

(1) Total Fixtures = Toilets + Urinals. Lavatories are included in the toilet/urinal count per the published guidelines

*Per fixture

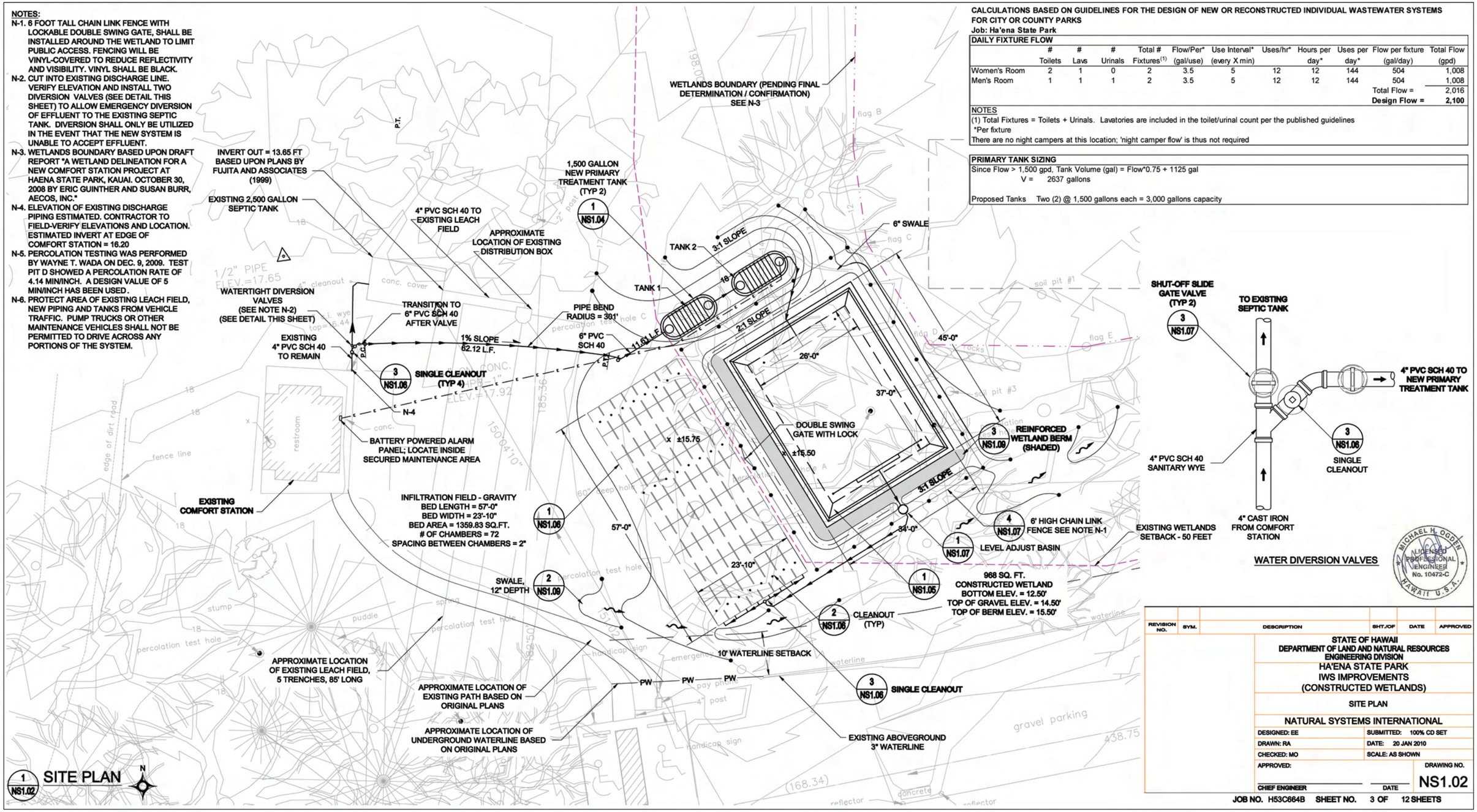
There are no night campers at this location; 'night camper flow' is thus not required

PRIMARY TANK SIZING

Since Flow > 1,500 gpd, Tank Volume (gal) = Flow*0.75 + 1125 gal

V = 2637 gallons

Proposed Tanks Two (2) @ 1,500 gallons each = 3,000 gallons capacity



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

HA'ENA STATE PARK
IWS IMPROVEMENTS
(CONSTRUCTED WETLANDS)

SITE PLAN

NATURAL SYSTEMS INTERNATIONAL

DESIGNED: EE	SUBMITTED: 100% CD SET
DRAWN: RA	DATE: 20 JAN 2010
CHECKED: MO	SCALE: AS SHOWN
APPROVED:	DRAWING NO. NS1.02
CHIEF ENGINEER	DATE

JOB NO. H53C664B SHEET NO. 3 OF 12 SHEETS

Source: Site Plan by Natural Systems International (2010)
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 1
Site Plan

Hā'ena State Park Constructed Wetlands
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

LEGEND

Project Area

Figure 2

Regional Location

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

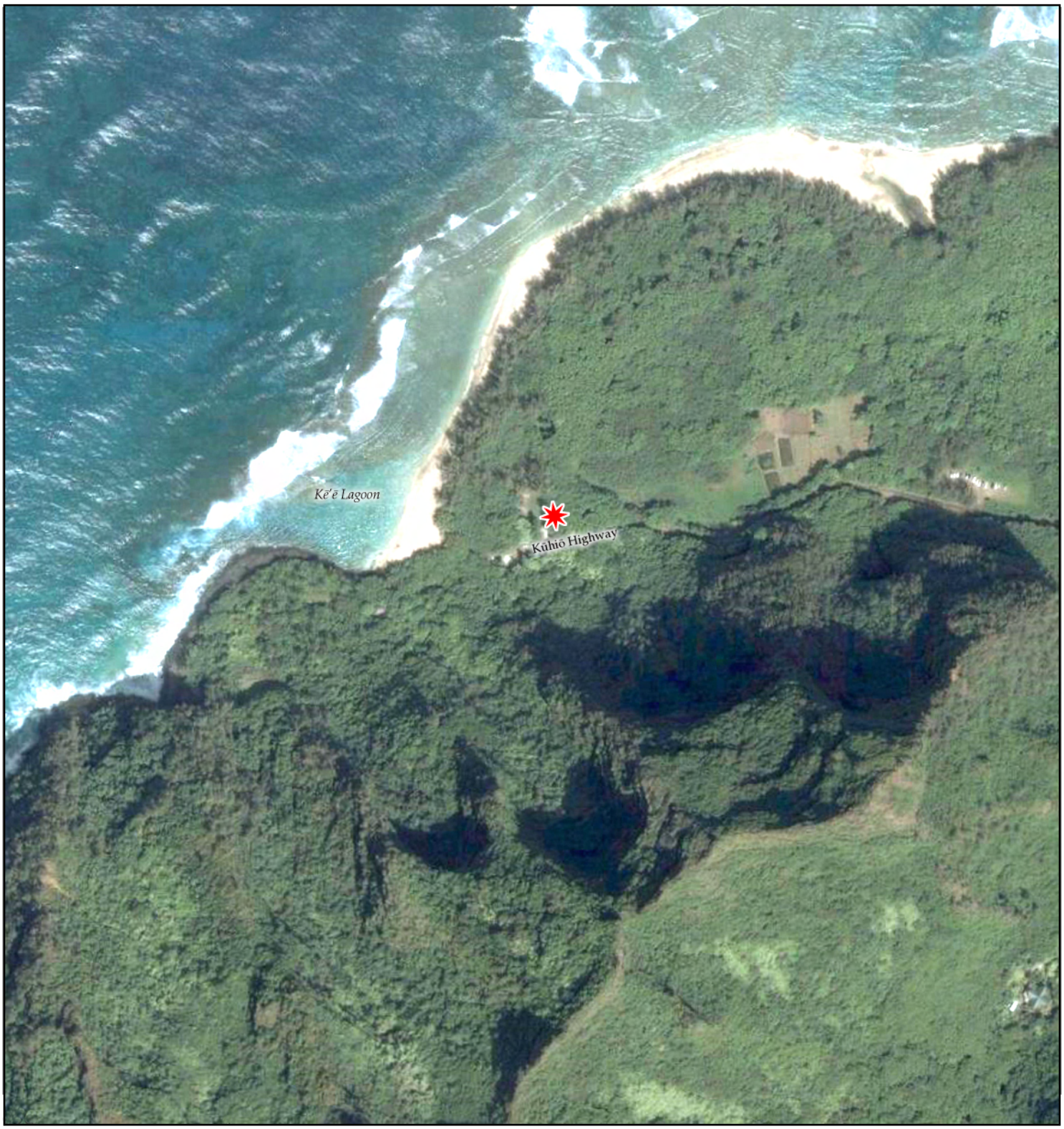
LINEAR SCALE (Feet)

0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC.

Source: U.S. Geological Survey

Disclaimer: This graphic has been prepared for general planning purposes only.



LEGEND

Project Area

Figure 3

Aerial Photograph

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

Source: U.S. Geological Survey

Disclaimer: This graphic has been prepared for general planning purposes only.

Photo 1: Contructed wetland site looking northwest from gravel parking area toward comfort station. *This photo was provided to PBR Hawaii courtesy of Engineering Solutions, Inc*

Photo 2: Comfort Station, August, 2009.

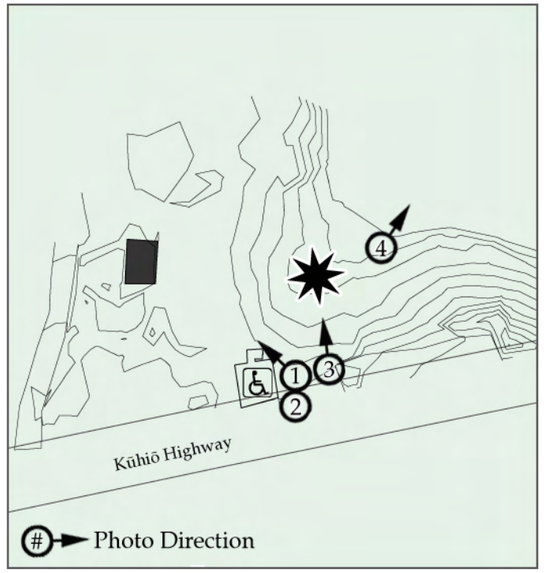


Photo 3: Constructed wetland site looking north from gravel parking area.

Photo 4: Existing wetland east of site.

Figure 4

Site Photographs

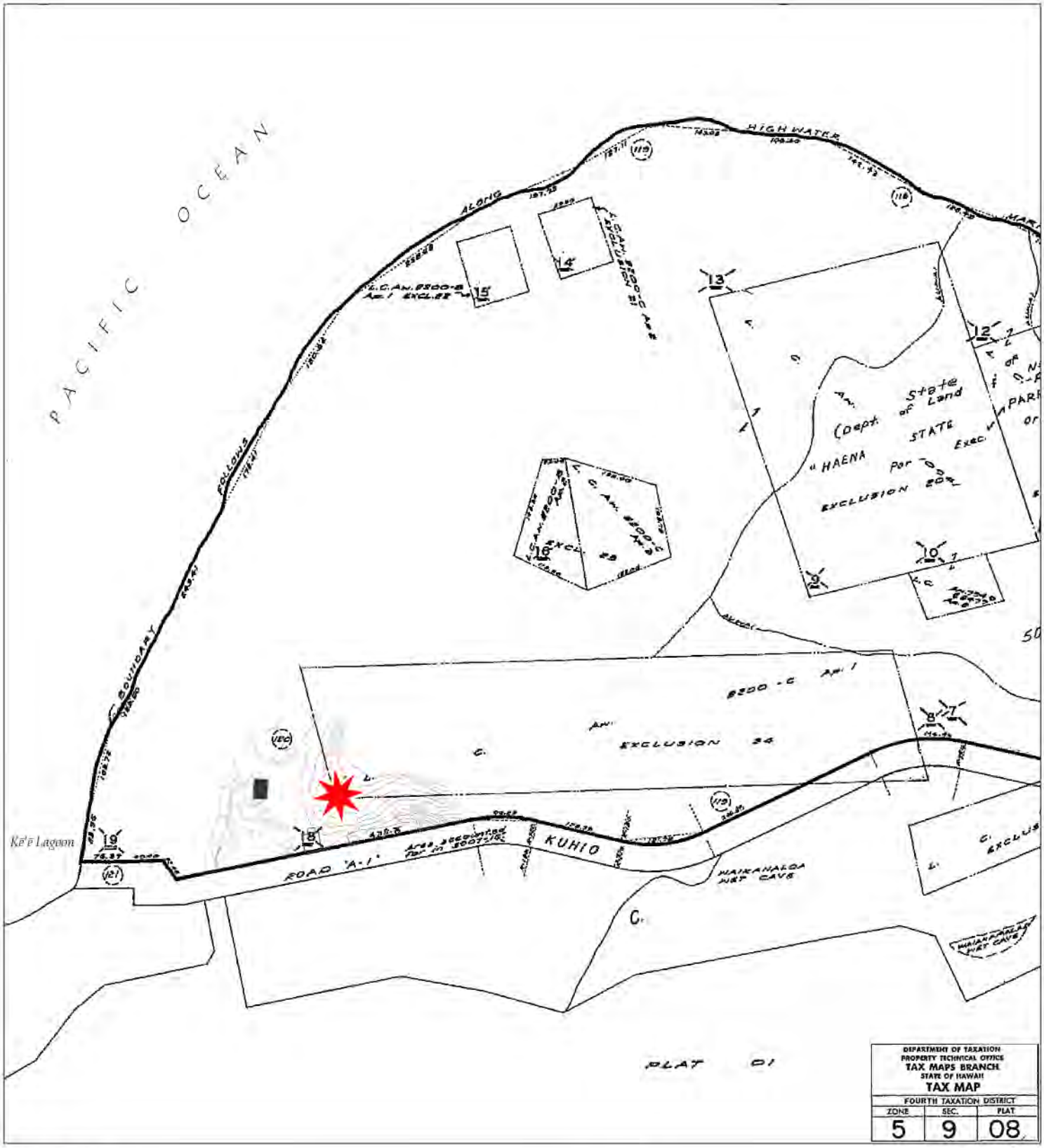
Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.



LEGEND

- Project Area
- Comfort Station

Figure 5

Tax Map Key

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 100 200 400

PBR HAWAII & ASSOCIATES, INC.

Source: Compiled by First American Corelogic (2008)
Disclaimer: This graphic has been prepared for general planning purposes only.

2.0 PROJECT DESCRIPTION

This section provides background information, identifies the project's goals and objectives, describes the proposed improvements, delineates construction activities and provides approximate costs.

2.1 BACKGROUND INFORMATION

2.1.1 Hāʻena State Park Comfort Station

The original comfort station at Hāʻena State Park was built in 1979. Formerly serviced by a large capacity cesspool, the facility was upgraded with a new sewage septic tank and leachfield system in 2002. In 2006, the comfort station was proposed to be replaced with a 750 square foot facility separated into accessible toilet rooms for men and women. In 2008/09 the new facility was constructed on a concrete foundation with a height of 14-feet, 7-inches. Other improvements include an outdoor shower erected on a 12-foot diameter concrete base and a 4-foot wide accessible walkway.

2.1.2 Project Need

The existing septic tank and leachfield were constructed in accordance with Department of Health regulations for individual wastewater systems. The community has raised concerns of desecration to underlying cultural resources and potential ancestral remains with continuation of the leachfield. Therefore, without further disturbance of the archaeological site, the project will be located away from the site and utilize new septic tanks for primary treatment of effluent, and incorporate a constructed wetland for secondary treatment to achieve better water quality prior to disposal. The project will thereby improve the water quality prior to disposal in a new subsurface absorption bed located in an area less likely to contain archaeological features. The existing septic tank and leachfield will be available as a back up system.

2.1.3 Project Objectives

The following project objectives are as follows:

- Provide for public health and hygiene.
- Mitigate impacts from the existing leachfield located in a culturally and archaeologically sensitive site.
- Educate the public of the function wetlands can provide toward improved water quality.
- Sustain native Hawaiian plants in a constructed wetland.

A description of how a constructed wetland can achieve these project objectives can be found in Appendix B, Feasibility Study. Please note that the feasibility study was prepared prior to commencement of project design, therefore, it provides guidance and insights about how constructed wetlands work generally, but it does not provide project details.

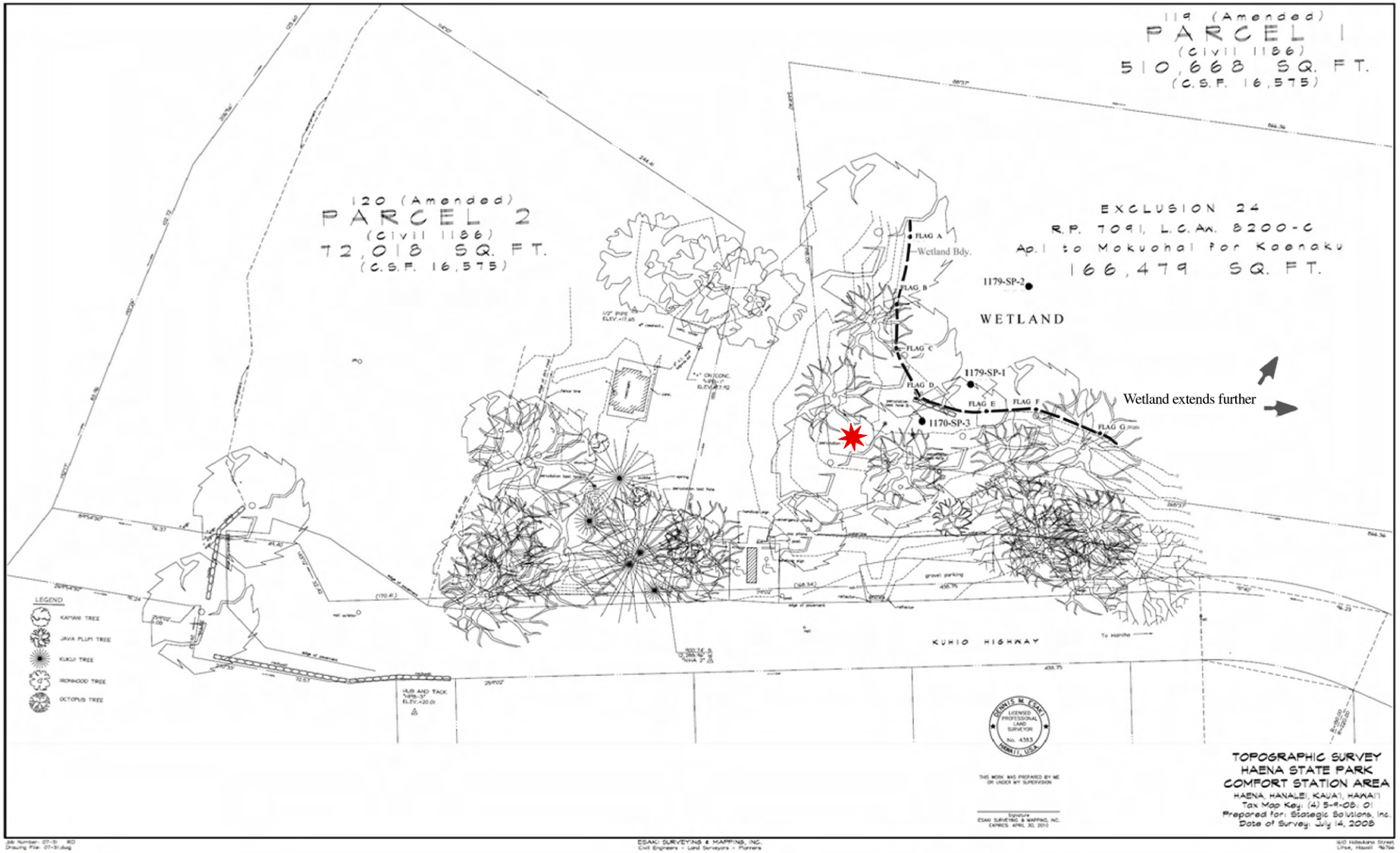
2.2 EXISTING USES

Hāʻena State Park features Kēʻē Beach for swimming, snorkeling and sunbathing, extensive historical, archaeological and cultural features, such as wet caves, restored wetlands, taro loʻi and the Kalalau trail head to the Nā Pali Coast State Wilderness Park. Visitor counts and comfort station use counts indicate that the park and supporting facilities are actively used throughout the year. The site for the proposed constructed wetlands is currently vacant of structures and vegetated with non-native plants and trees.

2.3 SURROUNDING USES

The park is surrounded by conservation lands including the Limahuli National Tropical Botanical Garden and Limahuli Preserve. Hāʻena State Park is also adjacent to the Nā Pali Coast State Wilderness Park.

The constructed wetlands will be located within Hāʻena State Park in an area bounded by existing wetlands to the east, a gravel parking area to the south and sand dunes to the west. The existing wetlands have been delineated by AECOS as shown in Figure 6. The project sponsor, DLNR has worked with the State of Hawaiʻi Department of Health and the U.S. Army Corps of Engineers to acquire State and Federal concurrence with the wetland boundary (See correspondence in Appendix C). The dunes west of the constructed wetland contain known archaeological features. See Figure 1, Site Plan.



LEGEND

- Project
- Wetland Boundary as determined by AECOS, Inc.

Figure 6

Existing Wetlands

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

Source: AECOS, Inc

Disclaimer: This graphic has been prepared for general planning purposes only.

2.4 DESCRIPTION OF THE PROPOSED SITE IMPROVEMENTS

The site improvements subject to this Environmental Assessment are those associated with the constructed wetlands and the new absorption bed. The comfort station's structural improvements have been previously described in the Special Management Area Permit Assessment Application.

The constructed wetlands project will consist of the following:

- New piping from the existing comfort station,
- Two 1,500 gallon septic tanks,
- Approximately 968 square foot constructed wetland,
- Approximately 1,360 square feet of absorption bed for subsurface disposal, and
- Protective fencing

The constructed wetland is designed so that effluent will gravity flow from the comfort station via pipes to two 1,500 gallon septic tanks in series for primary treatment. From there, the liquid will gravity flow via 4-inch PVC pipe to the constructed wetland for secondary treatment. The wetland, approximately 1,000 square feet in area will be constructed with a "top" of gravel elevation of approximately 14.5 feet and a "bottom" elevation of approximately 12.5 feet. The system is designed at these elevations to be mostly above ground and avoid extensive excavations in this culturally sensitive park. The wetlands will be surrounded by a berm which measures one foot higher than the top of gravel elevation of the constructed wetland. The purpose of the berm is to ensure regional runoff does not flow into the wetland. The constructed wetland is proposed to consist of a plastic-lined, shallow basin filled with media (typically rock). Native soil will be placed on the surface and wetland plants will be established. The septic tank-treated effluent will move through the media and the plant roots where nutrients will be taken up by the biomass. Appendix B is a constructed wetlands feasibility study for the project. It includes the illustrated cross-section of a subsurface flow constructed wetland (note that this illustration is a representation of the type of system, and not specific to the proposed constructed wetland at Hāʻena).

The DLNR intends to plant the constructed wetlands with native wetland plants. Community stakeholders and Limahuli Garden and Preserve staff are being consulted for selection of culturally relevant wetland plants by the project ecologist. Because the wetland is a non-conventional treatment process in Hawaiʻi, the Department of Health is requiring a six foot security fence around the wetland to prevent unauthorized access.

The existing septic tank and leachfield will remain in place and used as a backup system.

2.5 PROPOSED DEVELOPMENT TIMELINE AND PRELIMINARY COST ESTIMATES

The costs to construct the subsurface flow wetland and disposal system are variable depending on the special construction methods, any unforeseen conditions and if it is determined any significant changes will be needed to meet local permitting requirements. Due to the remote site location and access limitations (weight and transport over the Hanalei Bridge and other bridges on Kūhiō Highway between Hanalei and Hāʻena), the materials and associated delivery costs are significantly higher than other Hawaiʻi locations. Preliminary estimates resulted in a total cost estimate of $500,000 for the tanks; civil engineering work and materials; purchase and installation of a liner; plumbing; wetland media; plants; signs; and, operations/water quality monitoring. The project timeline is roughly 18 months, allowing 9 months for design and approvals, three months for Department of Health permitting; and six months or more for material ordering lead time and construction.

3.0 LAND USE CONFORMANCE

The processing of various permits and approvals are prerequisites to the implementation of the Hāʻena State Park Comfort Station Constructed Wetlands. Relevant State of Hawaiʻi and County of Kauaʻi land use plans, policies, and ordinances are described below.

3.1 STATE OF HAWAIʻI

3.1.1 State Environmental Review Law (Chapter 343, Hawaiʻi Revised Statutes)

The State Environmental Review Law (Chapter 343, Hawaiʻi Revised Statutes (HRS)) requires an environmental assessment for any action that proposes the use of State lands and funds or when an action is proposed within the Conservation Land Use District. It also requires one for any improvements in a historic site. This environmental assessment has been prepared in compliance with Chapter 343, HRS as the proposed Hāʻena State Park Comfort Station Constructed Wetlands require both the use of State land and funds and is located within a historic site.

3.1.2 State Land Use Law (Chapter 205, Hawaiʻi Revised Statutes)

The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission and authorizes this body to designate all lands in the State into one of four districts: Urban, Rural, Agricultural, or Conservation.

The proposed site improvements are located within the State Conservation District (Figure 7). The proposed improvements are compliant with Conservation District Uses.

3.2 COUNTY OF KAUAʻI

3.2.1 The Kauaʻi General Plan

The General Plan (GP) of the County of Kauaʻi is a long-range policy document that fulfills legal mandates of State Law and the Charter of the County of Kauaʻi. It is intended to help guide long-range development for the enhancement and improvement of life on Kauaʻi, advance the County's vision for Kauaʻi and establish the strategies to help achieve that vision including recommended land uses. The GP was last updated in 2000.

The GP North Shore Land Use Map (Figure 8) designates this area as "Park". The GP (4.2.8.3(e)) includes policy statements and goals such as, *"improve facilities, maintenance and management of activities at State and County Parks."* The GP North Shore Planning District Heritage Resource Map identifies the park as a conservation area and identifies that heiau sites are located within the park (Figure 9). The

proposed wetlands serve to complete an upgrade needed for maintenance, while striking a balance with the heritage resources housed within the park.

3.2.2 North Shore Development Plan & North Shore Special Planning Area

The North Shore Development Plan implements zoning and provides a framework for guidelines to direct the physical locations and relationships of major improvements, buildings and landscape within the North Shore Special Planning Area. As shown in Figure 8, Hāʻena State Park carries a Park land use designation. Applicable Special Planning Area guidelines and Development Plan policies are as follow:

Program guidelines for Hāʻena Hui within the North Shore Planning Area state: *…the Hāʻena Hui area should remain in as near a natural state as possible. New residential development should be of very low densities and public acquisitions of recreational areas should be expanded to make an appropriate entrance to the Na Pali wilderness area.*

Discussion: The maintenance of existing recreational facilities within the Hāʻena State Park contributes to the program guidelines for Hāʻena Hui.

Goal F of the North Shore Development Plan is to *insure the preservation of the historic-archaeological sites in the North Shore Planning Area.*

Discussion: Development of this alternative effluent treatment system will help preserve the dune archaeological sites in the North Shore Planning area.

3.2.3 County Zoning

The Park is not specifically zoned by the County of Kauaʻi.

3.2.4 Special Management Area

The Special Management Area (SMA) was established to protect coastal resources in areas extending inland of the shoreline. The site is within the SMA (see Figure 10). The nature of the development, a constructed wetland, is not anticipated to have any adverse impacts on shoreline or coastal resources.

Discussion: Upon acceptance of a Final Environmental Assessment, a Special Management Area Assessment Use Permit will be requested for the constructed wetlands.

LEGEND

- Project Area
- Comfort Station

District

- Conservation

Source: State Land Use Commission (2008)
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 7

State Land Use Districts

Hā'ena State Park Constructed Wetlands

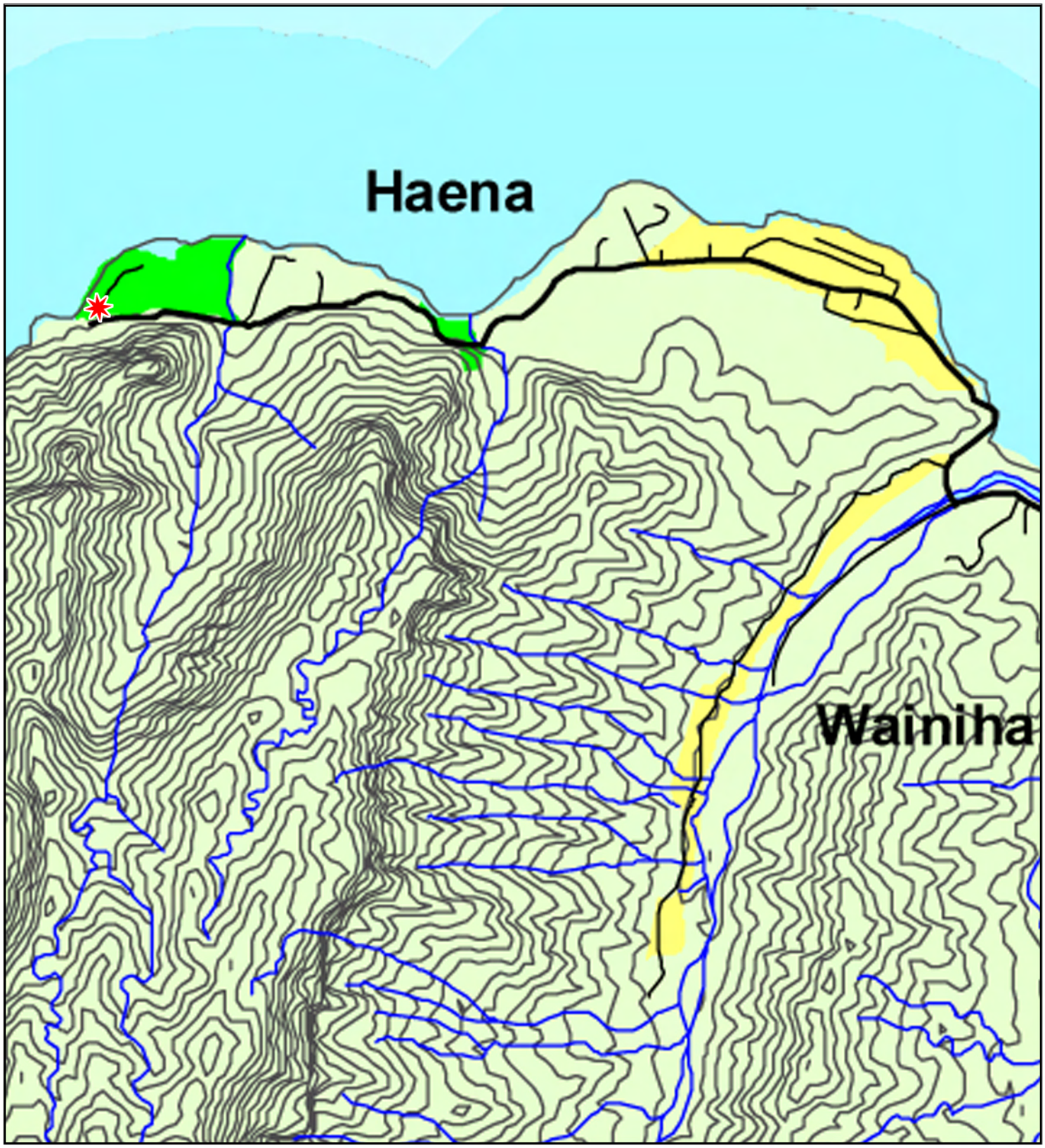
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 50 100 200

PBR HAWAII & ASSOCIATES, INC.



LEGEND

- Project Area

Land Use Designation

- Residential Community
- Park
- Open
- Streams, Reservoirs, Ponds

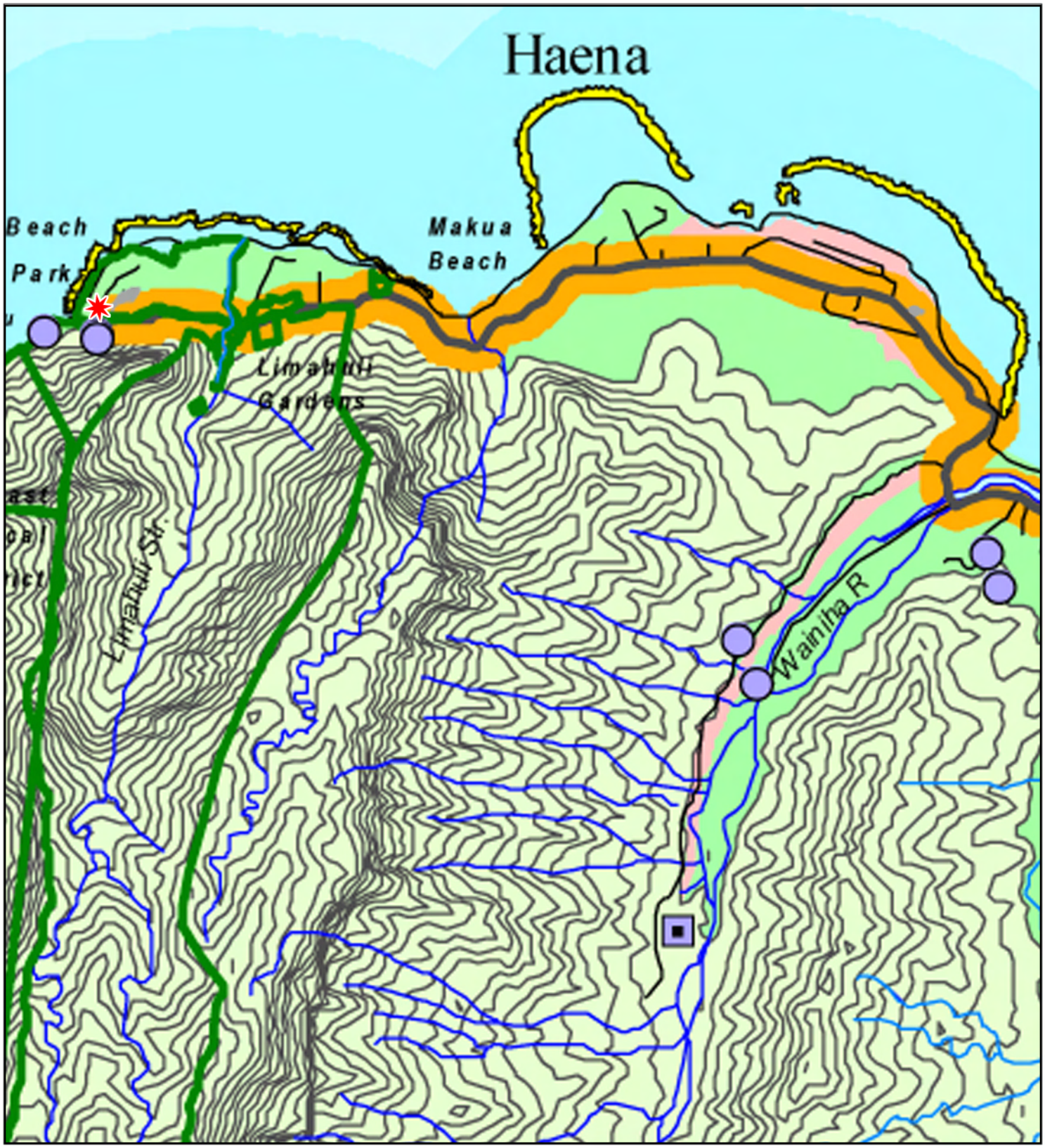
Source: County of Kaua'i General Plan
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 8
County of Kaua'i
General Plan Land Use Map
Hā'ena State Park Constructed Wetlands
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.



LEGEND

Project Area

Resource Classification

- Registered Archaeological Sites (excluding burials & lava tubes)
- Heiau Site
- Important Land Form
- Open Space, Parks, Agriculture, Conservation
- Residential, Urban Center, Resort, Transportation, Military
- Streams, Reservoirs, Ponds
- Scenic Roadway Corridors
- Coral Reefs
- Marshes
- Resource Parks & Sites

Source: County of Kaua'i General Plan
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 9
County of Kaua'i
North Shore Planning District: Heritage Resources
Hā'ena State Park Constructed Wetlands
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

LEGEND

- Project Area
- Comfort Station
- Special Management Area

Figure 10

Special Management Area

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 50 100 200

PBR HAWAII & ASSOCIATES, INC.

Source: County Planning Dept (2008)
Disclaimer: This graphic has been prepared for general planning purposes only.

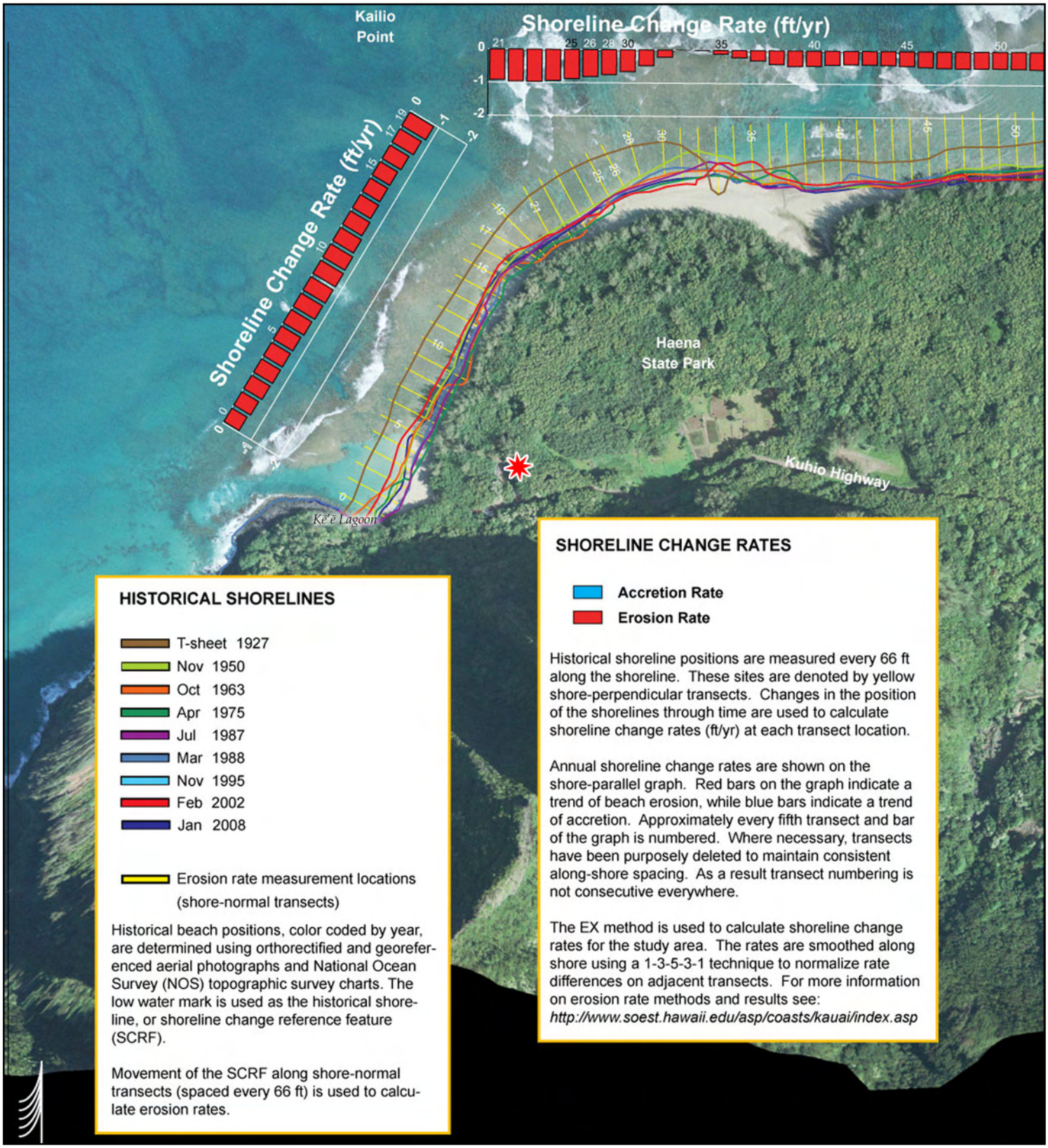
3.2.5 County Shoreline Setback

Ordinance 863, adopted, December, 2007 sets forth a procedure for establishing building shoreline setbacks for the County of Kauaʻi. The determination of the shoreline setback is based on a lot's average depth and historic rates of shoreline change. For lots with an average depth that is greater than 150 feet, the following table is used:

Table 1: County Shoreline Setback

For structures with a footprint that is:	Less than or equal to 5,000 square feet	Greater than 5,000 square feet
Then the setback distance is:	40 feet plus 70 times the annual coastal erosion rate	40 feet plus 100 times the annual coastal erosion rate

Discussion: Although not a structure, the wetland could be considered a development measuring less than 5,000 square feet in area. A Shoreline Setback Determination (SSD) application was accepted by the County of Kauaʻi Planning Commission on December 8, 2009. The County acceptance concluded that under Section 8.-27.8 of the Kauaʻi Comprehensive Zoning Ordinance, the calculated shoreline setback line shall be 100 feet, based on this site's average lot depth which exceeds 1,000 feet. The portion of the proposed project closest to the shoreline, is approximately 180 feet from the shoreline. The County acceptance is attached as Appendix G.



LEGEND

Project Area

Figure 11

Shoreline Erosion Rate

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

NOT TO SCALE

PBR HAWAII & ASSOCIATES, INC.

Source: UH SOEST (School of Environmental Studies & Technology)
Disclaimer: This graphic has been prepared for general planning purposes only.

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3.3 FEDERAL

3.3.1 Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) of 1990 sets forth guidelines for accessibility to buildings and facilities for individuals with physical disabilities. The newly constructed comfort station is constructed to be ADA compliant. The proposed constructed wetlands will be restricted from access by the general public for health and safety reasons.

3.4 NATIONAL AND STATE REGISTERS OF HISTORIC PLACES

The project area lies within the "Hāʻena Archaeological Complex" (Site # 50-30-02-1600) that was listed in the Hawaiʻi and National Register of Historic Places in 1984. It also lies immediately adjacent to a portion of the "Kauai Belt Road" (North Shore Section) (Site #30-02-9346) that was listed in the National Register of Historic Places in 2004.

The "Hāʻena Archaeological Complex," which encompasses Hāʻena State Park, was deemed significant because it represents a large, nearly continuous, and mostly intact complex of archaeological features dating from the early prehistoric period to the recent historic period (Yent 1983). Grouped broadly by location and type, the complex includes: 1) subsurface cultural layers and features, including burials, found within sand dune and beach-derived deposits forming a band along the seaward edge of the coastal flat; 2) irrigated agricultural field systems and wetlands that dominate the alluvial flat between the sand dune and the talus slopes along the cliff base, and 3) the traditionally important sites located along the talus slope, including the cliff face itself, that are significant to native Hawaiians because of their association with various legends, customs, and beliefs. The proposed individual wastewater system is located in a transitional area between the back-slope of the sand dune and the western edge of the irrigated agricultural fields and wetlands created within silty clay soils of the alluvial flats.

The "Kauaʻi Belt Road" stretches 10 miles from Princeville to Kēʻē Beach and is considered the only remnant of the Belt Highway system on Kauaʻi to retain a high degree of integrity (Duensing 2003). This section is characterized by its narrow lanes, winding road alignments, historic bridges and culverts, road cuts, and scenic settings. The stretch from Hāʻena Beach County Park to Kēʻē was the last to be completed, probably in 1928. The concrete culvert crossing Limahuli Stream at the entrance to the Hāʻena State Park is one of 13 bridges and culverts designated as contributing to the significance of the Belt Road. The proposed individual wastewater system is, at the closest point, approximately 46 feet from the current roadbed and about 2,000 feet from the culvert at the park entrance.

Discussion: The location, layout, and design of the individual wastewater system has been planned to minimize impacts on those archaeological and cultural sites that contribute to the significance of the National Register complex, both during construction and when the system is in use. Archaeological testing for this project and for others related to the comfort station and existing leachfield provided information on the probable distribution and nature of intact subsurface archaeological deposits and burials in this project area (McEldowney and Yent 2007, Major and Carpenter 2001, Yent and Carpenter, field notes, 2009). Excavation during construction is being confined primarily to areas and depths that have been disturbed by past construction and landscaping activities and appear to have no intact cultural deposits. The constructed wetland will be constructed mostly in and on fill materials or on leveled surfaces requiring only shallow excavation in disturbed soils. The new absorption bed and the sewer line connecting the comfort station with the new septic tanks are in areas altered by past projects and park uses (e.g., cesspools, septic tank, parking lot, and existing leachfield). Installation of one of the new septic tanks, the western-most one, will require excavation extending into sand deposits but no cultural materials were found in these deposits during recent archaeological testing (Yent and Carpenter, field notes, 2009). This was consistent with archaeological work conducted for the existing leachfield which suggested that cultural deposits in the sand dunes tended to diminish towards the back slope of the dune. Archaeological testing in the silty clay deposits in the transitional area between the back slope of the dune and the wetland areas contained no subsurface cultural deposits or features. To ensure the appropriate treatment of archaeological resources should any be uncovered, an archaeological monitoring plan will be prepared and an archaeologist will be on site during all ground alteration and excavation work.

Over the long-term, damage to subsurface deposits and features due to seepage from the absorption bed will be significantly reduced because discharge will be of a higher quality and the new absorption bed is located in an area altered by past activities and towards the back slope of the dune where the probability of intact cultural deposits tends to decline. Pollution of subsurface cultural materials and burials by discharge from the existing wastewater system was a major concern of the native Hawaiian community at Haʻena and the impetus for the instillation of a constructed wetland system.

The visual impacts of the project on culturally significant sites, such as the house site of Lohiʻau or the cliffs of Makana which are or could be visible from the project area, will be diminished by using black-coated materials for the fence surrounding and screening the constructed wetland. The visual intrusiveness of the protective fence will be further softened and broken by planting low shrubs along the fence perimeter.

The project will not directly or indirectly affect the structural character or integrity of the Belt Highway segment adjacent to the project area because this segment has been significantly altered over the years to accommodate the high volume of traffic at the highway's terminus. The road bed and shoulders have been expanded for parking and Americans with Disabilities Act improvements. One of the defining characteristic of the Belt Highway, its scenic setting, has been retained in this segment. The project's impact on this setting is being addressed by measures being taken to diminish the visual effects of the project.

3.5 APPROVALS AND PERMITS

The permits and/or approvals required to implement the proposed site improvements are listed in Table 2.

Table 2: List of Anticipated Permits and Approvals

PERMIT/APPROVAL	AUTHORITY	STATUS
Compliance with Chapter 343 HRS	Office of Environmental Quality Control	In process
Compliance with Chapter 6E, HRS (Historic Preservation)	State Historic Preservation Division	Compliant
Special Management Area Permit & Shoreline Determination	County of Kauaʻi Planning Commission	To be submitted 2010
Shoreline Setback Determination	County of Kauaʻi Planning Department/State of Hawaiʻi Department of Accounting and General Services, State Survey Office	Accepted

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4.0 DESCRIPTION OF THE AFFECTED NATURAL ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

This section describes the existing conditions of the physical or natural environment, potential impacts of the proposed Hāʻena State Park Comfort Station Constructed Wetlands on the environment, and mitigation measures to minimize any impacts.

4.1 CLIMATE

4.1.1 Existing Conditions

Mild temperatures, persistent trade winds, and differences in rainfall over short distances characterize climatic conditions on Kauaʻi. Temperatures at Kilauea Town, about 12 miles east of Hāʻena, range from 68.7 degrees Fahrenheit (F) to 76.6 degrees F annually. Rainfall averages 50-80 inches annually at this north shore location. Northeasterly trade winds blow 90 percent of the time in June through August and 40-60 percent of the time January through March. Wind average is 15 miles per hour.

4.1.2 Potential Impacts and Mitigation

The proposed constructed wetland is not expected to have an impact on climatic conditions and no mitigation measures are planned. In the event of heavy rains where water begins to pool within the wetland and over the course of days, threatens to overtop the berm, the effluent can be diverted to the backup system (the current septic tank and leachfield).

4.2 GEOLOGY AND TOPOGRAPHY

4.2.1 Existing Conditions

There are two theories explaining Kauaʻi's morphology. Historically, it has been thought that the island formed from a single shield volcano. A second theory suggests two shield volcanoes caused the formation of the island. For purposes of this report, the single shield volcano theory is described below.

Approximately five million years in age, the Island of Kauaʻi formed as a result of a single shield volcano rising from the Pacific Ocean floor. The island's age places it among the oldest within the Main Hawaiian Island chain. The main Kauaʻi shield volcano was formed by the emplacement of thousands of basaltic lava flows around the Pliocene geological epoch (3.6-5.3 million years ago).

The shield's Pliocene geologic history commenced with the emplacement of the Napali formation. Primarily consisting of thin theoleiitic basalt, olivine basalt, and oceanite pahoehoe, this formation sloped gently outward from the summit. The famed Nā Pali cliffs formed as a result of stream and wave erosion coupled with complications resulting from voluminous post-erosional volcanic eruptions on the northeastern side. The original shield's volcanic activity created fault zones off the main caldera, including one on each side of the existing park boundaries. A fault scarp is evident near the head of Kalalau Valley and runs for two miles toward the caldera, hence its reference as the "Kalalau Fault." The Wainiha fault runs along the park's eastern boundary up the Wainiha River.

The Kauaʻi shield experienced a long period of dormancy, experiencing a period absent of eruptive activity for approximately 1.5 million years. This quiet period allowed for profuse erosion around the volcanic shield. Activity did return to Kauaʻi, emplacing the Koloa Volcanics Series throughout the eastern portion of the island. These flows stemmed from over 40 identified vents, with many more theorized but unrecognizable due to the verdant vegetation in the area.

Kaua'i's post-erosional volcanic activity has largely been limited to the eastern portion of island, leaving sedimentary processes the sole geological influence affecting the Hāʻena State Park and the Nā Pali coast.

During the Pleistocene epoch (0.126 to 2.558 million years ago), the Earth experienced large fluctuations in global sea level. Drops in sea level lowered the erosional baseline for streams, carving valleys and cliffs to steep grades. The lower sea level allowed for the deposition of calcareous and alluvial deposits, including calcareous dunes now lithified. These dunes run along the park's makai boundary and are a prominent feature along the existing beach.

Another geologic feature of note within the park boundary includes the sea caves carved into the side of the mountain through natural processes. These caves were carved as a result of a rise in sea level during the Pleistocene, when existing lava tubes were enlarged by wave action. Currently, the valley flats are a result of alluvial fill from stream erosion and a decrease in sea level of five feet from its highest stand.

At the location of the proposed constructed wetlands, the ground is relatively level and averages 15 feet above mean sea level.

4.2.2 Potential Impacts and Mitigation

The proposed constructed wetland will have no affect on Kauaʻi's geology. Nor will it involve alteration to important geological features, such as the wet or dry caves within Hāʻena State Park. The site has been previously modified to accommodate the

comfort station constructed in 1979 and subsequent changes associated with the newer septic tank and drain field in 2004. The wetlands are proposed to be mostly constructed above ground, so as to minimize disturbance to subsurface cultural sites. Moreover, the project will occupy a limited area and will not significantly alter park topography or major drainage patterns.

4.3 SOILS

4.3.1 Natural Resource Conservation Service

Site soils are identified as Mokuleia Fine Sandy Loam (Mr) by the Natural Resource Conservation Service (NRCS), as shown in Figure 12. This soil occurs on the eastern and northern coastal plains of Kauaʻi, and is nearly level. Below the surface, the soil has a profile similar to that of Mokuleia Clay Loam which is characterized by dark-brown and light-gray, single-grain sand and loamy sand. Permeability is moderately rapid in the surface layer and rapid in the subsoil. Runoff is very slow, and the erosion hazard is slight. The available water capacity is about 1 inch per foot in the surface layer and 0.7 inch per foot in the subsoil. Included in mapping were small areas where the slope is as much as 8 percent.

4.3.2 Land Study Bureau Detailed Land Classification

The University of Hawaiʻi Land Study Bureau (LSB) document titled Detailed Land Classification, Island of Kauaʻi, classifies non-urban land by a five-class productivity rating system, using the letters A, B, C, D and E, where "A" represents the highest class of productivity and "E" the lowest. The entire Hāʻena State Park is classified as "E", or "Very Poor" according to this land rating system (Figure 13).

4.3.3 Agricultural Lands of Importance to the State of Hawaiʻi

The State of Hawaiʻi Department of Agriculture's Agricultural Lands of Importance to the State of Hawaiʻi (ALISH) system rates agricultural land as "Prime," "Unique" or "Other." The remaining land is not classified.

"Prime" agricultural land is best suited for production of food, feed, forage and fiber crops. The land has the soil quality, growing season and moisture supply necessary to economically sustain high yields of crops when treated and managed including water management, according to modern farming methods.

"Unique" agricultural land can be used for specific high-value food crops. The land has a special combination of soil quality, growing season, temperature, humidity, sunlight, air drainage, elevations, aspect, moisture supply, or other conditions that favor the production of a specific crop of high quality and/or high yield when the land is treated and managed according to modern farm methods.

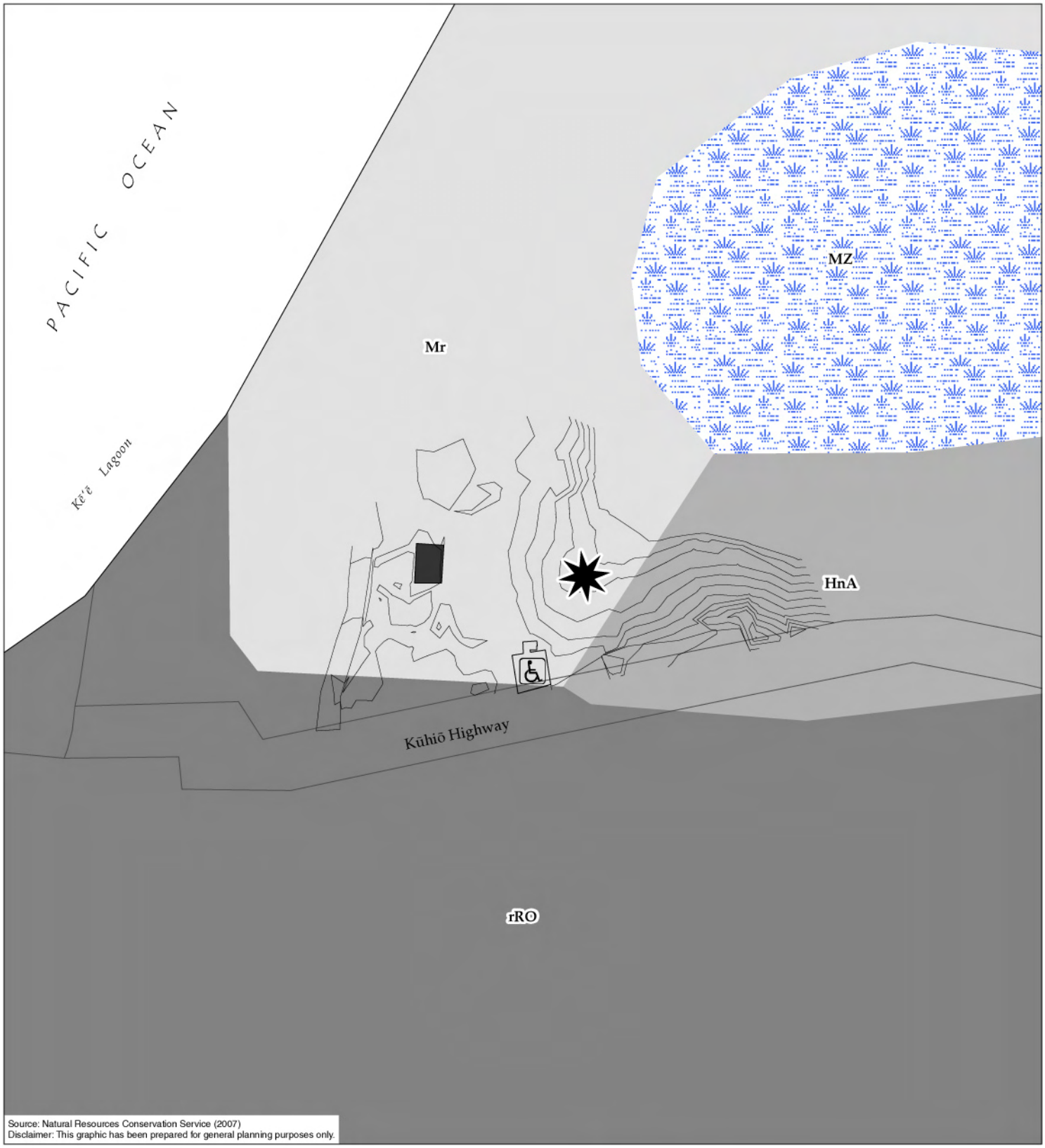
"Other" agricultural land is vital to production of food, feed, fiber and forage crops, yet they exhibit properties that are not ideal, such as seasonal wetness, erosion, limited rooting zone, slope, flooding, or drought. The land can be farmed satisfactorily through greater fertilization and other soil amendment, drainage improvement, erosion control practices, and flood protection and can produce fair to good crop yields when properly managed.

According to the ALISH system, the constructed wetlands are proposed for lands considered "Prime" agricultural lands (see Figure 14).

4.3.4 Potential Impacts and Mitigation

During construction and planting of the wetland, localized disturbance to the top soil will occur. Contractors will use best management practices (BMPs) to minimize erosion during construction and planting. Long term, the wetland plantings will mitigate the potential of soil erosion from wind and storm runoff.

Although the constructed wetland will be located in lands considered to be "Prime" agricultural land, the site location relative to park facilities make it an unlikely location for agricultural uses. It is noteworthy that taro loʻi are actively being restored within Hāʻena State Park, and a loʻi restoration plan has been prepared by State Parks. The constructed wetlands are not proposed in an area of active or proposed loʻi restoration.



LEGEND

- Project Area
- Comfort Station

Soil Type

- MZ: Marsh
- Mr: Mokulē'ia fine sandy loam
- HnA: Hanalei silty clay, 0 to 2 percent slopes
- rRO: Rock outcrop

Figure 12

NRCS Soil Classification

Hā'ena State Park Constructed Wetlands

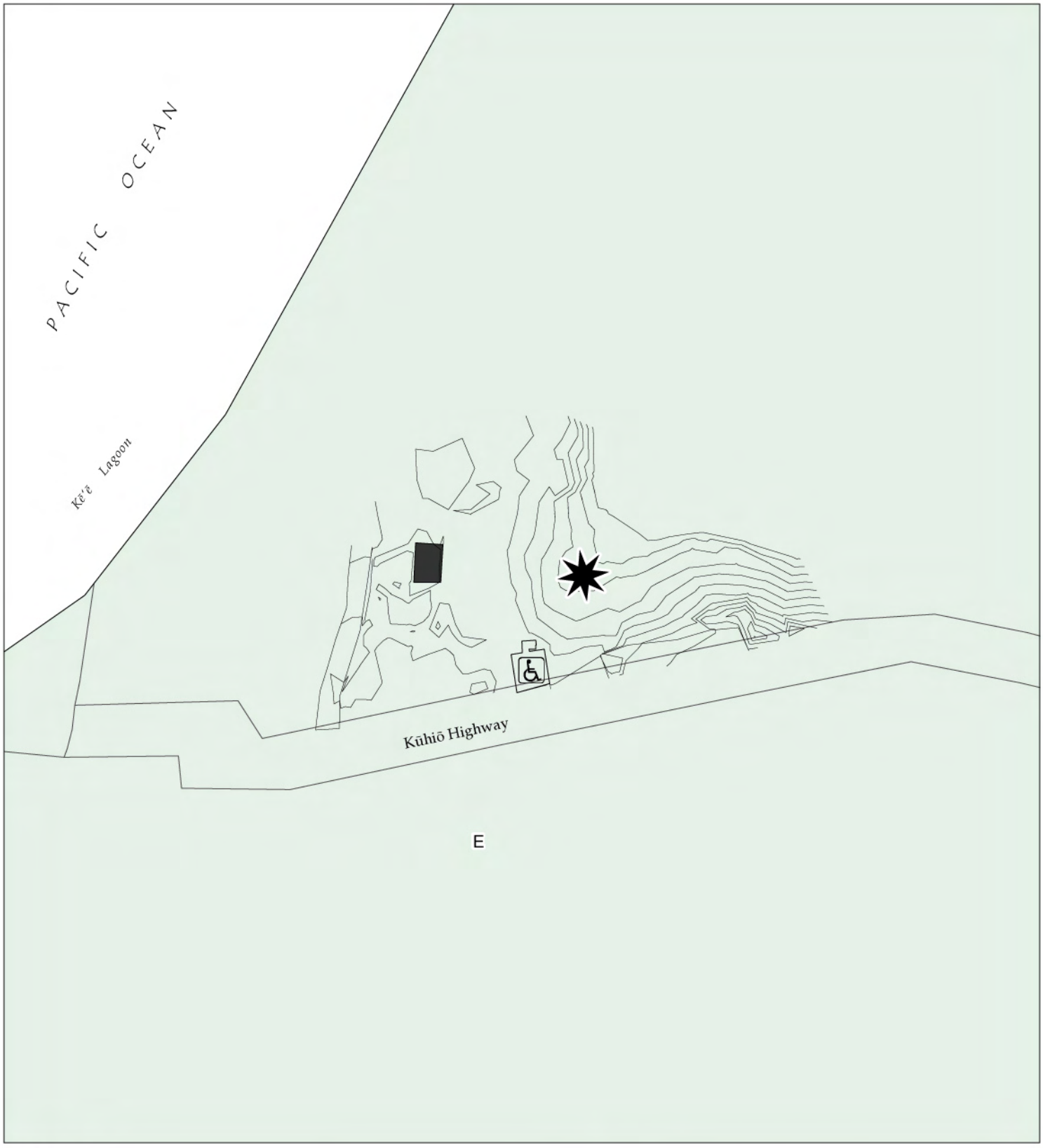
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 50 100 200

PBR HAWAII & ASSOCIATES, INC.



LEGEND

- Project Area
- Comfort Station

Classification

- E: Very Poor

Source: Land Study Bureau (1998)
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 13
Detailed Land Use Classification

Hā'ena State Park Constructed Wetlands
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)
0 50 100 200

PBR HAWAII & ASSOCIATES, INC.

LEGEND

- Project Area
- Comfort Station

ALISH Type

- Prime Lands
- Other Lands
- Unclassified Lands

Source: State Dept of Agriculture (1977)
Disclaimer: This graphic has been prepared for general planning purposes only.

Figure 14
Agricultural Lands of Importance to the State of Hawai'i

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)
0 50 100 200

PBR HAWAII & ASSOCIATES, INC.

4.4 NATURAL HAZARDS

4.4.1 Existing Conditions

Natural hazards impacting the Hawaiian Islands include flooding, tsunami inundation, hurricanes, volcanic eruptions, and earthquakes. According to the Flood Insurance Rate Map (FIRM) Panel 1500020030E (9/16/05) prepared by the Federal Emergency Management Agency (FEMA), National Flood Insurance Program, the project area is located in Zone X. (Figure 15). Zone X is outside the 1% annual chance flood (100 year flood). At this location, flood elevations are known and shown on Figure 15. The flood elevations are the water surface elevation of the 100 year flood.

Hāʻena State Park is located within the tsunami evacuation zone (Figure 16).

Since 1980, two hurricanes have had a devastating effect on Kauaʻi. They were Hurricane ʻIwa in 1982 and Hurricane ʻIniki in 1992. There was no hurricane overwash recorded in the area after Hurricane ʻIniki. Much of the damage due to the hurricane overwash was recorded in low-lying coastal areas in Wailua and Kapaʻa and along the southern coast of the island.

While it is difficult to predict such natural occurrences, it is reasonable to assume that future incidents are likely, given historical events. However, the threat of such hazard is no greater for the proposed project site than any other location on Kauaʻi.

Volcanic hazard is considered minimal due to the extinct status of the volcanoes comprising Kauaʻi.

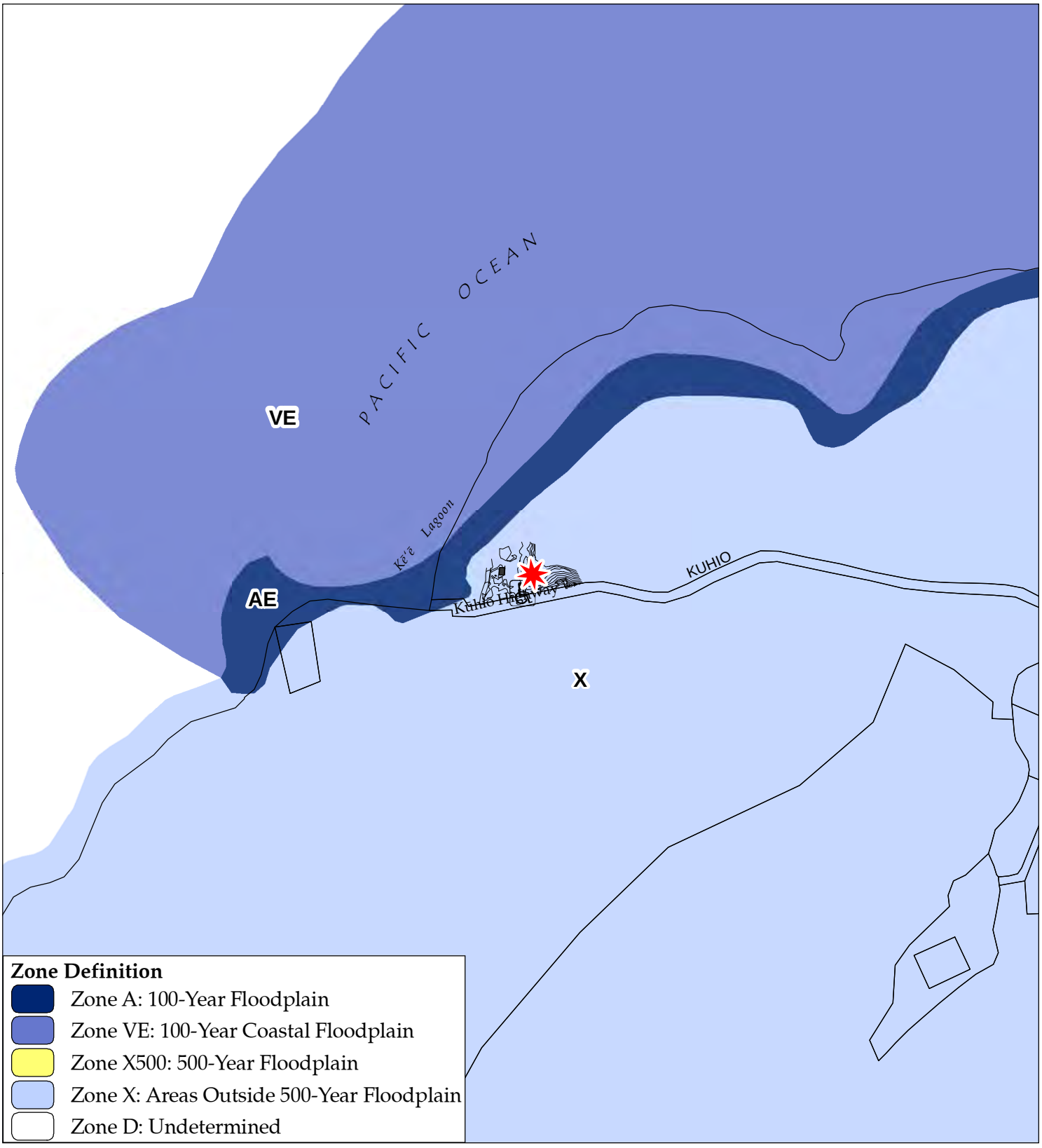
In Hawaiʻi, most earthquakes are linked to volcanic activity, unlike other areas where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawaiʻi, the vast majority of which are so small they are detectable only with highly sensitive instruments. The threat of an earthquake to the site area is no greater than any other location on Kauaʻi.

Within Hāʻena State Park, there is a potential for rockfall. Kūhiō Highway is located at the base of mountains created by lava flows, which erode due to the forces of wind and water.

4.4.2 Potential Impacts and Mitigation

The proposed wetland will not exacerbate any natural hazard conditions. The wetland location will not interfere with roadways that might serve as evacuation routes. A berm will be constructed around the wetland to prevent inundation from stormwater that may flow across the surface of the ground. In the event of tsunami,

the wetland could be damaged or destroyed, as would a more conventional wastewater treatment system. An advantage to the constructed wetland over septic systems is that the wetland is not an anaerobic system. This means that bacteria can not thrive as they do in a system deprived of oxygen. Therefore, in a catastrophic event such as a tsunami, the water inside the wetland should be less contaminated with bacteria than that of septic systems. Thus, in the event of a natural disaster, the constructed wetland presents no greater risk to the environment or human health than the existing system.



LEGEND

- Project Area
- Comfort Station

Figure 15

Flood Insurance Rate Map

Hā'ena State Park Constructed Wetlands

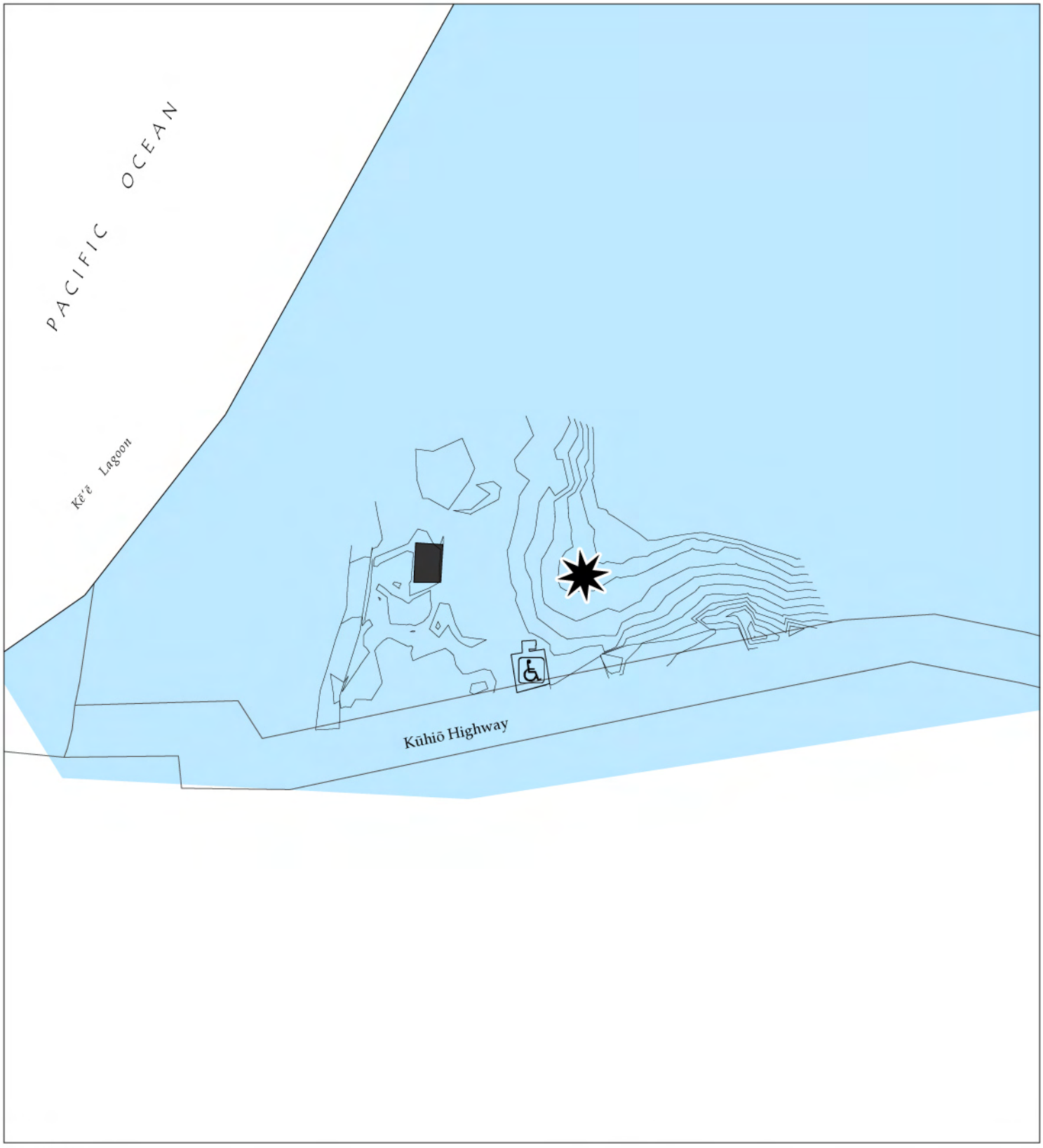
Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC.



LEGEND

- Project Area
- Comfort Station
- Tsunami Evacuation Zone

Figure 16

Tsunami Evacuation Zone

Hā'ena State Park Constructed Wetlands

Department of Land and Natural Resources, Engineering Division — Island of Kaua'i

NORTH

LINEAR SCALE (Feet)

0 50 100 200

PBR HAWAII & ASSOCIATES, INC.

Source: Pacific Disaster Center (1998)
Disclaimer: This graphic has been prepared for general planning purposes only.

4.5 WETLANDS

4.5.1 Existing Conditions

East of the project area is the site of a former Hawaiian fishpond, Loko Kēʻē. What remains is a broken line of boulders, seasonally saturated land and some plant communities that would be indicative of wetlands. A wetland delineation study was conducted in 2008 by AECOS, Inc. to determine if the area east of the site is wetland and if so, to determine the wetland boundary. AECOS, Inc. also consulted with the US Army Corps of Engineers to determine if the wetland is "jurisdictional" or also known as "Waters of the United States" and therefore regulated by the Corps. In summary, AECOS, Inc. determined that the jurisdictional wetlands corresponded with the broken line of boulders (see Figure 6). This determination was based upon the presence of hydric soils and water at test pits (SP-1, SP-2 and SP-3 shown on Figure 6). However, based on a field inspection, the Corps determined that the area near the broken line of boulders did not meet the Corps' definition of wetlands because this area was absent one wetland parameter, wetland vegetation. Thus, the Corps determined that the extent of the wetland is somewhere east of the boulders (or "inside" the historic fish pond). The Army Corps determined that test pit SP-2 is wetland due to presence of water, hydric soils and wetland vegetation, but test pits SP-1 and SP-3 on Figure 6 are upland. The findings of the wetland delineation report and the Army Corps' response letter are attached as Appendix C.

4.5.2 Potential Impacts and Mitigation

In order to avoid any impacts to the existing wetland east of the project site, the project has been designed using the more conservative wetland boundary established by AECOS, Inc. The constructed wetland and its absorption bed will be constructed outside the AECOS, Inc. boundary shown on Figure 6 and no discharges to Waters of the United States will occur. A berm is included in the design of the constructed wetland to avoid mauka stormwater runoff inundation and overflow into the existing wetlands east of the site. Similarly, the absorption bed has been located away from the existing wetland to ensure that the water associated with the constructed wetland are not "discharged" to the existing wetland.

Preliminary review of the conceptual location of the wetland and absorption bed has occurred by the State of Hawaiʻi Department of Health (DOH), Wastewater Division. In all likelihood, DOH will require State Parks to monitor the water quality on a quarterly basis for at least the first two years of operation to ensure a stable effluent quality is established.

4.6 FLORA

4.6.1 Existing Conditions

The site vegetation consists of naturalized alien species including false kamani, hau, ironwood, coconut, Java plum, pothos, sow thistle, wedelia and four o'clock. As discussed in the previous section of this report, the site does not show wetland characteristics and wetland flora is more abundant to the east of the project site.

4.6.2 Potential Impacts and Mitigation

The replacement of existing alien plant species with native Hawaiian plants will further serve the immediate site and park in general by encouraging a diversity of plant life that supports native biological communities. Plants selected for the wetland will be those native plants that can best thrive in Kauaʻi's north shore environment while providing water quality functions. Such plants will include makaloa (*cyperus laevigatus L.*) and neki (*Schoenoplectus lacustris*) two native Hawaiian sedges (Erickson & Puttock). Within the wetland, the gravel surface will be level for ease of maintenance. Plants proposed for the exterior of the wetland (outside the fence) include neke (*cyclosorus interruptus*) and hala (*pandanus tectorius)*.

Importation of invasive plant seeds with off-site soil will be avoided to the extent possible. Both on-site and off-site soils are expected to be used for construction of the berm around the wetland. First, some on-site excavation will take place in order to construct the absorption trenches. This soil may be utilized for the berms. However, a project goal is to minimize site disturbance, thus excavation will be limited and additional soil will need to be imported to create the berms to the desired height. State Parks will work with the contractor and specify that clean borrow material be utilized. The material must be free of organic matter and other deleterious substances. State Parks can further specify that top soil can not be imported and must come from the site or a nearby site. During construction, best management practices for erosion control will be implemented so as to avoid sediment run-off from the construction site into the adjacent existing wetland. All disturbed areas will be planted upon construction so as to avoid the spread of non-native, invasive species that already exist within the park.

4.7 FAUNA

4.7.1 Existing Conditions

Faunal communities in the project area are alien dominated. Surveys conducted for the National Tropical Botanical Garden identified detrimental animal species such as feral cats, rats and ungulates in the Limahuli Preserve. It is likely that these species are present at times at Hāʻena State Park where there is greater opportunity for these species to forage in trash or debris left behind by visitors.

Avian species commonly encountered are all introduced species common to lowland area across Hawai`i. These include Japanese white-eye (*Zosterops japonicus*), common myna (*Acridotheres tristis*), wild jungle fowl (*Gallus gallus*), red-crested cardinal (*Paroaria coronata*), and house sparrow (*Passer domesticus*). Additionally, the following species are known to occur within the proposed project area: the endangered Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian stilt (*Himantopus mexicanus knudseni*) and Hawaiian goose (*Branta sandvicensis*). The following migratory shorebirds may also be present in the vicinity of the project: Pacific golden plover (*pluvialis fulva*), ruddy turnstone (*arenaria interpres*), wandering tattler (*heteroscelus incanus*) and sanderling (*calidris alba*). The endemic Hawaiian Short-eared owl (*Asio flammeus sandwichensis*) can also be found in the area of the project.

It is expected that the endangered Hawaiian Petrel (ʻUaʻu; *Pterdroma phaeopygia sandwichensis*), threatened Newell's Shearwater (ʻAʻo; *Puffinus auricularis newelli*) and the Band-rumped Storm-Petrel (*Odeanodroma castro*) would fly over Hāʻena State Park to their nests in the mountains. These birds can be affected by exterior lighting, becoming disoriented and downed at times. It is also expected that the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) probably utilizes the area for foraging and possibly roosting in trees at Hāʻena State Park.

4.7.2 Potential Impacts and Mitigation Measures

Inclusion of wetlands, particularly one that includes native plants, will serve to generally enhance habitat for insects and birds and mammals such as the hoary bat. The addition of native Hawaiian wetland plants will contribute to greater biodiversity within the immediate vicinity.

However, by intention, the wetland is not designed to be a habitat, particularly for waterbirds. Thus, during normal operations there will not be standing water in the wetland. Rather, water will be two (2) to four (4) inches below the gravel surface area. Additionally, the surface of the wetland will be a gravel media, not mud. However, during periods of heavy rain, there is the possibility that surface water may be present in the wetland before the system drains to the absorption bed. Thus there is the possibility that it may attract waterbirds. The potential to attract waterbirds raises two possible concerns; increased predation pressure from non-native species such as rats, feral dogs and cats; and the potential for an outbreak of avian botulism. With regard to threat from predation, the primary minimization measure that the State will employ to reduce this risk is to fence the wetland with a 6-foot high chain link fence. The fence should serve to keep dogs and cats from the wetland. It will also serve to protect the public and keep feral pigs from rooting in the system. An additional minimization measure the State will employ is to continue to implement on-going management actions to control feral cats. At present, State

Parks staff works with the Kauaʻi Humane Society, using Humane Society traps and Humane Society officers to pick up cats from the park as the need arises.

Avian botulism is a disease that can affect birds and does not affect humans. Birds contract the disease by eating aquatic invertebrates that filter feed sediments or water or can be transmitted from bird to bird when insects that have been feeding on a dead bird are eaten by a waterbird. With regard to threat of avian botulism, the primary minimization measure that the State proposes to employ is to ensure that no protein source is found in the wetland so that the bacterium can not produce the botulism toxin. The subsurface nature of the wetland will ensure that protein in the form of fish or aquatic invertebrates that filter feed will not be present. Secondarily, as the wetland is not expected to exhibit high habitat values for waterbirds, and it will be fenced, it is unlikely that a dead bird or goose would serve as a protein source for the bacterium. Finally, the constructed wetland system is designed such that it is not an anaerobic system, thus, is not the ideal environment for any types of bacteria to survive.

In addition to the above measures, the State will employ management techniques to control avian botulism. Foremost, State Parks staff will become familiar with the signs of avian botulism and in the event that dead birds are discovered within the constructed wetland or elsewhere in the park, they will be removed by State Parks staff and disposed of in an appropriate manner.

The subsurface nature of the constructed wetland will also serve as a management tool to control the disease, as the system will drain after a rain event, reducing the success of the bacterium's survival. Last, in the event of standing water during a period of heavy rains and a known outbreak, as an emergency measure, the wastewater from the comfort station can be diverted to the existing septic tank and leachfield. This action would facilitate draining of the wetland more rapidly to ensure that an outbreak is effectively managed.

With regard to seabirds, all construction activity will occur during daytime hours and no exterior lighting that could cause confusion for night-flying birds will be installed with this project.

5.0 ASSESSMENT OF EXISTING HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, potential impacts of the proposed constructed wetlands and mitigation measures proposed to minimize any impacts.

5.1 ARCHAEOLOGICAL, CULTURAL AND HISTORIC RESOURCES

5.1.1 Existing Conditions

The site is located within Hāʻena State Park, located on the north eastern side of Kauaʻi. The Native Hawaiian settlement located at the site was inhabited from roughly 1000 AD to 1800 AD. Primary sources of economy were fishing and agriculture with some aquaculture. The comfort station site which includes a washroom facility, exterior shower, septic tank and leachfield are located within the "Hāʻena Archaeological Complex", listed in the Hawaiʻi and National Register of Historic Places in 1984 (State site #30-02-1600). Archaeological testing prior to construction of the original comfort station revealed a transitional zone from coastal habitation to an agricultural system. Numerous fire hearths and refuse pits, a large stone lined storage pit, an ʻauwai, pavement, and at least two cultural strata were uncovered in the area where the comfort station site and adjacent parking lot are now located. The proposed individual wastewater system is located in a transitional area between the back-slope of the sand dune and the western edge of the irrigated agricultural fields and wetlands that were created within silty clay soils of the alluvial flats.

Installation of the individual wastewater system prompted additional archaeological data recovery. The work at that time indicated extensive disturbance of the uppermost 50 cm (20-inches) of the site. Cultural deposits and intact features were recorded below this depth, including postholes and pits. A single prehistoric human burial was disturbed by the septic tank installation, located approximately 40 feet northeast of the restroom. The iwi were reinterred within the park at that time.

5.1.2 Potential Impacts and Mitigation Measures

State Parks has worked with the Hāʻena community (and specifically, community members who filed petitions to intervene in the 2007 SMA permit for the comfort station), to develop an alternative wastewater treatment and disposal system that is more culturally sensitive than the system currently in place. To do so, numerous

consultations with the community have occurred as the idea for the constructed wetland was conceived and plans have been refined.

The primary objective of this project is to minimize disturbance of Hāʻena's subterranean archaeological and cultural sites. Therefore, the septic tank and leachfield will be left in place, rather than removed. In order to terminate use of the leachfield (except as a back up to the constructed wetlands), effluent will be diverted by gravity via pipe to the new septic tanks, flow through the constructed wetland and disposed in the absorption bed. Thus, the constructed wetlands will offer a better quality effluent than that treated by a septic tank and leachfield alone. Typically, constructed wetlands involve grading a channel three to four feet deep, lining the channel with plastic, media such as gravel sized rock allowing water to flow below the surface. Due to the archaeological sensitivity of further digging at the site, creating a berm to achieve the desired depth without extensive excavating is planned. Media and native top soil can be placed on the surface where wetland plants are installed.

Archaeological testing for this project and for others related to the comfort station and existing leachfield provided information on the probable distribution and nature of intact subsurface archaeological deposits and burials in this project area (McEldowney and Yent 2007, Major and Carpenter 2001, Yent and Carpenter, field notes, 2009). Excavation during construction is being confined primarily to areas and depths that have been disturbed by past construction and landscaping activities and appear to have no intact cultural deposits (Yent and Carpenter, field notes, 2009).

Installation of one of the new septic tanks, the western-most one, will require excavation extending into sand deposits but no cultural materials were found in these deposits during archaeological testing. This was consistent with archaeological work conducted for the existing leachfield which suggested that cultural deposits in the sand dunes tended to diminish towards the back slope of the dune. Archaeological testing in the silty clay deposits in the transitional area between the back slope of the dune and the wetland areas contained no subsurface cultural deposits or features (McEldowney, personal communication). Further, to ensure the appropriate treatment of archaeological resources should any be uncovered, an archaeological monitoring plan will be prepared and an archaeologist will be on site during all ground alteration and excavation work.

Importantly, the group of individuals who filed petitions to intervene have maintained working communication with the State through the planning and design phase of the constructed wetlands. The petitioners are individuals with knowledge of Hāʻena's cultural assets and their knowledge has informed the project design. Further, the petitioners' knowledge is a valuable supplement to the Cultural Impact Assessment which was also prepared.

In order to further supplement the knowledge and expertise of the petitioners and evaluate the cultural impacts of this project, a Cultural Impact Assessment (CIA) was conducted by Kaʻimipono Consultants (attached as Appendix D). The CIA included research that places the project in the context of the ahupuaʻa of Hāʻena and the greater moku (district). The CIA provides a literature review, Hawaiian moʻolelo (stories) and included summaries of previous ethnographic interviews and an interview with a knowledgeable individual with close ties to Hāʻena.

The CIA concludes that:

- *…There appears to be a clear message that people culturally connected to Kēʻē/Hāʻena do not want the Comfort Station located there or the remnants of Loko Kēʻē modified.*
- *While there has not been any recent (continuing) burials in the project area or functioning use of the fishpond, access to the traditional/ancient sand dune burials will be impacted by the Comfort Station and modification of the wetlands.*
- *…sand dune burials continued into the historic period, as did the use of fishponds. While both of these resources were damaged by historic tsunami, they still qualify as historic resources (religious/spiritual land subsistence example).*
- *The historic practice of sand dune burials was discontinued; the historic use of the fishpond aquaculture was also discontinued in Hāʻena. However, the restoration and continued practice of growing kalo (taro) has been revitalized in recent years in Hāʻena and elsewhere in Hawaiʻi. Fishpond aquaculture has also been revitalized around Hawaiʻi and there is some hope that this will happen in Hāʻena as well as for subsistence and cultural purposes.*

As discussed previously in this report, this project was borne of a Memorandum of Understanding and on-going discussions with individuals of the community with close ties to Hāʻena (see Appendix A). The purpose of this project is to mitigate the existing (on-going) perception that the leachfield is desecrating a known archaeological site. To that end, the location as proposed is outside the dune area to avoid disturbance to known archaeological features and as far away from the former loko Kēʻē as possible to avoid disturbance to the former fishpond. Effluent from the comfort station will receive primary treatment from a series of two septic tanks, secondary treatment by biological processes within the constructed wetland, and finally discharged to an absorption bed that is located between the backslope of the dune and the existing wetland (Loko Kēʻē). No alterations to Loko Kēʻē are proposed. Archaeological testing in the silty clay deposits in the transitional area between the back slope of the dune and the wetland areas contained no subsurface cultural deposits or features (McEldowney, personal communication).

In order to mitigate any cultural impacts, the following measures will be taken:

- No alteration to the existing wetland which is the site of a former fishpond (Loko Kēʻē) will be made.
- No effluent will be discharged to the existing wetlands or within a 50-foot buffer of the existing wetland.
- Discontinue use of the existing septic tank and leachfield, and leave in place so as to 1) limit site disturbance; and 2) to utilize as a back-up system as necessary.
- No disturbance of sand dunes is proposed. Existing roadways will be utilized to access the site.

To ensure that no archaeological impacts occur during construction, an archaeological monitoring plan will be prepared and an archaeologist will be on site during all ground alteration and excavation.

5.2 NOISE

5.2.1 Existing Conditions

The predominant sources of noise in the vicinity of the site stem from automobile traffic accessing the park. Auto parking is adjacent to the comfort station facility. Other sources of noise are from natural sources, such as wind, rain and ocean waves.

5.2.2 Potential Impacts and Mitigation Measures

A wetland will not create any adverse noise impacts. During project construction, there will be minimal, temporary noise impacts associated with the small amount of earth movement required to construct a berm and wetland system.

To mitigate construction noise levels, the DLNR Engineering Division will work with the contractor to ensure adherence with State Department of Health (DOH) regulations, use of proper equipment and regular vehicle maintenance. Equipment mufflers or other noise attenuating equipment may also be employed as required. All construction activities will be limited to daylight work hours. It is expected that after the proposed construction is complete, ongoing noise generating activities will be similar to existing conditions.

5.3 AIR QUALITY

5.3.1 Existing Conditions

Regional and local climate, together with the amount and type of activity generally determine the air quality of a given location. At the project site, winds are predominantly trade winds.

Due to relatively undeveloped nature of the park and surrounding properties, air quality is excellent. There are no point sources of airborne emission within proximity

of the project site. Pollutants that exist may be attributable to automobile traffic accessing the park. Emissions from such sources are intermittent and are quickly dispersed by prevailing winds.

5.3.2 Potential Impacts and Mitigation Measures

A constructed wetland will not negatively impact air quality in the area. Wetland plants generally serve to enhance air quality, however, any enhancement will be nominal due to the relatively small area proposed for planting.

Emissions derived from operation of construction equipment and other vehicles involved in construction activities may temporarily affect the ambient air quality in the immediate vicinity. However, these effects will be minimized through proper maintenance of construction equipment and vehicles. In addition, there may be a temporary adverse impact on air quality attributable to dust generated during project construction, particularly earthmoving activity. However, the soil type, Mokulēʻia Fine Sandy Loam is described by the NRCS as having only a "slight" erosion hazard. Vegetation within the wetland and outside the facility will be planted immediately to reduce potential for erosion of soils.

5.4 VISUAL RESOURCES

5.4.1 Existing Conditions

Hāʻena State Park, known for its scenic, undeveloped qualities, provides passive recreational activities such as swimming, sunbathing, picnicking and hiking. As such, the park is generally unimproved, but experiences heavy visitor traffic. Improvements include the access road, parking areas, a trailhead with associated markers and the comfort station. The open area west of the comfort station is the location of the septic tank and drain field.

5.4.2 Potential Impacts and Mitigation Measures

Hāʻena State Park is known for its natural beauty, particularly as travelers on Kūhiō Highway approach Kēʻē beach. However, it is known that at one time, the landscape had a more open appearance, with fewer trees such as the false kamani, which have come to dominate the landscape (see Appendix D, Page 70). It is expected that removal of the false kamani in order to make way for this project will serve to "open up" the landscape, by removing tree canopy, allowing for increased visual access to the park's scenic features such as the peak of Makana. For safety purposes, Department of Health regulations require that the constructed wetland be enclosed by a 6-foot high chain link fence. The visual effects of this structure will be softened by using a black vinyl coating, which should be less obtrusive than metal which would reflect sunlight. The fence will be further softened by exterior plantings which will include native trees such as hala.

5.5 SOCIO-ECONOMIC CHARACTERISTICS

5.5.1 Community Character

5.5.1.1 Existing Conditions

Hāʻena State Park is located at the terminus of Kūhiō Highway, in the ahupuaʻa of Hāʻena, District of Hanalei, Island of Kauaʻi. The area is characterized by its undeveloped wildland environment, cultural and recreational amenities, including Limahuli National Botanical Gardens, Kalalau Trail and Hāʻena County Park.

According to the 2000 United States Census, the population of Kauaʻi County was 58,463 persons. The County's population was projected to increase to 63,004 persons by 2006.

The median age of Kauaʻi residents in 2000 was 38. In the nearest Census Designated Place (CDP), Hanalei, the median age was 40. As the Hāʻena population is small and sparsely populated, following is some general demographic data for the Hanalei CDP. It can provide some insight to Kauaʻi's North Shore population, but no direct conclusions can be drawn about the population of individuals who live in the Hāʻena ahupuaʻa.

Of the 193 households within the Hanalei CDP, 30.1 percent (58 households) had children under the age of 18 years and 43 percent (22 households) had individuals 65 years or older. Twelve percent of households consisted of individuals living alone who were over the age of 65 (6.2 households).

Of the 303 total housing units in the Hanalei CDP, 63.7 percent were occupied and 30.7 percent (93) were considered "vacant" for seasonal, recreational or occasional use.

The racial composition of Kauaʻi is provided based on the 2000 census. A little over eight percent of the Kauaʻi population consider themselves native Hawaiian. Kauaʻi residents that identify themselves as one race (76.2%) 36 percent Asian; 29.5 percent white; and, 9.1 percent "Other Pacific Islander".

5.5.1.2 Potential Impacts and Mitigation Measures

The purpose of the constructed wetlands is to serve an existing facility. The wetlands will not increase capacity of the comfort station, and is not expected to create any impacts to the number of housing units, the number of households or racial composition.

5.5.2 Population

5.5.2.1 Existing Conditions

The US Census Bureau reports the population of Kauaʻi to be 58,463 and projects a 2006 population of 63,004 persons. The nearest Census Designate Place (CDP) is Hanalei, which reports a total population of 478 persons in 2000.

5.5.2.2 Potential Impacts and Mitigation Measures

The proposed wetlands are not expected to create any impacts on population.

5.5.3 Economy

5.5.3.1 Existing Conditions

As identified in the Kauaʻi General Plan, the visitor industry continues to be the driving force of the County's economy. While the General Plan highlights the need to diversify the economy, it also recognizes that existing facilities require regular maintenance and upgrades.

5.5.3.2 Potential Impacts and Mitigation Measures

The proposed wetland is not expected to impact the local economy in a negative manner. The construction itself will stimulate purchase of materials (generating excise tax revenues) and employment for labor (generating income tax revenues).

5.6 INFRASTRUCTURE

5.6.1 Roadways and Traffic

5.6.1.1 Existing Conditions

Hāʻena State Park is accessed by Kūhiō Highway. The Highway terminates within the state park at Kēʻē Beach. Topography, land patterns and North Shore Development Plan goals are such that an extension of the highway or additional access points to the park are not expected.

5.6.1.2 Potential Impacts and Mitigation Measures

During construction, there may be occasional and temporary delays to traffic during the transport of equipment and materials. Because the wetlands are not anticipated to increase visitor traffic, no upgrades or expansions to roadways are expected. The State of Hawaiʻi Department of Transportation provided comments to the Draft Environmental Assessment (Attached as Appendix F). Those comments indicate that DOT does not anticipate any significant adverse impacts to Kūhiō Highway from this project. The DOT cautioned to address any impacts that this proposal might have on the parking area adjacent to the highway. No impacts to the adjacent parking area are expected as this area will remain open to the public during and after construction

of the wastewater system improvements. The DOT also advises that a permit is required if any oversize or overweight loads are to be transported on State Highways. While gravel must be imported, the size of any loads to Hāʻena are limited by bridge size and weight capacity. Thus, no oversize or overweight loads are planned.

5.6.2 Water

5.6.2.1 Existing Conditions

The comfort station is served by a 2-inch water line along Kūhiō Highway.

5.6.2.2 Potential Impacts and Mitigation Measures

There will be no adverse impact to water distribution systems as a result of the constructed wetlands. No new water service or connections are proposed, nor is additional water use expected. Once plants are established, no irrigation will be required for this facility.

As a condition of the SMA permit for the comfort station, the Kauaʻi County Department of Water (DOW) required that a backflow prevention device be installed. A backflow prevention device was installed with the comfort station construction, which was completed in 2009.

5.6.3 Wastewater

5.6.3.1 Existing Conditions

The comfort station is served by a septic tank and leachfield in compliance with State Department of Health regulations for wastewater systems. Concerns regarding the impact of the effluent from the existing septic tank and leachfield on an archaeological site have prompted re-evaluation of effluent disposal measures.

Until the constructed wetlands and absorption bed are in place and functional, the comfort station will utilize the existing septic tank and leachfield for wastewater treatment and disposal as agreed upon by the DLNR and the SMA petitioners (see Appendix A).

5.6.3.2 Potential Impacts and Mitigation Measures

The proposed septic tanks and constructed wetland is a treatment system that is more environmentally sensitive than the existing septic tank and leachfield. The constructed wetland conceptual design and location have been preliminarily reviewed by the State of Hawaiʻi, Department of Health (DOH), Wastewater Division. It is likely that DOH will require State Parks to monitor the wetland waters on a quarterly basis for the first two years of operation to ensure that there is a stable effluent quality before waters enter the absorption bed. No mitigation measures are

proposed to the existing wastewater systems, as this project will represent an overall improvement to the wastewater system.

5.6.4 Drainage

5.6.4.1 Existing Conditions

An extensive storm drain piping system does not exist on site. Stormwater from the mountain flows through a culvert beneath runoff from Kūhiō Highway sheet flow to a drainage area that essentially flows into the existing wetland.

5.6.4.2 Potential Impacts and Mitigation Measures

The wetland will not create a need for additional storm drainage systems. No new impervious area will be added. A berm will surround the wetland to ensure that it is not inundated with regional stormwater runoff or overflow during a 100-year flood.

5.6.5 Electrical and Communication Systems

5.6.5.1 Existing Conditions

The Kauaʻi Island Utility Cooperative (KIUC) generates electricity for Kauaʻi. The park is not served by electricity. An pay telephone is located about 115 feet south of the comfort station adjacent to Kūhiō Highway.

5.6.5.2 Potential Impacts and Mitigation Measures

The proposed wetland will not require any electrical power from Kauaʻi Island Utility Cooperative, nor will it interfere with power transmission.

5.6.6 Solid Waste Disposal

5.6.6.1 Existing Conditions

State Parks maintains the park and manages solid waste disposal.

5.6.6.2 Potential Impacts and Mitigation Measures

The proposed wetland creates no impact as it will not require additional solid waste disposal.

5.7 PUBLIC SERVICES

5.7.1 Police & Fire Protection

5.7.1.1 Existing Conditions

The Kauaʻi Police Department has three stations located approximately 25 miles apart. The station nearest the park is a satellite station, co-located with a fire station at Hanalei. The main police station and administrative headquarters are located in

Līhuʻe at the new County facility off Kaʻana Street near Kapule Highway. The Kauaʻi County Fire Department has a temporary lifeguard stand at the end of the highway fronting Kēʻē Beach.

5.7.1.2 Potential Impacts and Mitigation Measures

The proposed wetland will not create additional users or impacts that will require additional police, fire and emergency rescue resources. For public safety purposes, the wetlands will be fenced from access from the general public.

5.7.2 Education

5.7.2.1 Existing Conditions

Public school education is under the direct supervision of the Hawaiʻi State Department of Education. Kauaʻiʻs public schools are divided into three school complexes, Kapaʻa, Kauaʻi, and Waimea. There are a total of ten (10) elementary schools, three (3) intermediate schools, four (4) high schools, and four (4) charter schools. A total of 9,338 students were enrolled in Kauaʻiʻs public school system in 2008. Higher education in Kauaʻi is provided through Kauaʻi Community College. This two (2) year university offers a variety of post-secondary education opportunities for its students.

Currently, Hāʻena State Park offers limited, self-directed educational opportunities through the use of informational signage.

5.7.2.2 Potential Impacts and Mitigation Measures

The proposed wetland will not increase the number of park users or Kauaʻi residents, nor will it create a burden on the local educational system. The use of a wetland to treat effluent provides a unique educational opportunity should State Parks wish to pursue interpretive signage or volunteer water quality monitoring.

5.7.3 Health Care Services

5.7.3.1 Existing Conditions

There are three major hospitals on Kauaʻi. They are: the Kauaʻi Veterans Memorial Hospital in Waimea, the Samuel Mahelona Hospital in Kapaʻa and the Wilcox Memorial Hospital in Līhuʻe.

5.7.3.2 Potential Impacts and Mitigation Measures

The proposed wetland will not increase number of residents or visitors to the park. To protect public safety, the wetlands will be fenced from the general public. Therefore, no impacts to emergency services are anticipated.

5.7.4 Recreational Facilities

5.7.4.1 Existing Conditions

Hāʻena State Park is one of seven state parks and two state recreational piers on Kauai. The park is heavily utilized year round by as many as 800,000 visitors in a single year. Recreation at Hāʻena State Park includes hiking, swimming, snorkeling and sunbathing. The park also serves as a trailhead for the Nā Pali Coast Trail. None of these activities take place on the site of the proposed constructed wetlands.

5.7.4.2 Potential Impacts and Mitigation Measures

The alternative effluent treatment provided by a wetland will have no effect on recreational activities. The wetlands are intended to clean water, and will not increase capacity for greater use. Water is anticipated to be of a high quality and not adversely affect the water quality of Kēʻē Beach.

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6.0 DESCRIPTION OF ALTERNATIVES

In compliance with the provisions of Title 11, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 11-200-17(f), the "known feasible" alternatives to the proposed project are limited to those that would allow the objectives of the project to be met, while minimizing potential adverse environmental impacts. As such, the Hāʻena State Park constructed wetlands have been evaluated in terms of the following alternatives.

6.1 NO ACTION ALTERNATIVE

The "no action" alternative would be continued use of the existing septic tank and leachfield. While this effluent treatment and disposal system is operating in accordance with Department of Health regulations, the continued use is not considered desirable as it is believed to desecrate the underlying cultural and descendant resources of this site. The no action alterative will not comply with current County approval, breaches agreements made with Hāʻena Community members and does not meet the project objective of DLNR to provide an effluent treatment system that mitigates impacts to recognized cultural and ancestral resources.

6.2 PORTABLE TOILETS

Portable toilets, which were used during the construction of the ADA compliant comfort station, are unsightly, unsustainable and may inadequately serve the visiting public during peak seasons. The use of portable toilets results in high operating costs as these facilities are rented and serviced by a vendor.

This alternative is not desirable as it does not provide for adequate public hygiene and it will result in high operating costs to State Parks.

6.3 DESIGN ALTERNATIVES

DLNR worked with community members and representatives of Limahuli Gardens and Preserve to develop effluent treatment options to the existing septic/drainfield design.

Several mechanical treatment options were considered, but not selected as they are more energy intensive than a constructed wetland. These options included:

Anaerobic treatment – this is a process of fermenting of effluent at temperatures between 36C (96.8F) and 55C (131F). Heating tanks would require a power source, and there is currently no electrical service at the park.

Aerobic treatment – this is a bacterial process that occurs with the introduction of oxygen. This process would require the use of bubblers powered by electricity to oxygenate the effluent. The park is not served by electricity, so this alternative is also considered unfeasible.

Composting Toilets – this involves a process of introducing aerobic bacteria and fungi to break down waste. These systems generally require a power source to rotate compost and to provide adequate ventilation measures for odor control. They also require regular maintenance to haul away the resulting humus, and a system to dispose of resulting leachate.

Since the site is not served by electricity, these options are considered not feasible. The use of solar panels to power any of the above systems was considered, however, theft of these types of facilities have occurred and will continue in these remote locations. Additionally, considering the nature of the facility, a backup source of power is required if any of these design alternatives were to be implemented, or a separate septic tank and leachfield system would be required for a backup.

6.4 PREFERRED ALTERNATIVE

The preferred alternative is to utilize an environmentally and culturally sensitive, gravity system that requires little power. Installing a new septic tank and constructed wetlands as proposed, achieves the project objectives. The preferred alternative is one that was developed out of several meetings between DLNR and the community. This alternative is preferred because it best meets the project goals to manage effluent treatment in a sanitary and culturally sensitive manner. Secondary benefits include the opportunity to educate the public as to the water quality functions that a wetland containing native Hawaiian wetland plants can provide.

7.0 DETERMINATION, FINDINGS, & REASONS FOR SUPPORTING THE DETERMINATION

To determine whether the proposed action may have a significant impact on the environment, including all phases of the project, expected consequences, both primary and secondary, cumulative as well as short- and long-term effects have been evaluated. Based on the research performed and studies evaluated, the Approving Agency, the State of Hawai'i, Board of Land and Natural Resources, is anticipating a Finding of No Significant Impact (FONSI) as detailed in this section.

7.1 SIGNIFICANCE CRITERIA

According to the Department of Health Environmental Assessment Rules Section 11-200-12 HAR, an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects and its short and long-term effects. In making the determination, the rules establish "significance criteria" to be used as a basis for identifying whether significant environmental impact will occur. According to the Rules, an action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

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

The proposed wetland would minimize the impact to a known archaeological site. Secondarily, the wetland will contribute in a limited manner (due to its relatively small area) to the park's natural resources, through the reintroduction of native plant species.

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

The proposed wetland will curtail enhance the existing park, through the incorporation of native Hawaiian wetland plants. It is proposed to be located in an area of the park bound by the gravel parking area, culturally sensitive dunes and an existing wetland so as to avoid impacting these resources and facilities.

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

The proposed site improvements are consistent with the Environmental Policies established in Chapter 344, HRS as follow:

- Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas (Ch. 344-4(2)(d)).
- Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment (Ch. 344-4(3)(b)).
- Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses (Ch. 433-4(4)(a)).

After passing through the constructed wetland, allowing biomass to take up excess nitrogen, the treated water will absorbed and infiltrated into native soil. This water will not cause damage to the watershed or the nearshore waters of Kēʻē lagoon, which are used for subsistence fishing and recreation. The use of native Hawaiian plants will be incorporated into the design, showcasing their ability to filter nitrogen and pollutants and improve water quality. The project will serve to support and maintain a popular park that is known for its recreational uses as well as its cultural values.

(4) Substantially affects the economic or social welfare and cultural practices of the community or State;

The wetland is proposed as an alternative to more standard effluent treatment systems. The incorporation of the wetland facility is in response to community concerns over the existing location of the septic tank and leachfield. The wetland itself will neither improve nor negatively affect social or economic welfare of the community or the State. However, it may serve as an educational feature and/or pilot project for future constructed wetland applications.

(5) Substantially affects public health;

The wetland will contribute in a positive manner to public health by allowing for continuation of a hygienic comfort station for park users.

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

The proposed wetland is not expected to have any impacts such as population changes or increased demand on public facilities.

(7) Involves a substantial degradation of environmental quality;

Utilizing a wetland for secondary treatment of effluent will not degrade environmental quality, and should serve to enhance environmental quality.

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

The proposed site improvements will not have a cumulative negative effect on the environment. Providing sanitary treatment of wastewater from the comfort station at the State Park serves a public purpose. Treating wastewater through use of a constructed wetland represents a more culturally and environmentally sensitive alternative to more conventional methods (i.e. septic tank and leachfield).

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

Installation of a wetland will not negatively affect any rare, threatened or endangered species. The facility should serve to enhance the immediate environment through greater biodiversity by reintroducing native wetland plant species.

(10) Detrimentally affects air or water quality or ambient noise levels;

During construction, short-term potential impacts on air quality, noise, and water quality may occur. However, these impacts are limited and temporary and will not negatively affect long-term air or water quality or noise levels. The additional landscaping should serve to help infiltrate stormwater, and while air quality at this location is excellent, plants clean air and by absorbing carbon and producing oxygen.

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

The constructed wetland is located outside the 100-year floodplain. A berm will be constructed around the wetland to prevent inundation from stormwater that may flow across the surface of the ground. In the event of tsunami, the wetland could be damaged or destroyed, as would a more conventional wastewater treatment system. An advantage to the constructed wetland over septic systems is that the wetland is not an anaerobic system. This means that bacteria can not thrive as they do in a system deprived of oxygen. Therefore, in a catastrophic event such as a tsunami, the

water inside the wetland should be less contaminated with bacteria than that of septic systems. Thus, in the event of a natural disaster, the constructed wetland presents no greater risk to the environment or human health than the existing system.

(12) Substantially affects scenic vistas and view planes identified in County or State plans or studies;

A wetland feature will not negatively affect scenic vistas or view planes. The appearance of the required fencing will be softened by installing vinyl-covered materials and by planting vegetation such as hala (*Pandanus tectorius*) on the outside the fence.

(13) Requires substantial energy consumption.

The project will require minimal energy consumption. A battery will power an alarm system in the septic tank.

7.2 DETERMINATION

On the basis of the above criteria, the discussion of impacts and mitigation measures contained in this document, the Approving Agency, the State of Hawai'i Board of Land and Natural Resources, finds that the Hā'ena State Park Comfort Station Constructed Wetlands will not have a significant effect on the environment and will be issuing a Finding of No Significant Impact (FONSI) for the proposed project.

8.0 CONSULTED PARTIES

8.1 PRE-CONSULTATION

The Department of Land and Natural Resources has initiated public and agency comment to the constructed wetland project through letters and meetings requesting input prior to development of this EA.

Table 3. Consulted Parties

AGENCY	REQUEST SENT	COMMENT RECEIVED
STATE OF HAWAIʻI		
Department of Accounting and General Services – Kauai Branch	March 14, 2008	March 24, 2008
Department of Land and Natural Resources	March 14, 2008	May 2, 2008
Department of Land and Natural Resources – SHPD, Kauai	March 14, 2008	
Department of Land and Natural Resources - SHPD	March 14, 2008	March 24, 2008
Department of Business, Economic Development & Tourism	March 14, 2008	
Department of Transportation	March 14, 2008	April 3, 2008
Office of Hawaiian Affairs	March 14, 2008	May 2, 2008
Department of Health – Environmental Planning	March 14, 2008	
Office of Environmental Quality Control	March 14, 2008	
COUNTY OF KAUAI		
Department of Public Works	March 14, 2008	May 15, 2008
Engineering Division	March 14, 2008	
Wastewater Management Division	March 14, 2008	
Department of Water	March 14, 2008	April 15, 2008
Department of Planning	March 14, 2008	
Transportation Division	March 14, 2008	
Mayor	March 14, 2008	
FEDERAL AGENCIES		
US Fish and Wildlife Service	March 14, 2008	
U.S. Army Engineer District, Honolulu	March 14, 2008	
PRIVATE ORGANIZATIONS & INDIVIDUALS		
Hui Maka'ainana o Makana	March 14, 2008	
Hāʻena Hui	March 14, 2008	
Hanalei Watershed Hui	March 14, 2008	

8.2 ADDITIONAL CONSULTATION

In addition to the pre-consultation letters, the DLNR Engineering and State Parks staff has met with the SMA Petitioners to discuss constructed wetland design prior to moving forward with this EA. Notes from this series of meetings between the parties are included in Appendix A.

8.3 COMMENTS TO THE DRAFT ENVIRONMENTAL ASSESSMENT

The Draft Environmental Assessment was sent to agencies and community groups shown in Table 4. Table 4 also notes the date comments to the Draft Environmental Assessment were received from the agencies. Comment Letters and responses are included as Appendix F.

Table 4. Comments To Draft Environmental Assessment

AGENCY	COMMENT RECEIVED
State of Hawai'i	
Department of Accounting and General Services – Kauai Branch	-
Department of Land and Natural Resources • Division of Forestry and Wildlife • Office of Conservation and Coastal Lands • Division of State Parks • Engineering Division	Jan. 5, 2010 & Jan. 8, 2010
Department of Land and Natural Resources - SHPD	Feb. 11, 2010
Board of Land and Natural Resources	-
Department of Business, Economic Development & Tourism, Office of Planning	-
Department of Transportation	Dec. 21, 2009
Office of Hawaiian Affairs	Jan. 20, 2010
Department of Health – Environmental Planning	-
Princeville Public Library	-
County of Kaua'i	
Department of Public Works	-
Engineering Division	-
Wastewater Management Division	-
Department of Water	Jan. 4, 2010
Department of Planning	-
Federal	
US Fish and Wildlife Service	Jan. 7, 2010
U.S. Army Engineer District, Honolulu	-
Community	
Hui Maka'ainana o Makana	-
Kauai Historical Society	-
NTBG – Limahuli Garden	-

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APPENDIX A

Resolution Agreement and Meeting Notes

6/5/14

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

SPECIAL MANAGEMENT AREA USE PERMIT (SMA (U)- 2007-2)

RESOLUTION AGREEMENT BETWEEN THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES AND PETITIONERS TO INTERVENE

This agreement between the Division of State Parks, Department of Land and Natural Resources, State of Hawaii ("DLNR") and the Petitioners to Intervene in SMA (U) – 2007 – 2 ("Petitioners") seeks to resolve issues of concern regarding the demolition and construction of a public comfort station located on State property situated on the makai side and end of Kuhio Highway at the end of Kuhio Highway at Haena State Park adjacent to Ke`e Beach, further identified as Tax Map Key 5-9-08: por. 1, and containing a total area of 50.38 acres.

Background

On September 26, 2006, the Kauai Planning Commission ("Commission") conducted proceedings for the subject permit with DLNR as the Applicant. Separate Petitions to Intervene were filed by Alyoysius Kahimoku Chandler, Jeffery Chandler, Chandler Forrest, Ka`imi Hermosura, and Noah Kaaumoana-Texeira (collectively "Petitioners"). The Petitioners expressed concerns that the project will impact their ancestral remains, "*iwi kupuna*", and the community needed to be included in the project planning and design. The Commission recommended Petitioners to consolidate their respective petitions and instructed DLNR to work with the Petitioners to resolve the issues and concerns that were raised in their petitions and at the Commission's proceeding. The Commission deferred action on the petitions pending satisfactory resolution between Petitioners and DLNR.

On October 26, 2006, the first meeting between DLNR and Petitioners was held in the Kauai State Office Building (Refer to Attachment A for a meeting summary and materials). The following goals and potential approaches were agreed upon: minimize further site disturbances during construction of the new comfort station and eliminate or improve the quality of effluent from the comfort station being deposited in the area. The National Tropical Botanical Garden in collaboration with Petitioners will fund a feasibility study for effluent disposal using a subsurface-flow constructed wetland system. DLNR will work on re-design options and wastewater treatment alternatives that may be applied to the existing septic/leachfield system if the subsurface-flow constructed wetland system is not appropriate or feasible.

On November 14, 2006, DLNR with concurrence from the Petitioners provided a status report to the Commission at its meeting on November 14, 2006.

On November 20, 2006, the second meeting between DLNR and Petitioners was held at Haena State Park and the Limahuli Gardens and Preserve (Refer to Attachment B for a meeting summary and materials). The following items were discussed: confirmation that the subsurface-flow constructed wetland system was appropriate for the comfort station project; identification of the location of the proposed system; description of the system's design and options for effluent disposal/reuse; discussion of potential reuse of the treated effluent; the need for updated comfort station water usage at Haena State Park; confirmation of comfort station redesign issues and requirements; the need for archaeological subsurface testing and assessments of the comfort station project area; and other design related issues.

On December 8, 2006, the third meeting between DLNR and Petitioners was held at Haena State Park and the Limahuli Gardens and Preserve (Refer to Attachment C for a meeting summary and materials). The following items were discussed: final feasibility report findings on the subsurface-flow constructed wetland system; DLNR staff archaeologists assessing the extent, nature, and depth of potential subsurface cultural deposits and features in the wetlands project areas; DLNR confirmation of comfort station redesign issues; archaeological subsurface testing and assessments of directly impacted deposits within the comfort station project; and preparation of the resolution agreement.

Agreement

DLNR and Petitioners agree to the following in resolving issues raised regarding SMA (U)- 2007-2:

1. DLNR will work with Petitioners in designing and construction of a subsurface-flow constructed wetland system. DLNR and Petitioners agree on the urgency to mitigate further impacts to cultural resources and *iwi kupuna* possibly located in the vincinity of the comfort station project area.

2. DLNR will redesign and construct the proposed comfort station, to the extent practicable, to incorporate Petitioner's concerns and their recommendations for redesign issues (Refer to Attachment C).

3. DLNR will conduct archaeological subsurface testing within the proposed comfort station project area to determine if any intact cultural deposits or subsurface features could be directly disturbed by project-related actions. The areas tested will include the expanded footprint of the new comfort station and proposed locations of the shower pad and drainage swale, ADA sidewalk, and water lines. DLNR will also conduct an archaeological inventory survey, with subsurface testing, of the proposed subsurface-flow constructed wetland project area to assist in project planning and design.

   In the event that intact cultural deposits or features are found within the depth of proposed construction-related excavation, for both projects, DLNR will work with Petitioners to alter the project design or propose mitigation measures if appropriate. If *iwi kupuna* or burial sites are found during testing, DLNR will notify Petitioners immediately and work with the Petitioners to propose preservation measures for the *iwi kupuna* within the process set out in HRS §6E-43 and HAR Chapter 13-300. The findings of the survey and all subsurface testing will be reported in

an inventory survey report submitted to the State Historic Preservation Division in compliance with HRS §6E-8 and HAR Chapters 13-275 and 13-276.

DLNR will monitor all ground disturbance and excavation required for the comfort station and wastewater treatment projects in accordance with a monitoring plan prepared and approved in compliance with HAR Chapter 13-279.

4. Barring any subsequent attention or redesign, the comfort station project may be constructed, and if such construction is completed prior to the completion of the subsurface-flow constructed wetland system, Petitioners agree that DLNR may utilize the existing septic tank and leachfield disposal system until the wetlands system is ready to be utilized.

5. DLNR and Petitioners suggest the following proposed condition of approval to the Commission: "Applicant shall actively work with community members to seek project funding and complete design and construction of the subsurface-flow constructed wetland system and connect this system to the comfort station for treatment of sewage effluent as agreed."

6. Petitioners agree to withdraw the Petitions to Intervene pursuant to the aforementioned items of this agreement.

7. DLNR commits to work with the community in Haena on future development projects.

The undersigned, being familiar with the aforementioned issues and resolution, hereby approves and participates with the Agreement.

DLNR:

Peter T. Young, Chairperson, DLNR — Date 12/26/06

Petitioners:

Aloysius Chandler — Date 1-8-07

Jeff Chandler — Date 1-8-07

Chandler Forrest — Date 1-8-07

Kalmi Hermosura — Date 1-8-07

Noah Kaaumoana-Texiera — Date 1/8/2007

SMA (U)- 2007-2 Haena State Park New Comfort Station

First Meeting: DLNR and the Petitioners to Intervene

Date: October 26, 2006 at 8:30 A.M.

Location: Kauai State Office Building 2nd Floor Meeting Rooms

Attendees

Petitioners to Intervene	Aloysius Moku Chandler Chandler Atta Forrest Ka`imi Hermosura Noah Kaumoana-Texeira
National Tropical Botanical Gardens	Chipper Wichman Hau`oli Wichman
State Legislature	Representative Hermina Morita Senator Gary Hooser
DLNR	Valerie Suzuki, Engineering Division Wayne Souza, Division of State Parks Alan Carpenter, Division of State Parks Russell Kumabe, Division of State Parks

Discussion Items/Issues

The meeting was an open forum that informed the attendees of their respective concerns, and established a common ground of the project issues. Chipper Wichman facilitated the discussion and believed that a win-win situation can be achieved.

Petitioners stated that effluent discharge from the septic system servicing the existing comfort station is being deposited in a significant cultural area including ancestorial remains, *iwi kupuna.* They believed that this is resulting in the desecration of the area. They explained that this area in Haena is significant to Hawaiian culture because of its association with the ali`i of Kauai.

DLNR stated that the comfort station project intended to ensure public health and safety by replacing the existing deteriorating structure and that the larger size was to accommodate federal and state accessibility requirements and not an increase in capacity. Petitioners acknowledged the need for a comfort station at the existing location but overuse and inappropriate behavior was causing other problems in addition to sewage effluent desecrating cultural remains and resources.

The Petitioners cautioned that the increase usage of Haena State Park by visitors is resulting in overcrowding, traffic and parking congestion, unsafe and undesirable hygiene

behavior outside of the comfort station, and further desecration of cultural resources. They reiterated that the park should be subject to a sustainable number of visitors to ensure safeguards to the park's resources. DLNR mentioned that a master plan was the venue to address these issues, but the plan would take 2 – 3 years to complete and perhaps 5 years to implement. Petitioners acknowledged that the master plan was the appropriate venue to address these concerns but its long timeframe warranted some action in the interim.

Representative Morita and Senator Hooser urged DLNR to work with the Petitioners in addressing their concerns, as they knew of the significance of Haena to the community and the Hawaiian culture. Also, they were concerned with the impacts of increased park usage upon the park and its resources and upon the community, and an interim measure was needed to address the overcrowding and parking issues. DLNR assured that the sustainability issue will be included in the master plan development and interim measures will be discussed.

Upon this discussion, it was acknowledged that the sustainability issues will be addressed during the master plan development, and all agreed the following goals and approaches were relevant to the comfort station project:

1. Minimize further site disturbances during construction of the new comfort station. Petitioners suggested raising the foundation of the comfort station to ground level and incorporate the proposed underground phone conduit into the raised sidewalk slab. DLNR to work on the re-design options and provide cost estimates for this change. DLNR provided copies of the existing and new comfort station plans and the septic system plans.

   Alan Carpenter, State Parks staff archaeologist, provided the findings of subsurface archaeological investigations performed during the comfort station septic system project in 2000. *Kupuna iwi,* were found in the septic system project area and other cultural resources and features were identified in the project's leach field area. Petitioners reiterated that the findings confirmed that the project area and Haena were highly significant to the Native Hawaiian culture.

2. Eliminate or improve the quality of effluent from the comfort station being deposited in the area. The National Tropical Botanical Garden, Limahuli Gardens ("NTBG"), on behalf of the Petitioners, will fund a feasibility study for a subsurface-flow constructed wetland system to serve as a wastewater treatment method to treat effluent to R-2 quality. NTBG distributed an information packet of this technology.

   Representative Morita and Senator Hooser expressed their support for the subsurface system and discussed possible funding options including pilot project funding.

   As an alternative to the subsurface system in case of infeasibility, DLNR will research other treatment methods that could be applied to the existing septic system to minimize site disturbances in the area and achieve R-2 quality effluent.

Possible alternatives may require electrical power and be high maintenance. NTBG believed the subsurface will require no power and be low maintenance.

Next Steps

1. NTBG will fund the feasibility study for the subsurface system.
2. DLNR will look into sewage treatment options and comfort station redesign issues.
3. A field trip to subsurface systems on Oahu, e.g., Kapolei and Hawaii Nature Center in Makiki, will be considered for the next meeting.
4. DLNR will request an extension on the SMA permit hearing with the Kauai County Planning Commission and provide a joint status report two weeks before the Commission's November 14 meeting.
5. Provide Representative Morita with cost estimates for the design and construction of the subsurface system.

Materials distributed

1.

SMA (U)- 2007-2 Haena State Park New Comfort Station

Second Meeting: DLNR and the Petitioners to Intervene

Date: November 20, 2006 at 9:45 A.M.

Location: Haena State Park and Limahuli Gardens

Attendees

Petitioners to Intervene	Aloysius Moku Chandler Jeff Chandler Chandler Atta Forrest Ka`imi Hermosura Noah Kaumoana-Texeira
Haena Community	Maka`ala Kaumoana
National Tropical Botanical Gardens ("NTBG")	Chipper Wichman Hau`oli Wichman
Natural Systems Inc.	Chad Durkin Cary Richman Erin Cobb-Adams
DLNR	Gerald Park, DLNR consultant Valerie Suzuki, Engineering Division Wayne Souza, Division of State Parks Alan Carpenter, Division of State Parks Megan Juron, Division of State Parks Russell Kumabe, Division of State Parks

Discussion Items/Issues

This meeting started on-site at the Haena State Park and concluded at the Limahuli Gardens, National Tropical Botanical Gardens. Initially, the meeting was planned as a site visit on Oahu to view existing subsurface and eco-tank treatment systems at Ewa and Hawaii Nature Center in Makiki. The on-site meeting at Haena provided a better understanding of how the system would work in the actual conditions of the area.

The meeting objectives were to learn more about the subsurface-flow constructed wetlands system and DLNR update on comfort station redesign issues.

Haena State Park:

The following issues were discussed:

1. Description of the subsurface-flow constructed wetlands system:
   - Project constraints – no ground disturbances (excavation), no electrical power, and 6-ton weight limitation of roadway bridges in Haena.
   - Pre-treatment of effluent prior to discharge into the subsurface system was recommended. This would reduce the size of the constructed wetlands needed for treatment; it was estimated that a 1,500 s.f. area was needed to treat the effluent from the comfort station.
   - Surface pre-treatment options were described – Eco-tank based pre-treatment (a Matson container sized tank with separate treatment compartments) or a trickling filter unit (a ten-foot tower where effluent is pumped up the tower and sprayed upon plastic foam aggregates to collect solid effluent particles), both would require electrical power for pumps. Electrical power sources were discussed such as solar photo-voltaic cells, wind-power generator, or bringing in a 2,000 – 3,000 foot power line from a connection at the park's entrance.
   - System components consisted of: pre-treatment tank/unit, subsurface wetlands (effluent flow underground with surface plant and fauna to ingest nutrient constituents from the effluent), a sump pump to pump from the tank/unit to wetlands, and a lined evaporation/containment pond after the wetlands to handle excess liquid effluent.
   - A back-up system was recommended, which could be the existing leach field system.
   - Effluent treatment quality was described to meet R-2 or R-3 levels.
   - Petitioners and community members were interested in the potential reuse of the treated effluent, but believed the surface pre-treatment options appeared to be in appropriate due to its size, power needs, and unsightly appearance.
   - The infeasibility of practical power sources, the desire to have a low maintenance system (not requiring power and pumps), and available land area for a larger subsurface system were discussed as parameters for the subsurface system.

2. On-site location of the proposed subsurface-flow constructed wetlands:
   - A potential project site location was scouted in the forested/bush area south of the existing comfort station and septic/leach field system (the false Makani and Hao bush area between the comfort station and the overflow visitor's parking.)
   - The project area appeared to provide an adequate distance from the park's water ponds or loko.

Limahuli Gardens

The following issues were discussed:

1. More detailed discussion of the subsurface-flow constructed wetlands system:
   - A sketched concept plan of the system identified the components of the system: septic tank (pre-treatment unit) with a line connecting to the subsurface-flow constructed wetlands; a lined wetlands built above ground with effluent pipes flowing under fill and soil with plants on the surface contained by berms; and a discharge line to an evaporation pond.

- Clarification of the evaporation was provided: the pond could be lined to contain the effluent and naturally evaporate or unlined where the effluent would leach into the ground in addition to surface evaporation; the pond would need to be fenced for public health and safety purposes; protective measures could be taken to prevent leaching of the pond to the nearby Loko.
- Effluent reuse for irrigating food crops was raised as a means to prevent stagnating waters in the pond and further utilizing the treated wastewater.
- The levels of treatment quality were described: R-1, R-2, R-3, where State health and environmental regulations prohibit the use of R-3 effluent for plants that would be consumed by humans and R-2 effluent with limitations. R-1 and R-2 would require disinfection. The subsurface system would treat wastewater to the R-3 level. More information on these standards will be provided at the next meeting.
- Information was needed to appropriately size the system: more accurate data on effluent discharging into the septic tank, the estimated 1,600 gallons per day ("gpd") appeared to be low; water usage data from water bills, with the caveat that spikes in certain periods were attributed to leaks; and updated visitor counts to the park.

2. Comfort station redesign issues:
   - Two options were described regarding the "raising" of the comfort station to prevent or reduce the amount of excavation needed. Petitioners preferred no excavation but would consider maximum excavation depths of a sterile layer of 18 inches or less.
   - Option 1 was to raise the comfort station foundation slab 6 inches higher than designed, which would require excavating to a maximum depth of 8 inches. This would require excavating a 300 s.f. for the comfort station and 176 s.f. for the stand-alone shower at an approximate cost of $25,000 - $30,000.
   - Option 2 was to raise the comfort station 14 inches higher than designed, which would no require any excavation. The approximate cost of this alternative was between $50,000 to $75,000.
   - Petitioners agreed with Option 1 on the condition that subsurface archaeological investigations would be performed in the foot print of the comfort station and shower at a depth of 8 inches to confirm no cultural resources or remains reside in the comfort station project area. Petitioners requested this work to be completed prior to the Commission's meeting on January 9, 2007.
   - Petitioners requested that any pipes needed to be removed be cut in place and plugged to minimize ground disturbances.
   - Petitioners recommended stainless steel security gates for the comfort station to ensure long-term durability; the designed gates call for galvanized security gates.

Materials distributed

Third Meeting: DLNR and the Petitioners to Intervene

Date: December 8, 2006 at 9:00 A.M.

Location: Haena State Park and Limahuli Gardens

Attendees

Petitioners to Intervene	Aloysius Moku Chandler Jeff Chandler Chandler Atta Forrest Ka`imi Hermosura Noah Kaumoana-Texeira
Haena Community	Maka`ala Kaumoana
National Tropical Botanical Gardens	Chipper Wichman Hau`oli Wichman
Natural Systems Inc.	Chad Durkin Cary Richman
DLNR	Valerie Suzuki, Engineering Division Wayne Souza, Division of State Parks Alan Carpenter, Division of State Parks Russell Kumabe, Division of State Parks

Discussion Items/Issues

The third meeting started on-site at the Haena State Park and concluded at the Limahuli Gardens, National Tropical Botanical Gardens.

The following were objectives of the meeting:

- Natural Systems Inc. presentation of its final feasibility report for the subsurface-flow constructed wetlands system.
- DLNR confirmation of archaeological studies needed for the comfort station and wetlands system project areas, including identifying the footprints of the comfort station, shower and pathways.
- DLNR follow-up on revisions to the comfort station design.
- Finalizing the terms of the resolution agreement to be presented to the Commission.

Haena State Park:

The following were discussed during the meeting near the comfort station at Haena SP:

1. Confirmation of the comfort station project area (footprint of comfort station, shower and pathways) and location of water lines:
   - DLNR pinned the parameters of the comfort station, showers and pathways.

- The excavation of the comfort station, shower and pathways will go down 8 inches maximum, with the slab rising 12 inches from the surface.
- The 3-inch waterline servicing the comfort station will be re-routed to a shallower depth but is required to be at a depth of 12 inches per plumbing code. The existing segment of the waterline servicing the comfort station, which descends to a depth of 3 – 5 feet, will be abandoned and cut and plugged in place to minimize ground disturbances.
- DLNR will re-establish and repair the 1 ¼ inch waterline to the State Historic Preservation Division cottage facility across the roadway.
- The telephone conduit will be placed in the pathway to minimize ground disturbances.
- The abandoned sewer line will be cut and plugged in place and excavation of the new connection will need to ensure minimizing further ground disturbance .

2. Confirmation of subsurface archaeological studies/assessments for the project area:
   - DLNR will have an archaeologist on-site to monitor all excavation activities, and if unforeseen resources and remains are found, construction will be halted, Petitioners will be notified and appropriate steps will be follow as required by SHPD regulations and consultation with Petitioners.
   - Subsurface studies for the comfort station and wetlands project areas performed by DLNR can start after the Commission's January 9th meeting. Due short staffing, the studies may start during February – March 2007.

3. On-site discussion of the subsurface-flow constructed wetlands system:
   - The location of the system was confirmed and the topography of the area appeared to have the necessary slope for efficient gravity flow.
   - NSI described the system and its components – pre-treatment holding tanks, e.g., septic tanks; subsurface-flow constructed wetlands; effluent reuse section; and evaporation pond.
   - NSI updated its estimation of the system's size, for the comfort station that generated effluent of 3,000 gpd. To treat this quantity, the system should be sized 2x (2 days worth of effluent) or for 6,000 gpd load to allow the wetlands component to adequately treat the effluent. Since the existing septic tank is 2,500 gallons, another tank, sized at 3,500 gallons will be needed as the pre-treatment component of the system. Petitioners recommended that the second tank be constructed on-site, on surface, and designed to be longer to reduce unsightly height impacts.
   - The wetlands, reuse and evaporation components of the system would be bermed at a height to safeguard against runoff from flooding and high wave incidents, and surrounded by a 6-foot high security fence.

Limahuli Gardens:

The following were discussed:

1. NSI provided its findings of the final feasibility report with system information including:
   - System size – treatment of 3,000 gpd would require holding tank(s) to pretreat 6,000 gallons (2 days worth of effluent) that is needed to maintain adequate flow

through the wetlands component. The area needed will amount to 1 s.f. per 1 gpd, or 3,000 s.f. for the wetlands component, 2,000 s.f. for the effluent reuse component, and an evaporation basin will be appropriately sized in the design.
- The wetlands system will be subsurface where fill materials, gravel and plants will cover the effluent flow from the holding tanks. This component will require a 5-day retention period.
- Fill will be required to create a pre-board (berm) to build up the boundaries of the wetlands to contain the subsurface effluent flow and withstand heavy rain/flood events. These areas will be secured with 6-foot high fences.
- A berm separating the evaporation basin the nearby taro lo`i will be needed to protect the lo`i from unexpected spills or overflows.
- A conceptual diagram was shown of the system with the effluent section.

2. Discussion of NSI report and system:
   - Concerns raised regarding the fill material needed for the preboards/berms focused on the environmental quality of the fill. Petitioners and community members did not want fill from areas outside of Haena that may contain invasive weeds and harmful microbial contaminants. Options discussed included using material from areas in Haena State Park such as the fishpond, etc.
   - Discussion on system failure included: the system system failure alerts include smell, ponding of water in the subsurface wetlands area, build-up on the inlet and discharge clean-outs, and mossy gravel build-up; and a by-pass line was discussed to be located from a point connected to the wetlands to flow back to the existing leach field (to be used for interim and emergency purposes).
   - Permits needed may include NPDES (for discharge into a water body), Army Corps (for wetland designation areas), Chapter 343 (EIS regulations), and DOH water quality certification – this would be required if a federal permit is required.
   - Estimated project design and construction costs can be determined after DOH review and approval of the engineering report for the system.

3. Next steps for the system:
   - Percolation test and topographical survey for the preliminary engineering report to be submitted to DOH.
   - The funding of the engineering report to be handled by DLNR.

4. Resolution agreement between Petitioners and DLNR:
   - Discussion focused on the terms of the resolution, clarification of the terms, and revisions to language in the document.
   - Mutual support between Petitioner and DLNR for respective projects.

5. Materials distributed:

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& ASSOCIATES, INC.

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DATE: NOVEMBER 16, 2009

MEETING: HĀ'ENA STATE PARK CONSTRUCTED WETLANDS BRIEFING MEETING

MEETING DATE: OCTOBER 14, 2009

ATTENDEES:
Valerie Suzuki, Department of Land and Natural Resources (DLNR) Engineering Division
Russell Kumabe, DLNR State Parks
Alan Carpenter, DLNR State Parks
Megan Juran, DLNR State Parks
Chad Durkin, Strategic Solutions, Inc.
Kyle Okino, Engineering Solutions, Inc.
June Nakamura, Engineering Solutions, Inc.
Catie Fernandez, PBR HAWAII
Ka'imi Hermosura, Hā'ena Bureau of Conveyances
Kaili Puulei-Chandler, Community Member
Stephanie Fitzgerald, Community Member
Makaala Kaaumoana, Hui Ho'omalu I ka 'Aina
Kawika Winter, Limahuli Garden
Jessica Calvert, Community Member
Mike Rodger, Community Member
Chandler Forrest, Community Member
Moku Chandler, Community Member
Thomas Makanani, Community Member
Kirkland Chandler, Community Member
Louise Sausen, Community Member
Leah Sausen, Community Member
Noelani Josselin, Community Member
Leilani Josselin, Community Member
Mehana Vaughn, Community Member
Noah Kaaumoana-Texeira, Community Member
Chipper Wichman, National Tropical Botanical Garden

DISTRIBUTION: ATTENDEES

BY: Catie Fernandez, PBR HAWAII

Background:
The purpose of the meeting was to share the final design for the individual wastewater system (constructed wetlands) with the parties or "interveners" that entered into a Resolution Agreement with State Parks [Atta (Chandler) Forrest, Moku (Alyoysius Kahimoku) Chandler, Jeff (Jeffrey) Chandler, Kaʻimi Hermosura and Noah Kaaumoana-Texeira]. Recognizing that the community is also interested in the status of the Hāʻena State Park Master Plan, an update to the Master Plan's progress was also included on the day's agenda. Third, an upcoming rock scaling project for Kalalau beach, was on the agenda, so that State Parks could begin discussing this plan with the public.

Discussions about the constructed wetlands and the Master Plan naturally intersected, but in general, each topic was taken in order. The discussion was as followed:

Individual Waste Water System Modification (Constructed Wetlands):
After introductions, Russell Kumabe, provided background and history of this project, describing the decommissioning of the cesspools, SMA permit process for the new comfort station and identifying the people who filed as interveners, and subsequently entered into a Resolution Agreement with State Parks to find an alternate system of wastewater treatment and disposal.

Chad Durkin presented a Power Point slide show that provided general information about how constructed wetlands can work to clean waste water. He showed some examples of how wetlands are constructed and discussed the biological processes that help to improve water quality of effluent. Chad then showed the group the site plan which has been submitted to Hawaiʻi Department of Health (DOH). He walked the group through the plan, describing the treatment train and disposal (raw wastewater first goes to two septic tanks where solids are allowed to settle out, then the liquids enter the constructed wetland, passing through a rock media that is planted, and finally to an absorption area or infiltration field). A copy of the site plan is attached. The site plan showed the location of existing wetland (Loko Kēʻē) and it showed a 50 foot wetland buffer. The location of the existing wetland was determined by an environmental consultant, AECOS, and the delineation received concurrence from biologists at the Army Corps of Engineers. The 50 foot buffer associated with the existing wetland is an area that DOH rules do not allow "disposal" of waste water. Chad described how the locations of the existing wetland (Loko Kēʻē) and its associated buffer affected the design and location of the constructed wetland and the absorption area/infiltration field. Chad described how the wetland, which is lined, can be located in the 50-foot buffer, but that the unlined absorption bed must be outside the buffer to protect the existing wetland (Loko

Kēʻē). Chad discussed that grading of topsoil will need to take place and how excavation up to 4 feet in depth will occur for the absorption area.

Kaʻimi Hermosura questioned grading to a depth of four feet. As he recalled, ʻiwi kapuna were found at a depth of 18 inches. Chad explained that test pits were dug in the area to be excavated (absorption area), and that nothing was discovered. Alan Carpenter further clarified the issue related to the depth of the ʻiwi and the test borings. Alan explained that "birdman" was found at a location makai of the proposed constructed wetland and absorption area (eastern edge of the pit excavated for the existing septic tanks), at a depth of 18 inches. No burials have been found in the area between the comfort station and the proposed constructed wetland, where the excavation will take place. In the area to be excavated, State Park archaeologists' dug test pits to three feet deep. The soil was previously disturbed and found to be clay like soils, not sand. *Note that depth of excavations is also discussed later in these notes by Chipper Wichman.*

A question was raised about the capacity of the wetland. The wetland appeared to occupy a large area and it was inquired if it was sized for a larger comfort station. Chad explained that this plan was sized for the capacity of the previous comfort station. It is not designed for greater or increased capacity. He described that the treatment of wastewater through use of a wetland is more land intensive than that of more conventional treatment methods with mechanical equipment. The wetland is designed to naturally process wastewater for five days before it flows to the absorption area. Chad also described that the wetlands included a berm surrounding the perimeter, which occupies considerable land area. Chad noted that the purpose of the berm is to accommodate rainwater that falls into the constructed wetland and was designed to accommodate the 100 year storm, so that the wetland does not overflow during heavy rains.

Chipper Wichman provided additional background information, beginning with the history of this project. Chipper explained that the existing septic and leach field are located over a hale of significance, and that this is unacceptable. He described the process by which the community, through the five interveners, expressed the dissatisfaction with the septic and leach field location. The interveners engaged in the Special Management Area (SMA) process when the existing comfort station was proposed. Those interveners, then entered into an agreement with State Parks to develop an alternate way to treat the wastewater. Chipper further explained that the consensus is that while every part of Hāʻena is sacred, it is better to provide some facility to visitors, or people will simply make a mess of Kēʻē beach and surrounding area.

Chipper also shared his knowledge of burials, and expressed that the ancestors knew to bury in the sand as it preserves the ʻiwi. He shared this knowledge as a response to the earlier question about burial depths, and suggested that the fact that Alan did not hit sand in the area to be excavated means that the project is less likely to directly affect ʻiwi. However, Chipper reiterated that the area of the absorption bed/infiltration field appears to be an area that contained a hale of note, and that the project may encounter archaeological features.

A question arose about where this wetland technology has been tested. Chad described the larger project at the slaughter house on Oʻahu's north shore, as well as "the living machine" at Hawaiʻi Nature Center in Makiki. Chad also discussed that the technology has been employed extensively on the mainland U.S. since the 1950's. Chipper added to this discussion explaining that the hope with the constructed wetland was to provide a sustainable technology to the park, something that is more respectful to Hāʻena's significance as well as a model for the rest of the State. Russell added that the concept was new to State Parks when it was proposed, but that the staff is open and willing to take the steps necessary to implement this more gentle technology. Russell and Chipper also explained to the rest of the group that composting toilets were considered, but it was determined that they would quickly become overwhelmed by the number of visitors at Hāʻena.

A question was raised about how the wetlands clean the effluent. Chad explained that the liquids flow from one end of the wetland to the other over the course of approximately five days. The wetland is lined, but the liquid is not a pond, but rather flowing through the rock media, below the surface. The wetland plants take up some nutrients through their roots, but the majority of "cleaning" comes from the microbial process that naturally occurs under the surface.

A question was raised about whether archaeological testing will occur before excavation. Russell and Alan explained that an archaeologist will be present at the time of excavation. Also, that State law requires the project to stop, and the State Historic Preservation Office must be called if any archaeological features are discovered. Alan further clarified the location of the one previously discovered burial (birdman), roughly corresponds with the eastern edge of the current surface concrete slab associated with the current septic tanks.

A question was asked about if the park had a burial treatment plan in place. Alan indicated that the park does have a burial treatment plan, but also that it should be updated.

A question was asked about how impractical it would be to simply install a large tank, whereby no liquids were allowed to discharge to the ground. Russell explained that this would be cost prohibitive. Chipper explained that the tank would need to be regularly pumped. Makaala Kaaumoana added that the bridges alone are too small to support the large trucks that might be needed to pump such a tank. She expressed that there is no desire to enlarge the bridges.

A question was asked about whether the existing arrangement (septic and leach field) are affecting the water quality of the ocean at Kēʻē. Chipper said that the water quality testing to date has not shown any effects from the comfort station to the ocean.

Kaʻimi raised the concern about Hāʻena's loʻi potentially being contaminated or the risk of disease to be spread by the liquid effluent that is passed through the constructed wetland and on to the absorption bed/infiltration field. He added that there are other cultural elements such as rock walls associated with the loko. Chipper discussed that the location of the wetland in relation to the loʻi. He stated that the loʻi are at a higher elevation than the wetland. Chad Durkin showed some additional slides that provided elevations of the wetland and the absorption bed/infiltration field. The group also discussed the proposed configuration of the constructed wetland absorption bed, where the wetland is between the loko and the absorption bed. This buffer is a requirement of Department of Health so that liquids are disposed away from the existing wetland (Loko Kēʻē).

Noelani Josselin thanked State Parks for working with the community. She suggested that future plans include a cultural overlay so that people can better understand where the proposed improvements are relative to the culturally and archaeologically significant areas of the site.

A question was asked about why this project is being done before the Hāʻena State Park Master Plan. Chipper provided additional background about the sequence of events leading up to the agreement with State Parks to develop an alternative way to manage the site's wastewater. He explained that the current system is unacceptable as is, and there is urgency to get an acceptable system in place.

A question was asked about the square configuration of the proposed wetlands and questions were asked about who delineates the existing wetland. The group continued to discuss the difficulty of the site to accommodate the constructed wetlands and Chad walked through slides of several design iterations that have been revised over the last year in order to be functional as well as culturally and environmentally sensitive.

A question was asked about where the soil would come from for the berms around the constructed wetland. Chad stated that the soil would hopefully all be from the area excavated for the absorption trench/infiltration field.

Makaala inquired about plants proposed to be used and that she is concerned about both the soils and the plants coming from outside the area, and the potential to spread invasive species. Chad indicated that he is working with a consultant who knows native plants. Chad said that she will generate the initial plant list. So far, the plants discussed include makaloa, neke fern, and hala.

Chipper noted that the meeting was useful in getting to many community questions and suggested that a "pre-consultation" meeting be held at Hanalei School prior to the Environmental Assessment being submitted to OEQC. Russell indicated that there is a tight timeline with the need for a construction contract to be awarded prior to June, 2010, so that funding does not lapse. A news release of the project was also discussed.

The discussion of the comfort station wetlands concluded with Russell asking each of the "interveners" to share their opinion of the project, and whether they could support it at this point. In alphabetical order:

Atta asked a final question about grading, expressing that he originally thought the wetland was going to be on the surface. Chad explained that the constructed wetland itself will require minimal topsoil removal, but it will require tree removal. The excavation is now required for the absorption bed which is now proposed to be farther away from the loko, on a location that is at a higher elevation. Because the system operates by gravity, the absorption bed must be at a lower elevation than the lowest part of the constructed wetland. Atta said that he feels that both the community and State Parks have been working hard together at trying to reach a viable solution to address the current problems in regards to the issue at hand and he feels that the process is working in a direction that he can support..

Kaʻimi shared that he is expressing the views that he hears from the people of Hāʻena, and that aunties remember that the area of the comfort station used to be their river. Kaʻimi said that it comes down to regulating the people and the way they behave in the park. He told of the mess that was made when the existing comfort station was recently not working and how people just used that space for a bathroom anyway. He wants to do the right thing and feels strong empathy for the ʻiwi. He added that the lifeguards have been very helpful in regulating visitors' activities. Kaʻimi concluded that he feels in Hāʻena, that the government and people are beginning to move together.

Moku expressed that he wants to hear about the gate at Hāʻena and he is ready to "move on" from the comfort station wetlands.

Noah thanked State Parks for working with the people and said he can support the project.

Hāʻena State Park Master Plan:
After a break, the group re-convened to discuss the status of the Master Plan. Catie Fernandez walked through the work that has occurred over the last year. She briefly described that a Master Plan was started in the early 1990's, but there was some dissatisfaction because it did not incorporate adequate deference to the cultural significance of Hāʻena. Since the last open house meetings at Limahuli Hale, a series of baseline reports were prepared by various consultants (civil engineering, traffic, flora/fauna, marine resources, and rockfall). These reports have been consolidated into a large background report. The background report will also include a cultural impact assessment (CIA) being prepared by Maria Orr (Kaʻimipono Consultants). Maria was at the open house meetings last year and has been compiling existing research as well as conducting interviews for the CIA. Maria's baseline work will be complete when she incorporates archaeological work prepared by State Parks. The background report, prepared by PBR will include maps that illustrate the various findings of the consultants as well as maps that reflect the responses received from the public at the open house.

Catie described the next steps in the master plan process. These are to incorporate the CIA and archaeological work into the background report and project maps. She pointed out that the community at this meeting already expressed an interest in seeing maps with a cultural overlay, and that the maps shared with the community should include this information. Once the background report is completed, State Parks plans to convene a Citizen Advisory Group, a group similar to that in Kokeʻe. At that point, the Master Plan process can begin the evaluation of management strategies, with the Citizen Advisory Group serving as a connection between the community and State Parks, and a conduit for information in both directions.

Alan responded to a question Chipper had asked about what archaeological work was left to do. Alan explained that extensive archaeological surveys have been done and that there are only a couple locations where surveys have not been performed, notably, Lohiʻau's house site. Alan described that the archaeology work that needs to be done is a compilation and synthesis of this body of work. He has also been at the site of Lohiʻau's house recently, and with Megan's help has been making progress with that gap in the data. The other

area that has had less archaeological investigations is associated with Limahuli stream.

Chipper strongly urged State Parks to complete the archaeological work by the end of the year. He also strongly recommended that the Citizen Advisory Group be convened before the background report is completed. Chipper's reasoning was that the community wants to keep informed of what is happening with the Master Plan, and the Citizen Advisory Group can facilitate sharing that information.

Makaala expressed a concern about segmentation of the various projects at Hāʻena. Russell explained that State Park's view is that the comfort station is an existing facility, and that the constructed wetlands are an improvement to that existing facility. That the Master Plan looks forward to future management actions, and that they are two discrete projects. Chipper clarified that Makaala is more likely discussing the proposed entrance fees to the park. This led to the beginning of the discussion of the proposed State Parks entrance fees.

Alan and Russell indicated that Board of Land and Natural Resources (BLNR or "the Board") will be conducting a public meeting on Kauaʻi to discuss rule changes, including those relating to fees, early November. Alan explained that the Board has approved entrance and/or parking fees for certain parks, two on each island and Hāʻena being one of those parks on Kauaʻi. Russell explained that the fees must be accompanied with appropriate infrastructure upgrades, such as parking.

Russell pointed out to the group that the situation has reached a crisis level, that they have funding through the third quarter of this fiscal year.

The group also discussed the fees and what the disposition of the revenues will be – can part or all be dedicated to Hāʻena? Russell and Alan described that the fees collected at Hāʻena would go to the State Parks Special Fund. The purpose of the fund is for operation of the entire State Parks program, including positions such as the archaeologists who serve throughout the state. Discussion of the Diamond Head revenue stream ensued. Alan also indicated during this discussion that fees would likely be implemented at other parks before Hāʻena. Parks such as Nuʻuanu Pali, where little infrastructure to collect fees are needed. Further, Alan explained that facilities such as Nuʻuanu Pali, have the potential to generate significant revenues, which could not possibly be spent on site. Thus, the ability to share amongst the entire system is proposed.

Chipper inquired how the fees and associated infrastructure would comply with Chapter 343 (the State's environmental review process). Russell agreed that if up

to staff, no fee would be implemented at Hāʻena until the Master Plan is complete.

Kaʻimi commented on infrastructure, describing how Kalalau hikers create a problem by leaving their cars parked for days near the trail head, occupying valuable parking spaces for day users. Russell acknowledged the difficulty of two parks sharing one parking area. The idea of a shuttle for hikers or other users was briefly discussed at this time.

Kaʻimi also provided the group with information about a mineral rights plan that has been prepared. He suggested that it be considered with other plans when preparing the master plan and evaluating options for Hāʻena.

Chipper acknowledged the difficult situation DLNR is in and the logic in sharing the fees system wide, citing Molokaʻi as an example of a place where park fees would not support maintenance/operating. Citing his experience with NTBG as an example, he suggested that State Parks should not be looking to the entrance fees as the sole source of funding. Chipper suggested that there needs to be a grass-roots campaign to support State Parks and to impress upon the State Legislature to fund the parks. Chipper also suggested that State Parks staff come to the November BLNR meeting with options for the community to consider. That if it is presented as a "done deal", the meeting will not generate support.

Kalalau Beach Rock Scaling:
Russell shared plans for rock scaling at Kalalau Beach. He explained that the geologists under contract with DLNR that have surveyed the site have found two areas of the rock face that are in imminent danger of falling.

Stephanie asked about use of dynamite. Russell indicated that no blasting will occur. All work will be done by hand. Rocks will be allowed to fall and replaced in safe and culturally appropriate locations on Kalalau beach using a helicopter.

Makaala asked questions about impacts to the stream, and inquired about re-vegetation plans for any disturbed areas. Mike Rodger inquired about State Park priorities when so much work is needed at Hāʻena. The group discussed the need to protect the public safety.

This is our understanding of the topics discussed and the conclusions reached. Please give PBR HAWAII written notification of any errors or omissions within seven calendar days. Otherwise, this report will be deemed an accurate record and directive.

APPENDIX B

Feasibility Study

I. Introduction

A constructed wetland wastewater treatment system utilizes the biology of the wetland ecology to remove organic pollutants in the water. The facility can be constructed to demonstrate the ability to treat wastewater to an appropriate quality effluent that can be reused on site. The goal of this document is to provide a feasibility study to address the use of this technology at the Haena State Park comfort station.

1. Companies Involved

Strategic Solutions, Inc. (SSI), a business entity incorporated in the State of Hawaii, and it's subsidiary Natural Systems, Inc., markets technologies that utilize natural processes and native ecologies. Through technology transfer and mainland and local partnerships with Ocean Arks International (OAI), Natural Systems International (NSI), and Environet Hawaii, SSI has constructed five projects to date to promote the use of natural systems for wastewater treatment throughout the State and pacific region. Three projects on Oahu: the Ala Wai canal Restorer™, the Hawaii Livestock Co-op Restorer™, and the Eco Machine™ at the Hawaii Nature Center, demonstrate a variety of the technology applications and approaches to issues with ecological engineering solutions. A constructed wetland on Palmyra Atoll and the Four Seasons pond Restorer™ at Hualalai on the Island of Hawaii, an award winning example, are successful uses of natural systems to transform wastes into resources and protect the natural environment from human impacts.

2. Site Characteristics

The Haena site is located on the north eastern side of the Hawaiian Island of Kauai. It is dominated by non native plant species and has minimal terrestrial fauna mainly, pigs, rats, cats, dogs, birds and bats in a costal rainforest habitat. The Native Hawaiian settlement located at the site was inhabited from roughly 1000 AD to 1800 AD; primary sources of economy were fishing and agriculture with some aquaculture. The existing comfort station, built in 1979, was connected to a water main and disposed of wastewater into a cesspool. A new sewage disposal septic tank and drain field system was built and connected to the comfort station in 2001. The current comfort station building is to be demolished and a new comfort station building built will utilize the existing wastewater disposal system. A shower tree is also to be installed with wastewater entering the ground for percolation. No storm water evaluation has been completed for the site but a swale was constructed to minimize storm water run-off percolating into the sewage drain field located on the east side of the existing building. No electrical power is currently available at the site.

The State park consists of fifty acres fronting Ke'e beach. The topography of the site is a mix of five feet above sea level and slightly raised dune sites to 25 feet above sea level. The existing comfort station is 18 feet above sea level. East of the drainage field the elevation drops to an estimated 12 feet above sea level. This land area adjacent to the comfort station and existing wastewater disposal system is currently unoccupied and

characterized by a large growth of Hau bush. The potential for utilizing this land area in the design may depend on the flood zone status, wetland status, and other accessibility features. Additionally, this area may be impacted by costal high velocity waves or tsunamis. Archeology of this area is limited but likely consisted of agricultural areas. Limiting excavation will allow for the preservation of subsurface artifacts at this site.

3. Driving Issue to Improve Treatment

Members of the native Hawaiian community, descended from past and current residents of the area, have filed an intervention to stall the construction of the new comfort station until their issues regarding master planning, cultural mitigation, and cultural well being with regards to the historic site are fairly addressed through a co-operative process with the land owner. Paramount among their concerns is diverting the comfort station wastewater from the existing disposal field located at the site of a historic burial.

II. Objectives

To divert water from the septic tank to a secondary treatment system and treat the water to an R-3 quality for reuse; bypassing the existing drain field located on a culturally sensitive sight. In addition to provide the following: an educational demonstration; information about traditional resource management; the history of the site; and set a precedent for use of sustainable technologies for future generations.

III. Wastewater Treatment Design Options

1. Primary treatment

Due to the sensitive historic and archeological nature of the site and with one of the main objectives of the study to defer any further disturbance of the subterranean remains located in unspecified locations at the site; and taking in to account the stage of design and construction of the new comfort station facility, this report will assume the existing septic tank and drain field system will be left in place and not removed or significantly modified as the receiver of the primary wastewater flow from the comfort station building lavatory fixtures.

If the septic tank is to be utilized for primary treatment and collection as is currently designed but the drain field will no longer receive wastewater for disposal, the issue is diverting wastewater from the septic tank to further treatment and then to an alternate disposal method. In order to achieve this diversion with minimal site disturbance the septic tank out flow will be intercepted as installed at the site and a diversion pipe connected to the effluent plumbing. The effluent will flow by gravity into the secondary treatment system described below. An overflow connection to the existing drain field can be installed to allow alternate disposal in an emergency. This tank detention will need to be the equivalent volume of two days of flow through the system.

Additional detention tanks for solids settling and odor removal will be needed on site to achieve the required detention volume to pre-treat the wastewater. The installed tank has a volume of 2500 gallons. An additional 3500 gallons of detention will be needed assuming the estimated 2-day flow of 6000 gpd.

2. Secondary Treatment

There are several different secondary treatment options for Haena State Park. The most cost effective, energetically passive and site appropriate solution are constructed wetlands which utilize natural biological processes to break down waste and convert it to energy and biomass.

3. Constructed Wetland Technology

Constructed wetlands providing wastewater treatment, become living 'gardens' consisting of diverse forms of biological life. For Haena State Park, a constructed wetland can serve as secondary treatment following the primary treatment in the septic tank. Effluent from the septic tank(s) would flow by gravity into a constructed wetland built in the lower area (for example east of the comfort station).

i. History of Constructed Wetlands for Waste Water Treatment

Over the past fifty years wetlands have been the subject of much research amongst the scientific and engineering communities. The first research studies of constructing wetlands for wastewater treatment originated in Germany in the early 1950's. Kathe Seidel tested numerous aquatic plants to determine if any and which groups of plants could breakdown and/or absorb chemical pollutants. Importantly, her research showed that a variety of aquatic plants can perform these functions. In particular, a common wetland bulrush, *Scirpus lacustris*, had the ability to remove phenols, pathogenic bacteria, and other pollutants in wastewater (Seidel 1976). Over the next thirty years, following Seidel's findings, research on constructed wetlands a rapidly grew. By the mid-1980's the Tennessee Valley Authority (TVA) took the lead nationally in advancing full-scale demonstration wetland remediation projects for a variety of applications from treating wastewater to acid seepage from mines. In turn, TVA hosted the first international conference on constructed wetlands and their findings can be found in their proceedings (Hammer, 1989). Following this initial conference, the subject still continues to receive attention by federal agencies such as the U.S. Environmental Protection Agency and Soil Conservation Service, along with a variety of State environmental agencies and the technology has been applied by engineering firms to treat numerous full-scale waste systems throughout the continental United States and internationally (Campbell and Ogden 1999). The largest of these constructed wetlands treating municipal wastewater is in Crowley, LA and is designed to treat 3.5 million gallons per day (MGD) (Reed et. al. 1995).

ii. The Role of Native Hawaiian Plants

Constructed wetlands are modeled on naturally occurring aquatic ecosystems. Native Hawaiian plants like Makaloa, Ahuawa, and Akaa'kai found in Hawaii's natural wetland environments, along with over a hundred other locally occurring species, have been collected and tested in various engineered treatment habits. These plants are grown in the constructed wetland to help treat wastewater in two important ways. Plant shoots and roots provide surface area for bacterial Biofilm communities to attach and grow. Plant metabolism and growth provide nutrient uptake and carbon and sugars supplementation for bacterial digestion and microorganism communities, greatly increasing the biological diversity of the system. Our designs focus on place based ecologies and diverse biological communities that enhance treatment stability and effectiveness.

iii. Design of Subsurface Flow Constructed Wetlands

Constructed wetlands are biological treatment systems that are designed to be ecologically diverse to enhance the treatment processes. Essentially of two types, surface flow (SF) wetlands with exposed water area, and sub-surface flow (SSF) wetlands with gravel or artificial media, are biological treatment systems that house a variety of organisms from microbes to higher plants and aquatic animals. Any residual nutrients, both solid and dissolved, become the basis for a food web which drives the ecology of the system.

Constructed Wetland (Natural Systems International)

Constructed wetlands for wastewater treatment consist of plastic lined, shallow, basins or channels, with inlet and outlet structures. The subsurface flow (SSF) constructed wetlands are filled with media (typically gravel sized rock) and the water flows horizontally beneath the surface. The typical depth of these systems is around 3-4 feet. Due to the cultural sensitivity of further digging at the Haena State Park site, creating a high berm to achieve the desired depth without excavating can be carefully planned. Half a foot of native soil and/or pea gravel-sized media is placed on the surface where the wetland plants are planted. The water moves through the media and the plant roots whereby any excess nutrients will be incorporated into biomass. Once the ecology is established, the systems self organize and minimal operations or maintenance will be required. Depending on climate and type of constructed wetland, retention time of the wastewater within the SSF wetland is between 2-5 days. A

preliminary engineering document details the dimensions and retention time of the wastewater within the SSF wetland. Typically this is produced following the feasibility study if the client chooses to proceed.

SSF constructed wetlands are sized generally 0.5-1 square foot per gallon per day. In warmer climates the square footage needed for treatment is on the lower end and can be reduced depending on estimated rainfall. Using these basic guideline and estimating the water quality coming from the septic system to be BOD = 40 mg/l to 10 mg/l; TSS = 90 mg/l and TN = 40 mg/l, the estimated size for a constructed SSF wetland at Haena would be approximately 3600 square feet (60' x 60'x 3.5' depth; and additional spacing for berms to contain the liner) to treat a the maximum flow estimated by Fujita and Associates Inc., 1999 of 7200 gpd. The effluent coming out of the wetland system would meet R-3 standards.

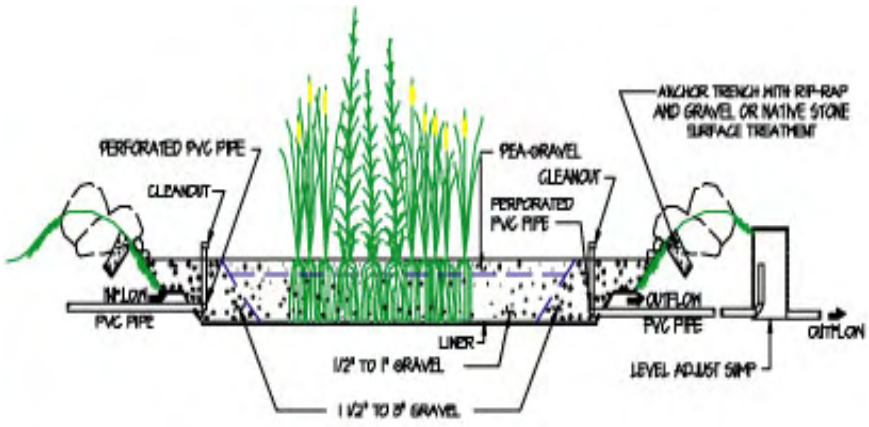

Figure 1: Subsurface Flow Constructed Wetland (Natural Systems International, www.natsys-inc.com)

iv. Noteworthy Features of Constructed Wetlands/Natural Systems for Wastewater Treatment

1) Wetlands are very low maintenance and don't require energy for treatment.
2) Sludge generation is minimized;
3) Wetlands are excellent for polishing (removing excess nutrients), esp. in warm climates,
6) O&M costs are very low compared to packages.
7) No chemicals need to be applied, which also minimizes O&M costs.
8) There is no odor since all the wastewater being treated is subsurface.
9) Wetlands are aesthetically attractive and can serve as educational features.
10) Wetlands can serve a duel purposes as treatment systems while providing habitat for native insects and plants.

4. Disposal and Reuse

The acceptable reuse applications of treated wastewater for the State of Hawaii are presented in the publication "Guidelines for the Treatment and use of Recycled Water" (DOH, 2002). The discussion includes the definitions of three permit levels for the recycled water in terms of: fecal coli form bacterial colony counts, levels of biological oxygen demand (BOD), and total suspended solids (TSS), and describes the allowed uses of each permit level R-1, R-2, and R-3 for recycled water. In the case for the Comfort Station at Haena State Park, the effluent from the wetland will be designed to meet R-3 standards and can be reused via subsurface irrigation for non-edible plants.

The one day storage required for the irrigation field could be incorporated in the freeboard of the wetland berming. It is likely that the DOH will require an initial year of weekly water quality testing for the permit of the individual water recycling facility. A trench and berm channeled system could be used for the reuse application. This system would reduce cost and maintenance but would not be open to the public. The goal of the proposed design in this study is to meet the R-3 standard to reduce permitting requirements including disinfection of effluent with chlorine chemicals.

IV. Construction Estimates

In addition to the work of SSI personnel, four important subcontracts will be awarded for the design and construction of the system: engineering, civil work, liner installation, and plumbing. Additional costs for SMA permit and/or a wetland designation study may be required by permitting agencies.

A significant additional expense of the proposed facility is a required six foot fence with locking gate to limit public entry into treatment and reuse areas. Design of the fencing could include plantings and fence type.

1. Design engineering, permitting, and construction time line

The permitting of the individual wastewater treatment system for production of recycled water will be as a demonstration project for both the County and State levels. This requires a special designation at both levels for a design that is not exactly detailed in the Kauai County Sewage Design Standards (1977). Permitting this project may include additional reports to the County for a special management area permit and the Army Corps of Engineers with regard to the delineation of the natural wetland habitat at the site. The map "Haena Wetland Area" (Appendix 1) is from the Department of the Interior, Fish and Wildlife National Wetland Inventory map page but does not constitute a regulatory boundary. A request of the ACE to make a wetland declaration would be the first step in determining the lateral extent of the wetland delineation.

The Department of Health permitting process includes several submissions of engineering treatment and water reuse planning reports. The design of the system typically takes up to a month. The permitting process can take up to three months; the

construction of the system also averages about a month not accounting for ordering lead times. In a best case scenario a six month period would be an acceptable time frame to design, permit and construct an individual wastewater treatment system for reuse.

2. Discussion of Local Contractors and Materials Supply

The availability and cost of local labor and resources may be a significant factor in design selection. The most troubling materials issues to date are the limited availability and cost of transporting gravel and fill material to the site for the construction of a wetland. The Hanalei Bridge with a six ton weight limit separates the project site from the gravel supply. The quote from Kobayashi trucking is $250 per cubic yard of gravel. The use of a synthetic 'light-weight' media, which has been used successfully for a SSF constructed wetland in the Caribbean, could be a cost effective choice for replacing the bluestone gravel media since materials costs are associated with weight and transport over the Hanalei Bridge. One potential solution for the fill material would be to find a source of suitable material on the construction site side of the bridge. This would take care of the material requirement for the constructed wetland berming and for covering the additional detention tanks.

3. Proposed design, construction, and operation budget estimate: $275,000-$400,000

The costs to construct the subsurface flow wetland are variable depending on the media chosen for the wetland system and if there need to be any significant changes in the design from regulatory agencies to meet the local permitting requirements. Typically constructed SSF wetland systems of this size (5000gpf) can be significantly less than the given estimate. Due to the remote site location and restrictive limitations of transporting materials/equipment to the site, materials and their associated delivery costs were found to be much higher than for other Hawaii locations. The preliminary analysis that was conducted to determine a total cost estimate of $275,000-$400,000 includes: engineering/permitting; additional required tanks; civil work and materials; purchase and install liner; plumbing; wetland media; plants; signs; and operations/water quality monitoring for one year.

The proposed budget only accounts for the wastewater treatment and the onsite disposal, all other infrastructure surrounding the treatment system is not taken into account for this estimate, which might include the probable need to install a berm to separate the facility from (re)constructing a cultural fishpond adjacent to the site. If major design changes are required due to regulatory agencies, the price may also need to be adjusted. A precise estimate will be determined during the final engineering stage (see below), which will encompass working closely with regulatory agencies to ensure quality assurance and meet the permitting requirements.

V. Operations

As the treatment system becomes less passive an increase in operator involvement is required to maintain and monitor treatment elements that are mechanical or otherwise

respond to environmental changes. The treatment area should be fenced to prevent vandalism and monitored frequently to prevent the escalation of maintenance issues into full blown problems with treatment or potential wastewater spills or other unintentional discharge.

1. Description of education, operations and maintenance tasks and cost estimates

The combination of incorporating operator/educator for multidisciplinary tasks and roles has been successful in other projects in the State. The goal is to minimize hours at the site by combining operational checks with educational duties. The establishment of a water quality monitoring program in association with permit oversight also fits neatly within an educational mandate and can be part of local community outreach and education. The operational cost estimate considerations will include: water testing laboratory cost; materials or machine replacement; labor costs; administrative overhead; safety; training; and insurance. Securing a grant to operate the system after the one-year contract with SSI is an ideal way to address future operational cost issues. A successful example is to work in an educational grant to aid in operations as the DOE has funding for community based, native Hawaiian, and project based initiatives. SSI is also willing to work with the client to expand the timeframe of the operations/education contract which can be amended during the course of the project.

2. Reporting Requirements

The system reporting requirements as detailed in the Guideline for Reuse of Recycled Water include: flows; spills; alarms; and water quality sampling as determined by DOH in the individual wastewater treatment system permit, which will likely include weekly testing for BOD, TSS and fecal coli form bacteria. An annual report should also be submitted detailing site operations and irrigation reuse applications as described in the reuse guide lines and included in this report as Appendix 2.

VI. Conclusion

1. Stages to Follow Feasibility Report

This feasibility study has been designed to educate the client on the potential for implementing sustainable constructed wetland technology to further treat the wastewater that will be produced at the Haena State Park comfort station. The study was designed to determine initial methods for the implementation of the technology working with environmental factors and community considerations. Specific engineering details will follow this report if the client desires to proceed to the next steps. The following are the proceeding stages to this report:

1. Preliminary Engineering
2. Work with Regulatory Officials
3. Final Engineering
4. Permitting

5. Construction
6. Operations/Education

2. The Vision

The implementation of a water recycling and reuse demonstration project at the Haena Comfort Station, Kauai is one possible solution toward creating a more harmonious and reflective relationship between the local community and the State government agency responsible for providing the services to the site and creating the site's general public character. The demonstration could create an economic infusion into the community while providing a valuable educational enhancement to the already popular, local and visitor frequented, park. The experience gained and precedent set by this project could lead to future advances in water and energy resource sustainability and enhanced environmental and cultural resource management. The cost of the system and its operations can in this way be seen as an equity investment in the future of Hawaii.

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APPENDIX C

Wetland Delineation & Report

A wetland delineation for a new comfort station project at Hā'ena State Park, Kaua'i.[1]

October 30, 2008 **DRAFT** *AECOS* No. 1179

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Introduction

On May 27, 2008, an inspection was made by AECOS biologists of an area of low ground to the east of a comfort station (restroom facility) under construction on parcel TMK: (4) 5-9-08: 01, at Hā'ena State Park on the north shore of Kaua'i (Fig. 1). The purpose of the visit was to establish whether or not—and if so, then precisely where—a wetland existed here so that plans for the comfort station leach field would avoid the wetlands. The visit coincided with a survey team (Esaki Surveying & Mapping, Inc.) and the location of three wetland soil test pits and seven ("A" through "G") marking flags were established immediately after the biologists completed their work.

Site Description

Hā'ena State Park is located at the very end of State Rte. 56 (Kūhiō Highway) on Kaua'i in Hā'ena. The park occupies the last section of coastal plain extending along Kaua'i's northern coast. Beyond, to the west, the mountainous terrain drops steeply into the sea as a *pali* (cliff). This cliff extends along the inland side of the road through the park. Limahuli Valley lies inland to the south, its stream crossing the coastal plain along the eastern boundary of the state park.

The inland portion of the coastal plain within the state park is a lowland lying between the pali (and the road) and coastal dunes. Parts of this lowland are clearly wetlands based upon vegetation. Indeed, portions are developed into pondfields or *lo'i* in which *kalo* (taro; *Colocasia esculenta*) is being farmed (Fig. 2). Further, the

[1] This report was prepared for Strategic Solutions, Inc. to be used as needed for permitting/ compliance for the Hā'ena State Park Comfort Station Improvements. This report will become part of the public record for the permitting process.

subject area is shown by the National Wetlands Inventory (NWI) to have a wetland present (PFO3C[2]; USFWS, 2008). Although the majority of the existing wetland area is open, and maintained in that state for agricultural purposes, the western end supports more dense vegetation, in particular a dense area of *hau* (*Hibiscus tiliaceus*) and a closed canopy forest of mostly false *kamani* or tropical almond (*Terminalia catappa*) and Java plum (*Syzygium cuminii*). Therefore, the primary question becomes precisely where is the western edge (end of wetland closest to the construction project) of this wetland.

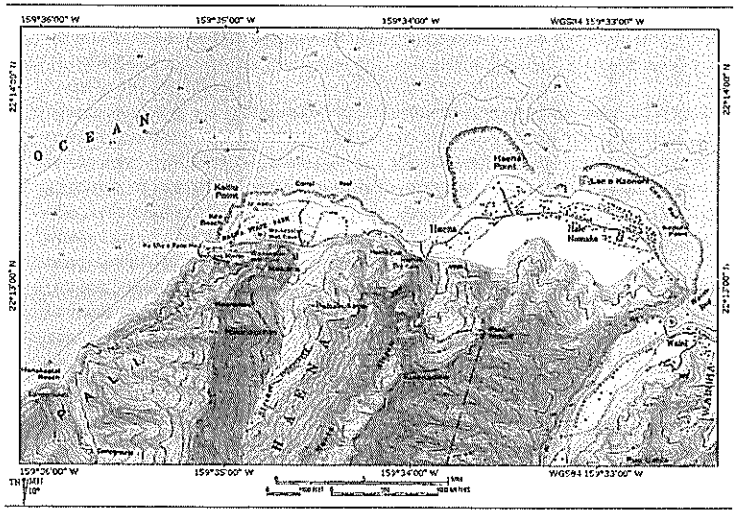

Figure 1. Location of wetland delineation site at Hā'ena State Park, Kaua'i.

Methods

This wetland delineation was completed by Eric Guinther and Susan Burr of *AECOS* Inc. Methodology followed the official delineation manual (ACOE, 1987). Soil descriptions utilized Munsell soil color charts (Munsell, 1994). The wetland status of identified plants comes from Reed (1988) as required, although we point out that this source is botanically out of date (see Puttock and Imada, 2004). Plant species not listed (NL) in Reed are counted as upland (UPL) plants.

[2] PFO3C = Palustrine, broad-leaved evergreen forest, seasonally flooded wetland.

For this effort, a total of three soil pits were dug along a transect extending from the forested uplands (1179-SP-3 and 1179-SP-1) to an area of mostly grasses and some sedges (1179-SP-2) lying between the false *kamani*/Java plum forest and the *hau* grove seen in Fig. 2. Standing water was observed within the *hau*, so this area was considered wetland without closer inspection.

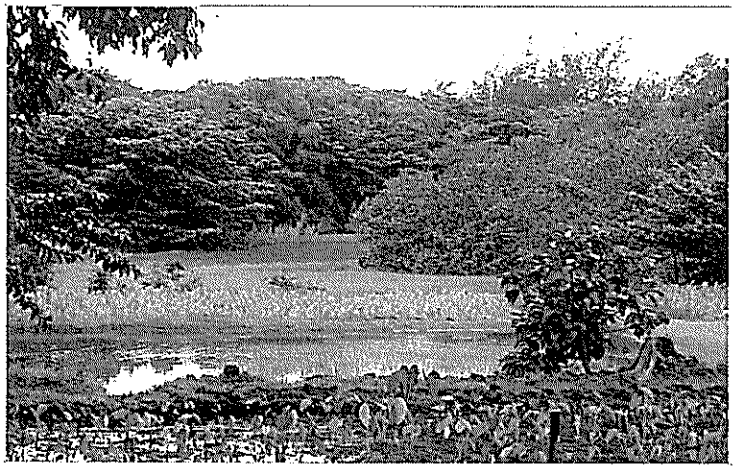

Figure 2. View of *kalo lo'i* at Hā'ena State Park, looking west towards the project area (within dense forest, center background).

Wetland Delineation Results

The first observation area and first soil pit (*AECOS* 1179-SP-1) were undertaken within the forest, in an area of false *kamani* trees with little understory present due to the deep shade. A few vines (golden pothos or *Epipremnum pinnatum 'Aureum'*) occur running up the trees and growing across the ground. The pit was dug to a depth of 8 inches (21 cm) without encountering saturated soil or free water. However, the low chroma of the soil suggests a hydric soil.

We then moved further out towards the hau stand, developing a test pit (*AECOS* 1179-SP-2) in an open area of grass (*Paspalum conjugatum*) and dayflower (*Commelina diffusa*) between the false *kamani* forest and the *hau*. This soil was

clearly hydric at the surface (10YR 3/1) and standing water was present nearby within the *hau*.

A third soil pit (1179-SP-3) was developed inland of the first and roughly 2 m (8 ft) behind a low line of boulders thought to be part of an old wall. The ground here was dominated by pathos vine, wedelia (*Sphagneticola trilobata*), and tree seedlings; the upper story vegetation was mostly large false *kamani* and Java plum trees. The soil resembled that seen in the other two pits, with hydric tendencies. However, here the vegetation was clearly upland. Further, evidence of flooding in the area in the form of litter deposits of mostly *Terminalia* seeds constitutes a strong hydrology indicator. The upper extent of this wrack was against the base of the line of boulders, excluding 1179-SP-3 but including 1179-SP-1 in the wetland.

Conclusions

The surveyed location within Hā'ena State Park does contain a wetland more or less as indicated on the soil survey (Foote, et at., 1972) and NWI maps. In the project area, this wetland is jurisdictional within a boundary that closely coincides with remnants of a former, presumably ancient, fishpond wall. This broken line of boulders also corresponds to a high water line for the larger basin. The wetland may not extend fully up to the wall for the reason that the forest area supports an "upland" vegetation. However, this designation is a technicality based upon the requirements of the process as established by ACOE (1987). Logically, the area is dominated by a tree not considered (or previously misidentified) by Reed (1988) but now regarded as a facultative wetland species (FAC; Puttock & Imada, 2004). Therefore, it is a logical conclusion that the wetland extends into this forest and up to the wall. The scattered remnants of a former wall coincide with a modest slope change. The wall and change in slope were utilized to place the 7 marking flags shown plotted in Fig. 3 and presenting our interpretation of the wetland boundary in the project vicinity.

No areal extent for this wetland was calculated because the intent of the comfort station project is to design around (away from) the wetland boundary as delineated and not enter or alter the wetland in any way.

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DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Haena State Park, Kaua'i
Applicant/Owner: State of Hawai'i
Investigator: Guinther/Burr
UTM:

Date: May 27, 2008
County: Kaua'i
State: Hawai'i

Do Normal Circumstances exist on the site?	Yes ☒	No ☐
Is the site significantly disturbed (Atypical Situation)?	Yes ☐	No ☒
Is the area a potential Problem Area? (If needed, explain on reverse side.)	Yes ☐	No ☒

Community ID:
Transect ID: No. 1
Plot ID: *AECOS* 1179-SP-1

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. *Terminalia catappa*	T	NL
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Other Plant Species	Stratum	Indicator
1. *Epipremnum pinnatum 'Aureum'*	V	NL
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 0%

Remarks: Heavily shaded, monotypic stand of false kamani that extends into the upland, where additional tree species occur (see *AECOS* SP-3) . This tree is misidentified in Reed (1988) as *Terminalia carolinensis*, a species not recorded from Hawai'i.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations

Depth of Surface Water:	n/a	(cm)
Depth to Free Water in Pit:	>21	(cm)
Depth to Saturated Soil:	>21	(cm)

Wetland Hydrology Indicators:
Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC Neutral Test
- ☒ Other (Explain in Remarks)

Remarks: Dense drift area of false kamani seeds mark high water mark and occur along inside edge of old fishpond wall.

SOILS

Map Unit Name
(Series and Phase):
Drainage Class:
Field Observations
Taxonomy (Subgroup):
Confirmed Mapped Type? Yes ☐ No ☐

Profile Description:

Depth (cm)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance / Size / Contrast	Texture, Concretions, Structure, etc.
0 - 2	O	black			organic matter
2 - 7	A	10YR 2/2 and ??	none		clay loam
7 – 19	B	10YR 3/3	7.5YR 4/4	40%; fine, distinct	clay loam
19 - 21	B	10YR 3/2	7.5YR 4/4	25%; medium, distinct	clay loam
			7.5YR 3/1	25%; medium, faint	

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Maps to "MZ" or marsh, surrounded by Mokuleia fine sandy loam (Young, et al., 1979).

Keaukaha soils have a 20 cm (8 in) organic layer consisting of very dark brown (10YR 2/2) muck, which overlays pahoehoe lava.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☒	No ☐
Hydric Soils Present?	Yes ☒	No ☐

Is this Sampling Point Within a Wetland? Yes ☒ No ☐

Remarks: Indentified on NWI maps (USFWS, 1984); conditions at survey somewhat dry for late wet season.

Although *Terminalia catappa* is not listed in Reed (1988) and therefore by default an upland species, this conclusion cannot be reasonably supported given the hydrology and soils at this soil pit location; a more useful version of the Hawaii plant wetland status codes (Puttock & Imada, 2004) lists T. catappa as FAC.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Haena State Park, Island of Kaua'i
Applicant/Owner: State of Hawai'i
Investigator: Guinther/Burr
UTM:

Date: May 27, 2008
County: Kaua'i
State: Hawai'i

Do Normal Circumstances exist on the site?	Yes ☒	No ☐	Community ID:
Is the site significantly disturbed (Atypical Situation)?	Yes ☐	No ☒	Transect ID: No. 1
Is the area a potential Problem Area? (If needed, explain on reverse side.)	Yes ☐	No ☒	Plot ID: *AECOS* 1179-SP-2

VEGETATION

Dominant Plant Species	Stratum	Indicator
1. *Paspalum conjugatum*	H	FAC+
2. *Commelina diffusa*	H	FACW
3.		
4.		
5.		
6.		
7.		
8.		

Other Plant Species	Stratum	Indicator
1. *Cyperus javanicus*	H	FACW
2. *Psidium guajava*	T	FACU
3.		
4.		
5.		
6.		
7.		
8.		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 100%

Remarks: In open area between false kamani forest and hau forest, the latter with standing water on surface.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations

Depth of Surface Water:	n/a	(cm)
Depth to Free Water in Pit:	>17	(cm)
Depth to Saturated Soil:	>17	(cm)

Wetland Hydrology Indicators:
Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☒ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Soil moist throughout, but not saturated

SOILS

Map Unit Name (Series and Phase): _____ Drainage Class: _____

Field Observations

Taxonomy (Subgroup): _____ Confirmed Mapped Type? Yes ☐ No ☒

Profile Description:

Depth (cm)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance / Size / Contrast	Texture, Concretions, Structure, etc.
0 – 9	A	10YR 3/1	none		sandy clay loam
9 - 17	B	7.5YR 4/4	7.5YR 4/1	5%; horizontal bedding evident	sandy clay loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☒ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Reducing conditions observed in top layer (0-9") by positive α, α diprydil test. Keaukaha soils have a 20 cm (8 in) organic layer consisting of very dark brown (10YR 2/2) muck, which overlays pahoehoe lava.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☒	No ☐			
Wetland Hydrology Present?	Yes ☒	No ☐			
Hydric Soils Present?	Yes ☒	No ☐	Is this Sampling Point Within a Wetland?	Yes ☒	No ☐

Remarks: Survey point is within an ancient fishpond.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Ha'ena State Park, Kaua'i
Applicant/Owner: State of Hawai'i
Investigator: Guinther/Burr
UTM:

Date: May 27, 2008
County: Kaua'i
State: Hawai'i

Do Normal Circumstances exist on the site?	Yes ☒	No ☐	Community ID:
Is the site significantly disturbed (Atypical Situation)?	Yes ☐	No ☒	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse side.)	Yes ☐	No ☒	Plot ID: *AECOS* 1179-SP-3

VEGETATION

	Dominant Plant Species	Stratum	Indicator
1.	*Epipremnum pinnatum 'aureum'*	V	NL
2.	*Terminalia catlapa*	T	NL
3.	*Sphagneticola trilobata*	H	FACU
4.	*Syzygium cuminii*	T	FACU
5.			
6.			
7.			
8.			

	Other Plant Species	Stratum	Indicator
1.	*Xanthosoma roseum*	H	NL
2.	*Carica papaya*	H	NL
3.	*Shefflera actinophylla*	T	UPL
4.			
5.			
6.			
7.			
8.			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 0%

Remarks: Reed (1988) misidentifies the false kamani tree in Hawai'i as *Terminalia carolinensis*, a species that does not occur here.

HYDROLOGY

☐ Recorded Data (Describe in Remarks):
- ☐ Stream, Lake, or Tide Gauge
- ☐ Aerial Photographs
- ☐ Other

☒ No Recorded Data Available

Field Observations

Depth of Surface Water: n/a (cm)

Depth to Free Water in Pit: >21 (cm)

Depth to Saturated Soil: >21 (cm)

Wetland Hydrology Indicators:

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required)
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC Neutral Test
- ☐ Other (Explain in Remarks)

Remarks: Upslope of former fishpond wall

SOILS

Map Unit Name
(Series and Phase): _____

Drainage Class: _____
Field Observations

Taxonomy (Subgroup): _____

Confirmed Mapped Type? Yes ☐ No ☐

Profile Description:

Depth (cm)	Horizon	Matrix Colors (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance / Size / Contrast	Texture, Concretions, Structure, etc.
0 – 3	A	10YR 3/1	none		sandy loam
3 - 21	B	10YR 3/6	10YR 3/2	40%; medium, distinct	sandy loam

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☒ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: Keaukaha soils have a 20 cm (8 in) organic layer consisting of very dark brown (10YR 2/2) muck, which overlays pahoehoe lava.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes ☐	No ☒			
Wetland Hydrology Present?	Yes ☐	No ☒			
Hydric Soils Present?	Yes ☒	No ☐	Is this Sampling Point Within a Wetland?	Yes ☐	No ☒

Remarks:

AECOS, Inc.
45-939 Kamehameha Highway, Suite 104 ♦ Kaneohe HI 96744
Telephone: (808)234-7770 ♦ Fax: (808)234-7775 ♦ Email: aecos@aecos.com

31 October 2008

U.S. Army Corps of Engineers
Honolulu District
Regulatory Branch
Building 230, Fort Shafter, HI 96858-5440
CEPOH-EC-R@usace.army.mil

The Hawai'i Department of Land and Natural Resources, Division of State Parks is constructing a comfort station and leach field at Hā'ena State Park on Kaua'i. *AECOS*, Inc. conducted a site visit of the project area and prepared the attached document entitled, "A wetland delineation for a new comfort station leach field at Hā'ena State Park, Kaua'i," dated October 30, 2008, in which we preliminarily determined jurisdiction. Attached to this document are a large-scale wetland delineation map and wetlands delineation data sheets.

We hereby request the Corps to verify that the delineation is accurate and provide an approved jurisdictional determination.

Please contact me (247-3426) or Susan Burr (722-2972) if you have any questions, require more information, or to schedule a site visit.

Thank you,

Eric B. Guinther
President

with Attachment

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF:

June 15, 2009

Regulatory Branch

File Number POH-2009-00067

Eric Guinther, President
AECOS, Inc.
45-939 Kamehameha Hwy., Suite 104
Kaneohe, Hawai'i 96744

Dear Mr. Guinther:

This is in response to your October 31, 2008 letter requesting verification of a completed wetland delineation located in TMK 459008001. The wetland delineation was submitted in advance of an application for a Department of the Army (DA) permit to construct a comfort station and leach field at Ha'ena State Park located at the end of State Route 56 (Kuhio Highway), Ha'ena, Kauai, Hawaii.

From the information furnished in the report "A wetland delineation for a comfort station individual wastewater treatment system modification at Ha'ena State Park, Kaua'i" prepared by AECOS, Inc and dated October 30, 2008 and an on-site field inspection conducted on May 29, 2009 by Ms. Meris Banitilan-Smith of my staff, we have determined the following:

The delineated western area (AECOS SP-1 and SP-3) is not a wetland, as defined by the Corps wetlands definition. During the field inspection, areas sampled within the delineated area were found absent of one requisite wetland parameter, vegetation. The western border of the sampled area was dominated by *Terminalia catappa* (false kamani), which is not listed in "National List of Plant Species that Occur in Wetlands: Hawaii (Region H)" (Porter B. Reed Jr., 1988). Accordingly, this area is considered "uplands" and therefore is NOT subject to Corps regulatory jurisdiction.

Conversely, we have determined that the delineated eastern area (AECOS SP-2) is a wetland as we have confirmed the presence of all three (3) requisite wetland parameters. The October 30, 2008 wetland delineation report states that the proposed wastewater treatment system will "avoid the wetlands" (Page 1, ACOES, Inc., File 1179.doc). Should any work occur more than 15 feet eastward (down slope) of the remnant fishpond wall, a revised wetland delineation will need to be submitted and subsequently verified by the Corps of Engineers.

Enclosed with this letter is an approved jurisdictional determination (JD) form for the western upland area (AECOS SP-1 and SP-3). The approved JD is valid for a period of five (5) years from the date of this letter unless new information supporting a revision is provided to us before the expiration date. Additionally, a Notification of Administrative Appeal Options and

Process and Request for Appeal form is provided for the approved jurisdictional determination (see section marked "Approved Jurisdictional Determination").

Nothing in this letter shall be construed as excusing you from compliance with other Federal, State, or local statutes, ordinances, or regulations that may affect any proposed work.

We appreciate your cooperation with the Corps of Engineers' Regulatory Program. If you have any questions concerning this determination or other questions regarding our Regulatory program, please contact Ms. Meris Bantilan-Smith at 808-438-7023 (Fax: 808-438-4060) or by electronic mail at: Meris.Bantilan-Smith@usace.army.mil. Please refer to file number POH-2009-067 in future correspondence regarding this parcel.

Sincerely,

for George P. Young, P.E.
Chief, Regulatory Branch

Enclosures

Copy Furnished (w/o encls):
Dr. Wendy Wiltse, U.S.E.P.A., Honolulu Branch, P.O. Box 50003, Honolulu, HI 96850

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): June 3, 2009

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District, POH-2009-067, Haena State Park Wetland Delineation

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Hawaii County/parish/borough: Kauai City: Haena
Center coordinates of site (lat/long in degree decimal format): Lat. 21.222957° Pick List, Long. -159.575005555° Pick List.
Universal Transverse Mercator: UTM Zone 4, NAD 83
Name of nearest waterbody: Un-named Stream
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC):
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: June 3, 2009
☒ Field Determination. Date(s): May 29, 2009

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There Are no "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There Are no "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.
a. Indicate presence of waters of U.S. in review area (check all that apply): [1]
☐ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☐ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual
Elevation of established OHWM (if known):

2. Non-regulated waters/wetlands (check if applicable):[3]
☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: The site did not meet the three requisite parameters as indicated in the 1987 Wetland Delineation Manual.

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW:

Summarize rationale supporting determination:

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent":

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through Pick List tributaries before entering TNW.

Project waters are Pick List river miles from TNW.
Project waters are Pick List river miles from RPW.
Project waters are Pick List aerial (straight) miles from TNW.
Project waters are Pick List aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW[5]:
Tributary stream order, if known:

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: Pick List.

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry: Pick List
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: Pick List
Estimate average number of flow events in review area/year: Pick List
Describe flow regime:
Other information on duration and volume:

Surface flow is: Pick List. Characteristics:

Subsurface flow: Pick List. Explain findings:
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain:
Identify specific pollutants, if known:

(iv) Biological Characteristics. Channel supports (check all that apply):
☐ Riparian corridor. Characteristics (type, average width):
☐ Wetland fringe. Characteristics:
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:
☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:
(a) General Wetland Characteristics:
Properties:
Wetland size: acres
Wetland type. Explain:
Wetland quality. Explain:
Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:
Flow is: Pick List. Explain:

Surface flow is: Pick List
Characteristics:

Subsurface flow: Pick List. Explain findings:
☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:
☐ Directly abutting
☐ Not directly abutting
☐ Discrete wetland hydrologic connection. Explain:
☐ Ecological connection. Explain:
☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW
Project wetlands are Pick List river miles from TNW.
Project waters are Pick List aerial (straight) miles from TNW.
Flow is from: Pick List.
Estimate approximate location of wetland as within the Pick List floodplain.

(ii) Chemical Characteristics:
Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:
Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):
☐ Riparian buffer. Characteristics (type, average width):
☐ Vegetation type/percent cover. Explain:
☐ Habitat for:
☐ Federally Listed species. Explain findings:
☐ Fish/spawn areas. Explain findings:
☐ Other environmentally-sensitive species. Explain findings:
☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)
All wetland(s) being considered in the cumulative analysis: Pick List
Approximately ( ) acres in total are being considered in the cumulative analysis.

[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- **Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?**
- **Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?**
- **Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?**
- **Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?**

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

   Provide estimates for jurisdictional waters in the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters:

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters:

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW:

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain:
- ☐ Other factors. Explain:

Identify water body and summarize rationale supporting determination:

---

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  - Identify type(s) of waters:
- ☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
- ☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- ☑ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
  - ☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- ☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:
- ☐ Other: (explain, if not covered above):

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
- ☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- ☐ Lakes/ponds: acres.
- ☐ Other non-wetland waters: acres. List type of aquatic resource:
- ☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:A wetland delineation for a comfort station individual wastewater treatment system modification at Haena State Park, OCtober 30, 2008, AECOS, Inc..
- ☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☒ Office does not concur with data sheets/delineation report.
- ☒ Data sheets prepared by the Corps: Site Visit was conducted by Meris Bantilan-Smith. 2 delineation sheets were prepared for the west end of the site.
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☐ U.S. Geological Survey map(s). Cite scale & quad name:
- ☐ USDA Natural Resources Conservation Service Soil Survey. Citation:
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
- ☐ Photographs: ☐ Aerial (Name & Date):
  - or ☐ Other (Name & Date):
- ☐ Previous determination(s). File no. and date of response letter:
- ☐ Applicable/supporting case law:
- ☐ Applicable/supporting scientific literature:
- ☐ Other information (please specify):

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: State of Hawaii DLNR	File Number POH-2009-067	Date: 15 Jun 2009
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Meris Bantilan-Smith, (808) 438-7701 U.S. Army Corps of Engineers, Honolulu District CEPOH-EC-R, Bldg 230 Fort Shafter, HI 96858-5440	Thom Lichte (808) 438-0397 U.S. Army Corps of Engineers CEPOD-RBT, Bldg 525 Fort Shafter, HI 96858-5440

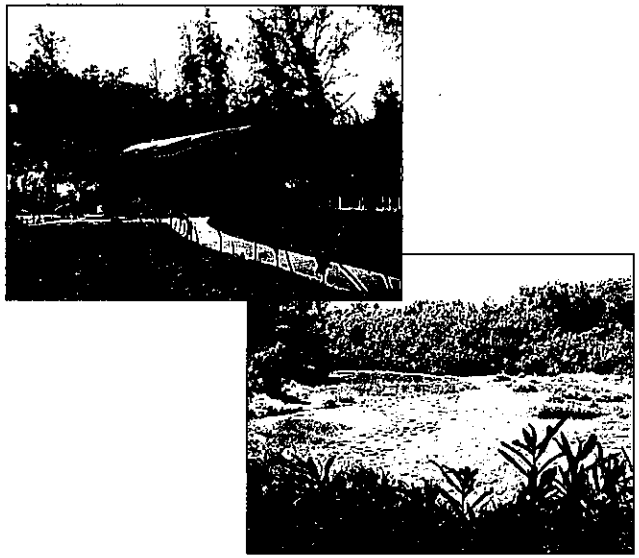
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

APPENDIX D

Cultural Impact Assessment

Hā`ena State Park
Constructed Comfort Station and Proposed Wetlands
Cultural Impact Assessment



Prepared for DLNR-Hawaii State Parks Division
PBR Hawaii & Associates, Inc.

By
Maria "Kaimi" Orr, M.A.
Kaimipono Consulting Services, LLC
October 2009

Cover Page:
Photo 1. Constructed Comfort Station
Photo 2. Proposed Wetlands [Former Loko Ke`e]

[All photos by author unless otherwise cited]

EXECUTIVE SUMMARY

At the request of *PBR Hawaii and Associates, Inc.* and *Hawaii State Parks,* a Cultural Impact Assessment [CIA] was conducted for *Hā`ena State Parks* as part of a larger project *Hā`ena State Park* (constructed) *Comfort Station and* (proposed) *Wetlands.* The purpose of this CIA was to gather information about traditional cultural practices, ethnic cultural practices and pre-historic and historic cultural resources that may be affected by the implementation of the development project. The *level of effort* of this study included a broad cultural and historical background review; review/analysis of twenty-two past oral histories and a telephone interview of one person knowledgeable of the project area.

According to the archival material, Kauai has had a long history of habitation that included most of its coastal lands, with great resources in the interior lands and waterways. Kauai was inhabited long before the arrival of the Pele *ohana.* The famous epic saga of Pele, her sisters and brothers is where we see Lohiau mentioned, Hā`ena's most famous resident. The foundation and walls of his *hale* still stand today, as does the *heiau* and *hula* platform where he worshipped and honored the hula goddess Laka. Ancient Menehune and Mai`a people were said to have gone back to their homeland from Hā`ena. The ancient ceremony of throwing fire brands (*`ōahi*) off the mountain was performed at the top of Mauna Makana where the project area is located at the northern base of the mountain. There are many other stories about gods, goddesses, chiefs and chiefesses who made Hā`ena home, as well as a long tradition of *maka`āinana* who farmed its rich lands and fished in the abundant coastal waters, evidenced by burials and oral histories that have been passed down through generations.

The project lands were once part of an ancient Hawaiian ahupua`a life-system as well as a support system for the *ali`i* who lived there. The physical evidence of multi-use ancient or traditional cultural practices still exists near-by (e.g. Lohi`au's hale, hula platform, heiau, fishpond's and lo`i), which not only indicate traditional land-use of the area, but that it (Kē`ē) was/is considered *wahi pana.* They also indicate that Hā`ena was not only well established but part of ancient Hawaiian life-systems that included the *ali`i,* officiating *kahuna* and people who lived and cared for the land. The hale of Lohi`au confirms that portions of Hā`ena were *ali`i* lands with all the infrastructure and required support systems. The area of the Wetlands was once part of a fishpond, Loko Kē`ē – fishponds were considered resource/property of the ali`i nui. According to several sources, the footprint of the Comfort Station is a part of burial grounds for ancient as well as historic Hawaiians. Burials are considered a very significant cultural practice.

The Constructed Comfort Station and Proposed Wetlands are located on storied lands, once part of ancient and historic communities who lived, farmed, tended to fishponds and buried their dead. There are some members of the Hā`ena community that would like to see the Comfort Station re-located elsewhere and the fishpond (wetlands) saved to be restored someday.

When the ethnographic survey for this CIA and the Master Plan/EIS CIA was conducted, the Comfort Station was already in the early stages of construction, however modifications for the Wetlands proposal had not started. Further undertaking for the proposed Wetland will impact the cultural footprint of Loko Kē`ē and needs to be discussed further with the Hā`ena community.

ACKNOWLEDGEMENTS

Mahalo nui loa to all the people who agreed to take the time to be interviewed for the Master Plan/EIS in 2008 whose interviews I reviewed for this project: Uncle Thomas Hashimoto; Kumu Kapu Alquizza; Uncle F. Bruce Wichman; Mr. Chipper Wichman; and especially Mr. Randy Wichman (and his wife Victoria) for their awesome hospitality and dinner. And another mahalo nui nui loa to Randy for agreeing to a telephone interview (2009) for this project and for reviewing this report. Thanks you Uncle Bruce for reviewing this report as well.

MAHALO NUI LOA!!!!!

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1.0 INTRODUCTION

At the request of *PBR Hawaii and Associates, Inc.* and *Hawaii State Parks,* a Cultural Impact Assessment [CIA] was conducted for *Hā`ena State Parks* as part of a larger project *Hā`ena State Park* (constructed) *Comfort Station and* (proposed) *Wetlands.* This CIA was in accordance with the State of Hawaii Office of Environmental Quality Control [OEQC] Guidelines for Assessing Cultural Impacts [1997]. This study is in compliance with Act 50 SLH 2000 (HB 28 H.D.1) (Appendix A) as it amends the State of Hawai`i Environmental Impact Statement law [Chapter 343, HRS] to include "effects on the cultural practices of the community and State. [It] also amends the definition of 'significant effect' to include adverse effects on cultural practices."

The purpose of this CIA was to gather information about traditional cultural practices, ethnic cultural practices and pre-historic and historic cultural resources that may be affected by the implementation of the development project.The *level of effort* of this study included a broad cultural and historical background review; review/analysis of twenty-two past oral histories and a telephone interview of one person knowledgeable of the project area.

This report is organized into five parts. Part I describes the project area in terms of location, in the context of *ahupua`a,* district and island, as well as a generalized description of the natural environment [geology, fauna, flora]. Part II explains the methods and constraints of this study. Part III summarizes the review of the traditional and historical literature in the context of the general history of Hawai`i, the island of Kauai and the local history of Hā`ena. Part IV presents the analysis of the ethnographic survey as it pertains to land, water, marine and cultural resources and use in the project area and vicinity. Part V summarizes the findings of this cultural impact assessment, which is based on the archival and ethnographic research data.

1.1.0 Scope of Work

The scope-of-work (SOW) [Appendix B] was based on the recommendations in the Office of Environmental Quality Control (OEQC) *Guidelines for Assessing Cultural Impacts* (1997) [Appendix C] and focuses on three cultural resource areas (traditional, historical and archaeological), conducted on two levels: archival research (literature review) and ethnographic survey (oral histories/questionnaires).

The research for this cultural impact assessment was conducted within a limited context of the *ahupua`a* (traditional land division) of Hā`ena, primarily the project area. The *level of effort* of this study included a broad literature review and a review of past oral histories and one telephone focused interview.

Research on traditional resources entailed a review of the literature of Hawaiian *mo`olelo* or stories/legends, late nineteenth and early twentieth century ethnographic works. Historic research focused on Land Commission Awards (LCA) and archival material from the following: University of Hawai`i-Manoa Hamilton Library-Hawaiian Collections; Kauai Museum Archives; DLNR State Parks reports; reports provided by PBR-Hawaii (on-line); Internet searches and personal library. Archaeological research entailed a limited review of reports.

1.2.0 Project Area

1.2.1 Project Location

The project is located on the island of Kauai, in the *moku* of Halelea [Kalihiwai to Hā`ena] and *ahupua`a* of Hā`ena. The project area is comprised of approximately .7 acres (30,500sf) within the Hā`ena State Park boundaries, the adjacent near-shore waters and Ke'e Beach, TMK 5-9-01:22 (por.) and TMK 5-9-08:1. Within the park area, parcel 25 of TMK: 5-9-01 owned by the County of Kaua'i (County) and includes Ka Ulu A Paoa Heiau and Ke Ahu A Laka (Hula Platform) managed by the State Historic Preservation Division (SHPD). The project area also includes the State Department of Transportation highway within the park area.

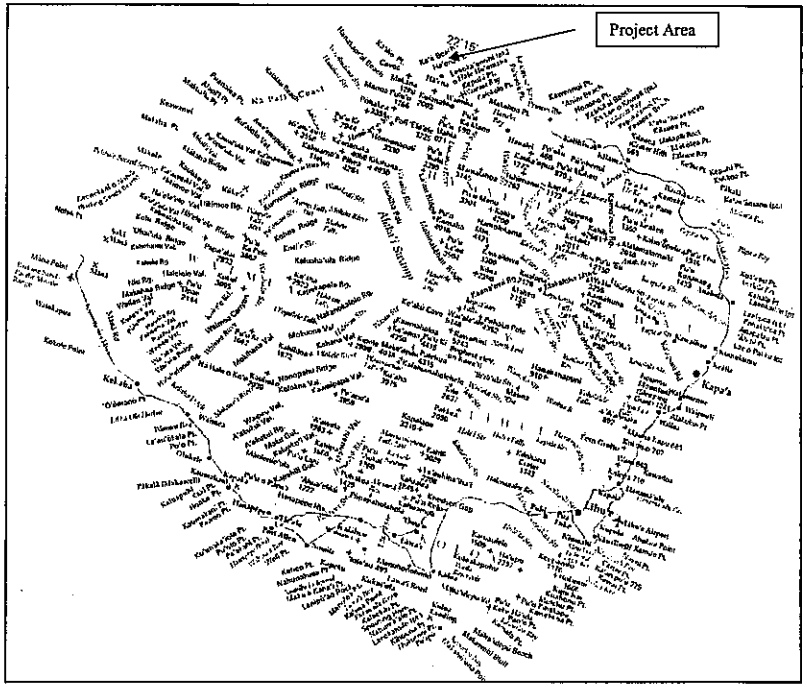

Figure 1. Map of Kauai, arrow indicates project area (adapted from Juvik & Juvik 1998:5).

1.3.0 Environment.

The Hawaiian Islands are geographically extremely isolated – 2,000 miles from North American and 1,000 miles from the nearest Pacific atoll. However, an impressive number of native plants, invertebrates and birds reached these islands by natural means (long-distance dispersal: direct, windborne, or waterborne) thousands of years before any human introductions (Juvik & Juvik 1998:103-104).

According to the Kauai ecosystem map (Juvik & Juvik 1998:122-123) the native ecosystems of the project area consisted of lowland dry and mesic forest, woodland and shrubland (terrestrial) and sandy beaches and major fringing reefs (marine). Today the project area has been greatly transformed by human activity with trace remaining native ecosystem that consists of wet forest/woodland and lowland dry and mesic forest, woodland and shrubland.

1.3.1 Terrestrial Ecosystems in Project Area

1.3.1.1 Native Wet Forest and Woodland (Juvik & Juvik 1998:126-127):

Climate/Substrate. Annual rainfall 80-<400 inches without regular dry periods; temperatures warm at low elevation, cool in montane areas. Substrates very weathered soils on older islands.

Biota. Vegetation – closed-canopy forests of *`ōhi`a*, sometimes with *koa or `ōlapa codominant;* open-canopy forests or woodlands of *`ōhi`a* and *uluhe*. Forests of *hala* in coastal lowlands; shrublands of *`ōhi`a* and ferns; also *`ākala* and shrublands.

Biota. Fauna – primary habitat of most extant Hawaiian honeycreepers and other forest birds: *`apapane* most common; great diversity of native invertebrates.

Endangered Species: more than 50 plant species including lobeliods, *ha`iwale*, endemic mints and ferns (*kihi*). Birds including *`ō`ū* and *`akohekohe*.

Cultural Significance: traditional realm of Hawaiian gods (*wao akua*); not for casual human visitation. Source of plants for fiber (*`olonā*); weaving (*`ie`ie*), clothing (*kapa* from *wauke*),medicines and construction woods. Also primary zone for bird collection for featherwork.

Threats. Feral pigs, feral cats, black and Polynesian rats; alien slugs; introduced plants; clearing for agriculture and grazing; and suburbanization.

1.3.1.2 Lowland Dry and Mesic Forest, Woodland and Shrubland Juvik & Juvik 1998: 127):

Climate/Substrate. Annual rainfall 20-80 inches; warm to hot with seasonal drought. Soils less weathered than in wet forest.

Biota. Vegetaion – plains, lower slopes, dry ridge tops and cliffs support grasslands of *pili* or *kāwelu*. Dry or mesic shrublands of *`aʻaliʻi, `ākia, koʻokoʻolau, `ūlei,* and other shrubs. Dry forests of *`ōhi`a, koa, lama, wiliwili* and rarer trees on ridges, rocky slopes and leeward gulches. Mesic forests (now rare) of *`ōhi`a, koa* or *lama* and rarely *olopua* or *halapepe* occur in gulches and on lower slopes and less disturbed sites.

Biota. Fauna – native birds (*`elepaio, `apapane* and *`amakihi;* native insects now depleted.

Endangered Species. Many trees and shrubs including *koki`o* and Kauai *hau kuahiwi;* Hawaiian hoary bat greatest abundance in this zone.

Cultural Significance. Forested zone was the realm of Hawaiian gods, especially Kū. Sandalwood exploitation of nthe early 1880s occurred in lowland mesic forests. *Pili* grasslands, a source of thatch material was maintained by fire; medician plants and hardwoods were gathered. Some mesic areas were converted from forest to dryland *kalo* and *`uala* agriculture.

Threats. Feral goats, feral cats, rats, alien invertebrates, especially ants; invasive alien plants. Many lowland areas were burned and cleared in ancient Hawaiian times; today urbanization and development continue.

1.3.1.3 Coastal Communities (Juvik & Juvik 1998:128-129):

Climate/Substrate. Warm; windward shores receive up to 120 inches annual rainfall; strong winds typical. Substartes include raised coral, basalt cliffs, sandy beaches, basalt and coral boulders, and littoral cones or tuff.

Photo 3. Alien vegetation in project area.

Biota. Vegetation – greatly influenced by proximity to ocean; many salt-tolerant species. Dwarf nshrublands of *`naupaka-kahakai* most common, *`ilima, naio, hinahina* (uncommon), *`ākulikuli, `aki`aki* grass, or sedge. Coastal forest of *hala* in a few windward sites; wetlands of native sedge now rare.

Photo 4. Feral chickens.

Biota. Fauna – threatened green sea turtle; shorebirds such as wandering tattler (*`ulili*) and ruddy turnstone (*`akekeke*) common in winter.

Endangered Species. Hawaiian monk seal, hawksbill turtle very rare; black-necked stilt (*ae`o*) and Hawaiian coot (*alae ke`oke`o*) depend on remaining wetlands. Plants include *`ōhai* and dwarf *naupaka.*

Cultural Significance. Coastal areas, the most densely populated lands in ancient times, continue to be important in traditional Hawaiian culture, providing medicines, *lei* materials and other resources.

1.3.2 Marine Ecosystems in Project Area.

1.3.2.1 Sandy Beaches (Juvik & Juvik 1998: 113-114):

White sand is primarily from the breakdown of coralline algae and corals. Wave action and biological and chemical erosion determine composition and longevity of beaches. Offshore sand reservoirs connected to beaches often undergo seasonal cycles of erosion, accretion and alongshore drift.

Photo 5. Ke`e beach

Biota. Vegetation -- beach morning glory, beach heliotrope, milo and *hau.*

Biota. Fauna – ghost crabs, mitre and auger shells, seabirds, threatened green sea turtle, endangered hawksbill sea turtle, and endangered monk seal use beaches for resting and nesting.

Cultural Significance. Hawaiian used beaches for burials (cemeteries), canoe launch sites and recreational, subsistence and ceremonial purposes. Beach sand and waterworn pebbles were used in the floors of Hawaiian houses.

Threats. Sand mining, canel construction, degradation by trash, beach erosion caused by sea walls and other shoreline fortifications.

1.3.2.2 Rocky Beaches (Juvik & Juvik 1998:114):

Photo 6. Rocky beach at Ke`e

Shorelines where sand and other sediments are absent due to constant wave action, currents, steep submarine slopes and lack of offshore sand reservoirs.

Conditions/Substrates. Mostly consolidated basalt, but sometimes consolidated limestone (cemented beach rock or raised coral reefs).

Biota. Vegetation – sea lettuce, Sargasso or various algae.

Biota. Fauna – Limpet, periwinkles, littorine snails, rock crabs, gastropods and rock urchin; offshore waters are possible feeding areas for threatened green turtle.

Cultural Significance. Rocky beaches often were important fishing grounds and canoe launching sites for Hawaiians.

Threats. Coastal, urban, resort development.

1.3.2.3 Estuaries (Juvik & Juvik 1998:114-115):

Photo 7. Riverlet in Park lands

Distribution. Places where fresh and marine waters meet at the coastline (stream mouth).

Conditions/Substrates. Freshwater flowing into the ocean floats on the sea surface because of its lower salt content and density.

Biota. Vegetation – marshes...some seaweeds.

Biota. Fauna – crabs, shrimps, mullets, endemic flagtails, *āholehole,* anchovies, small jacks, barracudas, eels, shorebirds, waterbirds,

Cultural Significance. Sources of fresh water and fish for Hawaiian communities in the past.

Threats. Modification for settlements; pollution by sewage and other discharges.

1.3.2.4 Fringing Reefs (Juvik & Juvik 1998:117-118):

Distribution. These reefs grow, terrace-like, off island shores, with their outer slopes extending to depths of about 165 feet.

Conditions/Substrates. Calcium carbonate skeletons and sediments produced by corals and coralline algae comprise the bulk of reefs. Sand deposits and seaweed common on shallow inner reef flats; living corals and coralline algae predominate at reefs outer edge; deeper slopes are mostly dominated by live corals or old reef rock. Beneath living outer layer of reef organisms, remains of previous reef builders are compacted and cemented into a hard, limestone, wave resistant structure which may be cut through by channels.

Biota. Threatened green sea turtle forage on reef flats; endangered hawksbill turtle feeds where sponges are common.

Cultural Significance. Fishpond development and intensive fishing occurred on reef flats.

Threats. Coastal construction, erosion, sewage discharges, overharvesting of fish, freshwater flooding.

1.4.0 Polynesian Introduced Flora.

Hā`ena is a narrow coastal strip between high cliffs and steep mountain sides. There are extensive areas of small wet-taro terraces in the lower part oif Limahuli Valley, and the sloping and flat lands east and west of Limahuli Stream between the sand dunes and the mountain sides were terraced and watered by ditches from that stream.... A few hundred yards east of Limahuli Stream there is a swampy area where taro was grown in a unique way that was practiced only here and in the marshes of Mana and Wai`eli, west of Kekaha. Swamp earth was piled up on rafts that were partially submerged, probably resting on the soft bottom of the swamp, and in the earth on these rafts wet taro was planted. On the sandy areas along thr coastal plain sweet potatoes were grown. Formerly many varieties of banana were planted in Limahuli and Manoa Valleys, as well as many kinds of sugar cane and several varieties of 'awa.... On Kauai the favored places [where coconut groves] were Haena, Hanalei (Handy 1972:418-419; 172 In Silva 1995:12).

Photo 8. Hala and fern nearby.

The pandanus tree is planted from seed near houses...wild pandanus grows sporadically almost everywhere along coasts and in lower valleys.... At Haena on Kauai is a tree named *'Ka hala o Mapuana'* famous in meles [sic], with a deep reddish orange 'key.' When seen by Mrs. Pukui in 1936 it appeared to be dying (Handy 1971:193-194 In Silva 1995:13).

1.5.0 Fauna.

In almost all of the elevation zones of the Hawaiian Islands, alien animals such as feral pigs, goats, cattle and horses have damaged native vegetation. Terrestrial fauna in pre-colonized Hawai`i consisted of only one endemic mammal, the hoary bat (*Lasiurus cinereus*), thousands of endemic insects [i.e., damselflies (*Ischnura ramburii* and *Ischnura posita*) found around reservoirs and streams], and about 100 species of endemic birds such as the Hawaiian owl (pueo) and Hawaiian honeycreeper (*Drepanididae spp*) (Berger, 1972:7, Kirch, 1985:28).

Early Polynesians introduced animals included the Southeast Asian pig (*Sus scrofa*), jungle fowl or chicken (*Gallus gallus*), dog (*Canidae*), and the Polynesian rat (*Rattus exulans*). Kauai still has an abundance of wild chickens, including the project area.

Photo 9. Wild chicken of Ha`ena.

1.6.0 Geology.

The island of Kauai is a single shield volcano, 552 square miles and the oldest (5.6 million years) of the major Hawaiian Islands. The highly eroded island has spectacular land forms. Landslides have modified the island's north, northeast and possibly east flanks (Juvik & Juvik 1998:41).

1.6.1 Volcanic Activity.

After creation of the Kauai shield cone, there was a long period of erosion during which no volcanic activity occurred. Waves cut high sea cliffs arounf the island and streams cut deep canyons, as much as 3,000 feet deep, while thick soil formed over much of the mountain, gradually transforming the rounded shield volcano into a jagged range of mountains.

Eventually volcanic activity resumed, sending lava of the Napali formation down valleys to form a 3 to 4 mile wide band from Awa`awapuhi Valley to the Hanalei River Valley. These post-erosional lava flows accumulating on the flanks of the shield were named the Napali formation of the Waimea Canyon volcanic series due to extensive exposures of these rocks along the Na Pali Coast. The entire series is approximately 20,000 feet thick, extending to its base at the ocean floor. The *mauka* portions of the Ha`ena State Park are situated over this Napali geological formation.

During the Pleistocene epoch, the sea level dropped more than 100 feet below present levels. Stream valleys and sea cliffs were eroded to base levels. Beaches of calcareous sand were formed and sand blew inland to form calcareous dunes, now lithified. Sedimentary deposits comprising alluvium and calcareous beach and windblown sand form the smaller coastal flat of Ha`ena. The dunes which run parallel to the shoreline aling the park's *makai* boundary are remnants of these geologically lithified dunes, which have been augmented by geologically recent sand transport from the beaches further *makai.*

Later, as the sea level rose as much as 260 feet above current levels, valley mouths were alleviated. Examples which remain today of this higher sea level combined with wave action, are the wet caves within the Ha`ena State Park boundary, which were eroded probably when the sea stood about five feet above the present sea level. The valley flats near the mouths of the large streams were built by alluvial fill deposited in the valleys.

In summary, rocks of Kaua`i are all volcanic, except for minor amounts of sediments derived by erosion of the volcanic rocks and a narrow, discontinuous fringe of calcareous reef and beach deposits. Ha`ena State Park possesses all of these geologic rock types, with volcanic rocks present within the mauka areas which slope towards the cliffs ands include the *pali,* sedimentary alluvium along the Limahuli Stream and coral beach deposits on the flay *makai* portion of the park (TKC-H 2001: II-1-2).

1.6.2 Faults.

There are two faults on either side of Ha`ena State Park. The first, Kalalau Fault, lies a mile southwest of Pohakuwaawaa Peak. Thius fault branches northward from the main Olokele caldera boundary fault. A trace of the fault scarp is exposed in the head of Kalalau Valley and along the cliffs of the Na pali Coast for two miles northwest of the valley. The block southeast of the faukit was dropped in relation to that northwest of it, and lava flows of the Napali formation were ponded against the ancient fault scarp. The buried fault scarp is exposed over a vertical distance of 2,700 feet at the head of Kalalau Valley.

The second, Wainiha Fault, also runs noirthward from the main caldera, generally following the alignment of Wainiha Valley. Approximately four miles above the mouth of the Wainiha River, the the fault makes an abrupt 70□ bend and from that point to the ocean its course somewhat follows the courses of adjacent streams that are on the northern ends of the ridges east of the canyon are more than 1,000 feet lower than that of the ridges directly opposite them to the west of the canyon (TKC-H 2001:II-2).

1.6.3 Sand

Sand deposits and dunes accumulated closer to the shoreline in the northern

1.7.0 Water.

The water resources that fostered extensive taro cultivation in pre-historic times were further developed during the late 1830s and 1840s by the *konohiki* E. Kekela (Silva 1995:15).

1.8.0 Tsunami.

There is a history of tsunami that have impacted Hā`ena, its terrain, habitation, agriculture and cultural resources including sand dune burials. According to Bennett sand "dunes were probably used as the most convenient location for quick burial and mostly, though not exclusively, used by the common people" (Bennett 1976:26 In Silva 1995:17).

The north coast of Kauai receives the full force of tsunami or 'tidal waves' originating in submarine earthquakes in the North Pacific from Kamchatka to Alaska. Because of the cliffs and steep hills behind the narrow strip of coastal land it is hard for the people to find refuge. Probably there have been many disasters in past centuries comparable to those in recent years (Handy 1972:419 In Silva 1995:20).

Photo 10. Cliffs of Na Pali

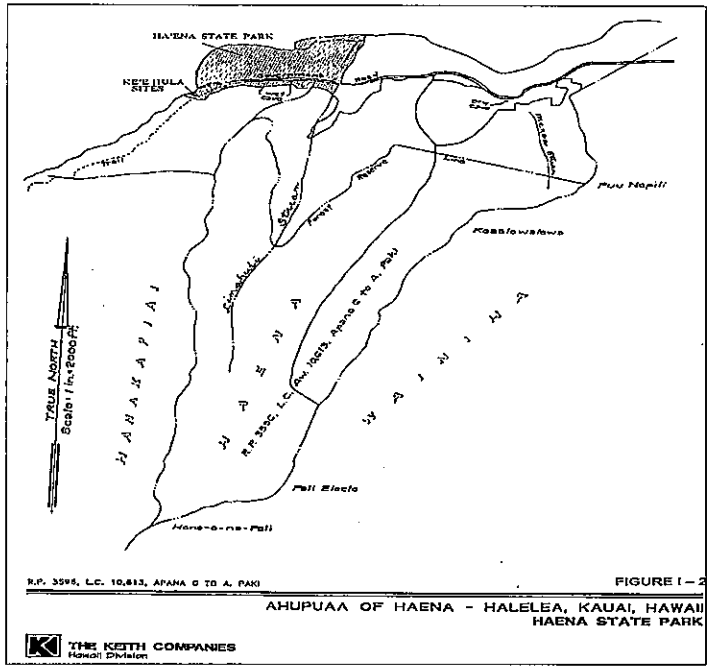

Figure 2. Ahupua`a Map of Hā`ena (The Keith Companies 2001:I-7)

2.0 METHODS

The Hā`ena State Park Cultural Impact Assessment was conducted between the months of September 2008 to April 2009. The study consisted of three phases: (1) cultural and historical archival research (limited literature review) to be primarily compiled by State Parks staff; (2) limited, focused ethnographic survey (oral history interviews), analysis of ethnographic data including past oral histories; and (3) report writing.

2.1.0 Personnel The personnel consisted of (1) the principal investigator-author- ethnographer who has a Masters degree in Anthropology, with a graduate curriculum (archaeology track) that included anthropology theory, cultural resource management, ethnographic research methods, and public archaeology; an undergraduate curriculum background (archaeology track) that included Hawaiian History, Hawaiian Language, Hawaiian Archaeology, Pacific Islands Religion, Pacific Islands Archaeology, Cultural Anthropology, as well as Geology and Tropical Plant Botany; and ethnographic field experience that includes over 340 interviews to date; (2) DLNR State Park staff Lauren Tanaka, Dr. Holly McEldowney and Alan Carpenter who were to be primarily responsible for compiling archival material; and (3) transcribers Carol Kalahiki and Dot Uchima.

2.2.0 Level of Effort. The ethnographic level of effort for this CIA project was a review of past oral histories (Maly 2003; Orr 2008) and a telephone interview of a selected individual at the request of PBR staff.

2.3.0 Theoretical Approach. This study is loosely based on *Grounded Theory,* a qualitative research approach in which "raw data" [transcripts and literature] are analyzed for concepts, categories and propositions. Since this was a limited, focused study, categories were not formalized.

2.4.0 Archival Research. The original plan called for State Parks staff to do the archival research and compile documents, however due to unforeseen circumstances, this was not accomplished. The archival research was based on limited research by the author and reports provided by PBR staff.

2.5.0 Ethnographic Interviewee Selection. The selection of the consultants is based on the identifying people knowledgable (culture/history) about the project area; one person was chosen for a focused telephone interview based on his broad knowledge of the area.

2.6.0 Ethnographic Telephone Interview. After the individual was selected, and contact made, a focused interview was conducted via telephone, basically to share mana`o about the Comfort Station and Wetlands project. Notes were taken and later written up and sent for review via email.

2.7.0 Ethnographic Analysis Process. The analysis process followed a traditional method. Past oral histories were reviewed for information specifically about the project area. This information was cited in the Ethnographic section of the report.

2.8.0 Research Problems. The primary problem was not acquiring the archival material in a timely manner. An equally disturbing problem was not being informed that the Comfort Station was scheduled to be constructed prior to the completion of this CIA.

3.0 CULTURAL & HISTORICAL BACKGROUND REVIEW

The Cultural and Historical Background Review entailed a broad search of primary and secondary source literature over time. The majority of the research material for this section came from the author's private library, which included copies of documents from State Historic Preservation Division library, Bishop Museum archives; Hawaiian Collections of the University of Hawai`i Hamilton Library (Manoa Campus). Primary source material included maps, visitor journals, genealogies and other studies. Secondary source material included translations of 19th century ethnographic works, historical texts, indexes, archaeological reports, and Hawaiian language resources (i.e., proverbs, place names and Hawaiian language dictionary). A review of the archival material is presented in this section, along with a brief overview of the chronology of the Hā`ena District, within the context of the broader history of the *moku `āina* (island) of Kauai and Greater Hawai`i.

3.1.0 Models of Hawaiian Chronology.

Models of Hawaiian Chronology such as Cordy (1974/1996), Hommon (1976/1986) or Kirch (1985) provide a temporal view of settlement patterns as well as cultural changes through time, from initial settlement through first recorded contact with the western world. Cordy's (1974) first model of a cultural development sequence looked at Initial Settlement Period, New Adaptation Period and a Complex Chiefdom Period. He has since modified this model (1996). Hommon's (1976) model of sociopolitical development sequence included four phases: Phase I AD 500-1400; Phase II AD 1400-1550; Phase III AD 1550-1650; and Phase IV AD 1650-1778. This model was later modified (1986) to three phases: Phase I AD 400-1400 Exploration and Settlement; Phase II AD 1400-1600 Expansion; and Phase III AD 1600-1778 Consolidation. Kirch (1985) believed that initial settlement occurred much earlier than AD 600. His cultural-historical sequence model has four phases: Phase I Colonization Period (AD 300-600); Phase II Developmental Period (AD 600-1100); Phase III Expansion Period (AD 1100-1650); and Phase IV Proto-Historic Period (AD 1650-1795) (Kirch, 1985:296-308; Kolb, 1991:205).

For this cultural impact study/assessment, Kirch's (1985) model will be used with the following additions: Early Historic Period (AD 1795-1899), Territorial History (AD 1900–1949), and Modern Historic Period (post AD 1950). The reasoning behind Kirch's model is the belief of many aboriginal Hawaiian people that based on oral histories or legends, the migrations of their Polynesian ancestors to Hawai`i took place prior to AD 700. According to Fornander (1917: IV: II: 406), there are seventy-five generations from Wakea to Kamehameha I who born was around AD 1753. If just eighteen years were allotted to each generation (typically a generation is twenty years) that would make the time of Hawaiian progenitors Wakea and Papa Haumea (who settled in Nu`uanu, O`ahu) approximately AD 403. [McKinzie (1983:12) gives thirty years per generation.]

It should be noted that a study by Tuggle & Spriggs (2001) refutes the 'early colonization' supposition. For decades, the consensus among Hawaiian archaeologists was that evidence from Bellows, O`ahu and Ka`u, Hawai`i Island, supported early Polynesian colonization dates of AD 300 to AD 600 (Tuggle 1979; Kirch 1985). However, Tuggle and Spriggs (2001) have since studied new data and re-evaluated past dates and dating methods and have concluded that acceptable early dates fall within AD 700-1100. These dates appear to coincide with data that eastern Polynesia was settled much later than previously thought (Rolett 1989).

The following overview encapsulates cultural changes over time and highlights significant events and people. More corroborating details follow this overview section with traditional *mo`olelo, mele, oli,* historic works and various studies.

3.2.0 An Overview of Human Impact, Settlement and Socio-economic Development of Kauai in the context of Greater Hawai`i

3.2.1 Colonization Period. First voyager dating is scanty at best, however, based on early site dates from Bellows, O`ahu and South Point, Hawai`i, Kirch (1985) estimated that the Colonization Period of the Hawaiian Islands was somewhere between AD 300-600. It is theorized that these first Polynesian voyagers to Hawai`i followed the flights of migratory birds and traveled mainly by the stars.

Reconstructing the cultural sequence for the district of Hā`ena, Kauai and greater Hawai'i during the colonization period would involve the 'founder effect' and time necessary to adjust and adapt to a new environment. The colonizers were not able to bring all of the gene pool or cultigens from their homeland, so their new culture consisted of what survived the journey, what was remembered and what could be applied to the new environment (Kirch 1985:285-6). When they first arrived they had to modify both their subsistence practices and the land. Faunal remains analyses indicate that early Hawaiian subsistence depended on fishing, gathering, bird hunting (extinct fossil remains, see Olson and James, 1982), as it took time to clear the forests, plant their crops, breed their animals, and construct suitable living quarters.

According to Wichman (2003), Kauai was first settled by descendants of Kumu-honua and Lalo-honua -- thirty-six generations before Papa was born (Wichman 2003:2) -- during the time of Papa and Wakea (second son of Kahiko and Kū-pūlana-kehau) (Wichman 2004:3) who came well before the descendants of Nana'ulu came to Kauai. Wichman's genealogies (2003:117-131) are used as approximate/guiding dates in this report.

> Ho`ohoku-i-kalani [daughter of Papa and Wākea (ca A.D. 530)] gave birth to another son [from Wākea] whom they named Hāloa after his dead brother. From Hāloa, it is said, descend all the Polynesians. Kaua`i historians claim that a younger brother of Hāloa discovered and settled this island. This was Chief Ka-māwae-lua-lani-moku [ca A.D. 555], who traveled to this island with his wife, Kahiki-lau-lani, and her two paddlers Kō-nihinihi and Kō-nahenahe. Because of his good deeds, the great number of his descendants, and the prosperity of his reign, people began to call this island Kau-a`i (*Place of Abundance*)....
>
> Whether Ka-māwae-lua-lani-moku and Kahiki-lau-lani ever lived on Kaua`i is unknown. It is more certain that one day, not too many generations after Papa and well before the descendants of Nana'ulu came to Kaua`i, a voyaging canoe commanded by Kū`alu-nui-kini-akua approached the island from the west. Nothing is known of him except his name and that he had a counselor named Pi`i-`ali`i. The genealogy of the first Kauai settlers is broken, for they lost their lands and identity after a long war to new, vigorous, and more warlike adventurers.... The most famous connected to two almost mythical groups of people, the Menehune and the Mū (Wichman 2003:5).

The first group to settle on Kauai landed at the river mouth of Waimea in the Kona district. What they encountered was an area of abundant water and resources.

> Kū`alu-nui-kini-akua stepped ashore at the mouth of Waimea river. It was an ideal place. There was abundant water from the swift rivers and streams that flowed within a protected canyon complex....There was good soil within the canyon valleys.... As the population increased, settlements spread inward into Waimea canyon and its side canyons, into the valleys of Nāpali along the southern coast to Koloa and northward to Wailua and Hanalei (Wichman 2003 5-7).

It was during this period that Kū`alu-nui-paukū-mokumoku was the ruling chief. His first wife had been murdered by his *kahuna nui* who wanted to go back to their homelands so he married Kahāpula, a chiefess born on the slopes of Pe`ape`a overlooking Hanapēpē Valley. When she became pregnant, Kū`alu arranged for her to live in the remote valley of upper Waimea in order to protect their child. During this time Kū`alu-nui-paukū-mokumoku sent back to his homeland for the Menehune who were masters of stonework and engineering an under his direction they built many *heiau*, fishponds and irrigation systems for wetland farming. The Menehune preferred to live on the ridge between Wainiha and Lumahai valleys (Wichman 2003: 7-10). When his son Ola was of age he was brought to his father. Ola later became the ruling chief of Kauai and it was during his reign that many other works by the Menehune were constructed. However, years later Menehune Queen Mōhihi decided to take her people back to their homelands as the men were marrying Hawaiian women. They marched along the edge of Napili valleys to the plains of Hā`ena where they sailed away to their homeland (Wichman 2003: 8-12).

3.2.2 Developmental Period. During the Developmental Period, AD 600-1100, as the founding groups grew, they fissioned into subgroups referred to as ramages, with the senior male of the original ramage as chief of the conical clan, although hierarchical ranking was not just relegated through the patrilineal line of descent (Kirch 1985:31). Bellwood refers to these groups as tribal and related by blood (Bellwood 1978:31). In *Ka Po'e Kahiko* Kamakau refers to Hawaiian ranking in the following passage:

> For 28 generations from Hulihonua to Wakea, no man was made chief over another. During the 25 generations from Wakea to Kapawa, various noted deeds are mentioned in the traditions and well-known stories. Kapawa was the first chief to be set up as a ruling chief. This was at Waialua, Oahu; and from then on the group of Hawaiian Islands became established as chief-ruled kingdoms - Maui from the time of Heleipawa, son of Kapawa and Kauai from the time of Luanu`u[*]. In [this] time...records (oral) began to be kept of the chiefs; of the day of birth, the land where each was born, the land where each was born, the places where the placenta (*`a`a*) and its navel string (*ewe*) were deposited, the place where the navel cord (*piko*) was cut, the famous deeds of each, and the burial place where each was laid (Kamakau 1964:3).

[*Luanu`u (ca A.D. 1380) was the son of Kama-hano and Ka-`auea-o-ka-lani; grandson of Ahukini-a-La`a and Ha`i-a-Kama`i`o; great-grandson of La`a-mai-Kahiki, foster son of Mo`ikeha (Wichman 2003:39-41). These people could very well have been living in the later part of this period but more likely the early part of the Expansion Period.]

Over time other settlers inhabited all the Hawaiian Islands. Many genealogies of Hawaiian *ali`i* indicate that Nana'ulu and `Ulu (ca A.D. 830) were prominent ancient ancestors who settled all over the Pacific islands.

> Thirteen generations or more than three hundred years after Papa-nui-hānau-moku and Wākea, a chief of Tahiti, Ki`i and his wife, Hina-kō-`ula, became parents of two sons, Nana`ulu and `Ulu. When they were grown, Ki`i asked his sons to go on a voyage of discovery. All memory of the navigational signposts back to their original homeland were forgotten.... Nana`ulu sailed north in his canoe named *Manō-nui* (Great Shark) and found the islands of Hawai`i. The way from Hawai`i to Tahiti was charted. Voyagers came in increasing numbers (Wichman 2003:21-22).

According to Kalākaua (1887/1990), it is likely that when Nana`ulu first landed in the islands, he did not find anyone else. This may be true if they landed on an island not yet inhabited by those from the north islands such as Kauai, Ni`ihau, Necker and Nihoa.

> Nanaula, a distinguished chief, was the first to arrive from the southern islands. It is not known whether he discovered the group [Hawai`i] by being blown northward by adverse winds, or in deliberately adventuring far out upon the ocean in search of new lands. In either event, he brought with him his gods, priests, prophets and astrologers, and a considerable body of followers and retainers. He was also provided with dogs, swine and fowls, and the seeds and germs of useful plants for propagation. It is probable that he found the group without human inhabitants.
>
> During that period--probably during the life of Nanaula--other chiefs of less importance arrived with their families and followers either from Tahiti or Samoa. They came in barges and double canoes capable of accommodating from fifty to one hundred persons each. They brought with them not only their priests and gods, but the earliest of Polynesian traditions. It is thought that none of the pioneers of the time of Nanaula ever returned to the southern islands, nor did others immediately follow the first migratory wave that peopled the Hawaiian group (Kalākaua 1887/1990:19-20).
>
> The descendants of `Ulu spread out over the South Pacific. Among them were extraordinary people who lived such wonderful adventures that storytellers had rich material to develop into entertaining sagas [e.g., Māui-ki`iki`i, `Aikanaka-a-Mako`o, Hina-hānau-a-ka-mālama, twins Puna and Hema].... There were so many astonishing ancestors like these that the genealogists added them all into the `Ulu genealogy (Wichman 2003:23).

Changes occurred during this period that brought about a uniquely Hawaiian culture, documented by the material culture found in archaeological sites. These include quadrangular adze, bone fishhook variations, *`ulu maika* (a game piece) stones, *lei niho palaoa* (necklace of bone or ivory and human hair worn by high ranked chiefs) and evidence of shifting cultivation. Kauai developed a unique form of poi pounder such as *pōhaku ku`i poi* (ring and stirrup pounders), double-grooved stone club heads, and a broad anvil *kapa* beater (Wichman 2003:6).

> On Kauai there is evidence of ancient connections with the southern islands of Central Polynesia not found on the other islands of Hawaii.... Differences are seen in the stone implements that were once used on Kauai, in styles of heiau, in language, and in the stories of the Menehune. Long considered a mythical people of Kauai, in reality the Menehune were a distinct people of an ancient time. Among the stone implements common to Kauaians were two types of poi pounders restricted almost exclusively to that island.... The two Kauai types are the ring and stirrup pounders.... A discovery of significance was made in recent years on the island of Uahuka in the northern Marquesas when an "ancestor" stirrup pounder was discovered there. It is estimated, through radiocarbon dating that it was in use at sometime between A.D 600 and 1300. This type of pounder had been found only on Uahuka and Kauai (Joesting 1984:19).

The evidence also indicates that the "ancestral pattern of corporate descent groups" were still in place at this time (Kirch 1985:302-3). The early culture evolved as the population grew, and many of the changes were related to significant socio-economic changes.

> For thirteen or fourteen generations the first occupants of the Hawaiian Islands lived sequestered from the rest of the world, multiplying and spreading throughout the group. They erected temples to their gods, maintained their ancient religion, and yielded obedience to their chiefs. The traditions of the period are so meager as to leave the impression that it was one of uninterrupted peace, little having been preserved beyond the genealogies of the governing chiefs (Kalākaua 1887/1990:20).

> In about A.D. 1025 or perhaps a little earlier, the people of the group were suddenly aroused from their long dream of six centuries by the arrival of a large party of adventurers from Tahiti. Their chief was Nanamaoa. Their language resembled that of the Hawaiians and their customs and religions were not greatly at variance. They were therefore received with kindness, and in a few years their influence began to be felt throughout the group. They landed at Kohala, Hawaii, and Nanamaoa soon succeeded in establishing himself as an influential chief. His sons secured possessions on Maui and O`ahu, and on the latter island one of them--Nanakaoko--instituted the sacred place called Kūkaniloko, in the district of Ewa, where it was the desire of future chiefs that their sons should be born.... This became the sacred birth-place of princes', as `Iao, in Wailuku valley, on the island of Maui, became their *taboo* spot of internment. It was at Kukaniloko that Kapawa, the son of Nanakaoko, was born. His principal seat of power was probably on Hawaii, although he retained possessions on Maui and O`ahu (Kalākaua 1888/1990:70-71).
>
> But stronger leaders were soon to follow from the south. Among the first was the high-priest Paao, from Samoa [some say it was Society Islands]. He arrived during the reign of Kapawa, the grandson of Nanamaoa, or immediately after his death. The people were in an unsettled condition politically, and Paao, grasping the situation, either sent or returned in person to Samoa for Pili, a distinguished chief of that island. Arriving with a large following, Pili assumed the sovereignty of the island of Hawaii and founded a new dynasty. Paao became his high priest, and somewhat disturbed the religious practices of the people by the introduction of new rites [*luakini* or human sacrifice] and two or three new gods [Kūka`ilimoku] (Kalākaua 1887/1990:20-21).

Kamakau (1991) says that there were seventeen generations during which Hawai`i Island was without chiefs--some eight hundred years. "The lack of a high chief was the reason for seeking a chief in Kahiki, and that is perhaps how Pili became the chief of Hawai`i" (island) (Kamakau 1991:101-102).

The Pa`ao/Pili influence created a major shift in "religion" and socio-economic patterns. Pa'ao brought with him the Kū practice of human sacrifice, used in monumental *luakini heiau* or war temples. Pili started a line of *ali'i nui* that would continue to the Kamehameha "dynasty." The evolution of the *luakini heiau* is difficult to place archaeologically, and although the arrival of Pa'ao may have been a real event; the uniqueness and complexity of *heiau* were most likely a local (Hawaiian) development (Kolb 1989:3).

> Two voyaging canoes set out from Tahiti fifteen generations after Nana`ulu and arrived on O`ahu and Kaua`i. Maweke and Paumakua settled peacefully on O`ahu and quickly became ruling chiefs of a district of that island (Wichman 2003:23).
>
> [According to Kalākaua (1887/1990)] The next arrivals of note [after Nanamaoa] from the southern islands were the two Paumakua families, one of which settled in Oahu and Kauai and the other in Hawaii and Maui....The Paumakua family, which became so influential in Hawaii and Maui, arrived during the early part of the reign of Pili, in about A.D. 1090. A large party accompanied the family, and they brought with them their gods, priests, astrologers and prophets. They first landed and secured possessions on Maui, but the sons and other relatives of Paumakua were brave and ambitious, and soon by conquest and marriage secured an almost sovereign footing both in Maui and Hawaii (Kalākaua 1888/1990:71-72).
>
> At the same time, Puna-nui-ka-`āina, whose genealogy has not survived, arrived on Kauai, having come, most likely, from the Marquesas Islands. Puna-nui-ka-`āina arrived when the chief with the deadly riddles, Ka-iki-pa`a-nānea, was ruler of Waimea. The newcomer chose to settle along the banks of the Wailua river. This land came to be

called Puna. There were now two chiefdoms on Kaua`i, Puna and Kona (Wichman 2003:23).

Newcomers were soon changing the socio-political structure of the island polities. There were attempts by some of the prominent families to join forces, but to no avail. Kalākaua (1888/1990) explains:

> At that time Kamauaua, a powerful chief of the ancient native line of Nanaula, held sway over the island of Molokai. He proudly traced his ancestry to the first migration in the sixth century, and regarded with aversion and well-founded alarm the new migratory tide which for years past had been casting upon the shores of the islands a flood of alien adventurers, whose warlike and aggressive chiefs steadily possessed themselves of the fairest portions of the group. He had sought to form a league of native chiefs against these dangerous encroachments; but the wily invaders, with new gods to awe the native nobility, had, through intermarriage and strategy rather than force, become the virtual rulers of Hawaii, Maui, Oahu, and Kauai, and he had abandoned all hope of seeing them supplanted. Molokai alone remained exclusively under native control, and its resolute old chief had from their infancy instilled into his sons a hatred of the southern spoilers and a resolution to resist their aggressions to the bitter end (Kalākaua 1888/1990:71-72).

3.2.3 Expansion Period. The Expansion Period, AD 1100-1650, is significant for a number of reasons. Communication between the Hawaiian groups and southern groups suddenly ceases in the latter part of this period and oral histories don't offer any explanations. With the exception of Molokai and a portion of O`ahu who were of the Kamuauaua and Maweke (ca A.D. 1230) families from the Nana`ulu lines, all the others were of the southern chiefs and their descendants (Kalākaua 1887/1990:21-22). Most of the "ecologically favorable zones," the windward and coastal areas of all major islands, were now settled, and the more marginal leeward areas were being developed.

Legends reveal that during the 12th century, several Hua chiefs reigned on Maui. Huanuikalalailai is the grandfather of Haho [Haho is the son of Paumakua (ca A.D. 1255) who is buried in `Iao; Haho also founded the *Aha-alii* (Kalākaua 1888/1990:84-85)]; Haho is the grandfather of the famous Hāna twins Hanala`anui and Hanala`aiki who become the progenitors of the *ali`i nui* of Hawai`i Island, Maui, Molokai, Lāna`i, as well as O`ahu and Kaua`i (McKinzie 1983: *xx*).

A story or *mo`ōlelo* of a southern adventurer winning the heart of a chiefess takes place on Kauai in the early part of this period, when Hina-`a-ulu-a, daughter of Puna-`ai-koā-i`i (son of Puna-kai-`olohia and grandson of Puna-nui-ka-ia-`āina, the first Puna chief of Wailua, Kauai), chooses newcomer Mo`ikeha (ca A.D. 1280) over other local suitors. Puna-`ai-koā-i`i, in order to be fair, designed a contest where the suitors had to swim to the island of Ka`ula off the southwest of Kauai, to retrieve a *lei paloa*. An advantage Mo`ikeha had was that his companion La`a-maomao, was owner of a calabash that kept all the winds of the world.

Mo`ikeha's genealogy indicates that he came from the Nana`ulu line down to Muleialii, son of Maweke. Maweke was a chief of a voyaging canoe from the south (Kahiki) who arrived in the islands two generations earlier and settled on O`ahu and became a ruling chief (Wichman 2003:24-29). Muleialii had three sons and a daughter: Kumuhonua, who succeeded his father as ruling chief of Oahu; Olopana, who married a chiefess from Kohala and ruled Waipi`o Valley on Hawaii Island; Moikeha, who became the first ali`i aimoku of Kauai; and daughter Hainakolo, who married Keanini, but later left him to stay with her brother Olopana in Waipi`o where she died (Wikipedia; Fornander 1969). Mo`ikeha's wife, Hina-`a-ulu-a gave birth to her three sons at

the *heiau* Holoholokū, constructed for Mo`ikeha by orders of his father-in-law Puna-`ai-koā-i`i. From then on all *ali`i nui* on Kauai were born at the birthing stones there (Wichman 2003:24-29) [see Appendix D. Kauai Alii Aimoku].

During the early part of this period (ca A.D. 1305) the three sons of Mo`ikeha were settled on three different islands, O`ahu, Hawai`i and Kauai.

> Ho`okamali`i, the oldest, moved to O`ahu to become the ruling chief of the Kona district and settled on the plains of `Ewa. Kila went to Waipi`o on Hawai`i.... Haulani-nui-ai-ākea remained on Kaua`i, where on Mo`ikeha's death, he became *`ali`i nui* [Mo`ikeha's bones were taken to Ra`iātea by La`a-mai-Kahiki, his foster son]. Haulani-nui-ai-ākea proved to be an unsatisfactory *`ali`i nui.* Other Kaua`i chiefs, under the leadership of Ke-oloewa-a-Kamaua, deposed their unfit ruler. Ke-oloewa-a-Kamaua was a Moloka`i chief married to one of Maweke's granddaughters.... Haulani-nui-ai-ākea was easily overthrown. When Ke-oloewa-a-Kamaua refused the throne, Kila was asked to come to Kaua`i and take over as *`ali`i nui*...his heart was not on Kaua`i. He placed the highest ranking *ali`i* in the family, the beautiful Ka`ili-lau-o-ke-koa, as paramount chief, returned to his canoe and sailed to Ra`iātea to remain the rest of his life (Wichman 2003:35).

The advisors of Ka`ili-lau-o-ke-koa wanted her to marry Ke-li`i-koa, the Kona (Kauai) chief, but she declined. A lot of intrigue followed this decision along with attempted murder. This led to several centuries of war between the Kona and Puna chiefdoms. It was during her reign that Ka`ili-lau-o-ke-koa organized the women of Wailua to fight in the battle instigated by the Kona chief Ke-li`i-koa, who was eventually killed by Ka`ili-lau-o-ke-koa with her *pīkoi* (tripping club). Sadly, Ka`ili-lau-o-ke-koa died later without any heirs. The chiefdom was offered to Ahukini-a-La`a (ca A.D. 1305-1355), the oldest son of La`a-mai-Kahiki (ca A.D. 1305); followed by his son Kama-hano (ca A.D. 1330-1380), then his son Lu`anu`u (ca A. D. 1355-1405) (Wichman 2003:36-41).

Lu`anu`u (ca A.D. 1355-1405), grandson of Ahukini-La`a (ca. A.D. 1305-1355), was named after the grandfather of Ki`i, father of `Ulu and Nana`ulu. He was a good chief and was greatly admired in spite of the continuing wars with Kona--references to him indicate a close relationship to Kona. During the time of Lu`anu`u there was a great warrior named Palila, son of Ka-lua-o-pālena and Maihi-iki. He was taken at birth and raised by his grandmother Hina in a sacred temple of Alana-pō where he was trained very well. Later he helped his father defeat Kona chief Ka-maka-o-ka-lani on the plains of Koloa. Shortly after, a messenger from the ruling chief of O`ahu arrived asking for Palila's help. Palila had many adventures on O`ahu and Hawai`i and later became the ruling chief of Hilo (Wichman 2003: 44-47).

> Kūkona (ca A.D. 1380-1430) [son of Lu`anu`u] inherited an island at war and left it united as one kingdom. From then on, the legends of the Kona kingdom were seldom told and the genealogies of the first settlers were forgotten.... Kūkona's *ali`i wahine* was Lau-puapua-ma`a and they had twin sons, Mano-ka-lani-pō (ca A.D. 1405) and Palekaluhi. When Kūkona became *ali`i nui* (ca A.D. 1405) of Puna, the Kona chief was Makali`i-nui-ku-a-ka-wai-ea. He had been at the royal court of O`ahu for many years and several times had fought in battles against Kama-pua`a.... Makali`i-nui-ku-a-ka-wai-ea had been sent by Kama-pua`a to the royal court with the bad news of defeat. Eventually Makali`i-nui-ku-a-ka-wai-ea returned home to Waimea and organized his own force. Makali`i-nui-ku-a-ka-wai-ea's army included the father and older brother of Kama-pua`a (Wichman 2003:47-48).

Kona and Puna forces met once more in battle in Koloa. After a stalemate the two kingdoms merged with Kūkona as the *ali`i nui* (ca A.D. 1405). To insure the success of this situation, Nae-

kapu-lani, the daughter of Kona's Makali`i-nui-ku-a-ka-wai-ea was married to Mano-ka-lani-pō (ca A.D. 1405-1455), son of Puna's Kūkona, merging the districts of Kona and Puna. Kūkona became the 7th Ali`i Aimoku of Kauai.

A legend (Skinner 1902:212-216) tells about a Japanese vessel wrecking on Maui in the 1200s (according to Wichman's dates it was in the 1400s). The captain and his sister marry into *ali`i nui* families, but what is most significant about this story is the metal sword that the Captain had. During this period the *ali`i nui* of Hawai`i Island was Kalaunui [Ka-lau-nui-o-Hua] who had subdued Maui [Ka-malu-o-Hua] and Molokai [Ka-haku-o-Hua] and on O`ahu [Hua-i-pou-leilei] a great fight ensued. In the battle the Captain fought bravely with his sword, but was finally struck down by a warrior named Kaulu, son of Waahia, a seer of great renown. Rather than turn the sword over to the Hawai`i king, Kaulu buried it on the spot. He later retrieved it and put it into his mother's (Waahia) care before the Hawai`i contingency headed for battle on Kaua`i [where Kūkona (ca A.D. 1380-1430) was the ruling chief].

In the *Battle of Kawelewele,* the Hawai`i warriors were overcome and defeated before they could even land their canoes, by the sling stones and javelins of the Kūkona's Kaua`i warriors. The Hawai`i king Ka-lau-nui-o-hua was taken prisoner and the kings of Maui [Kamaluohua -it was during his reign that the light-skinned people arrived in Wailuku, Maui], Molokai [Kahakuohua] and O`ahu [Huaipouleilei] who were hostages of Ka-lau-nui-o-hua were set free.

Kaulu escaped with a remnant force only to be accused by the queen of cowardice. In the negotiations for the release of Kalaunuiohua, the queen offered several things: a fleet of canoes with many spears, twenty feather cloaks with stone axes, ivory and whalebone; but these were all rejected. The last resort was to offer her daughter in matrimony to the king of Kaua`i. This too was rejected. After three years and unsuccessfully trying to get an army together, the queen of Hawaii Island was ready to give up. This is when the seer, Waahia asked for an audience at court. She explained that she alone could rescue the king, but the court had to grant whatever her wish was when they returned. They agreed and Waahia left Hawai`i Island with a single oarsman for Kaua`i. They arrived during Makahiki festivities and Waahia got an audience in the Kauai court. Her offer was the Japanese sword "that was harder than stone, that broke spears like reeds, that gave its owner supreme fortune and supreme command." The offer was accepted. Before the release of Kalaunui, Waahia had him agree that his release was contingent on him giving his daughter to her son in marriage. This too was agreed on [see also Wichman 2003:49-52].

> Once Kaua`i was united as one kingdom and was free from any threat of invasion from its windward neighbors, attention was focused on the development of a solid political system based on land division. The paramount chief ruled the entire island, owned all the land, and had the power of life and death over the people, *ali`i* and *maka`āinana* alike. To help him govern, the *ali`i nui* chose a *kalāimoku* (prime minister, land manager) to advise him on all practical and civil matters. The royal establishment was kept at Wailua, although there was also a permanent home at Waimea.... Kaua`i was divided into six *moku* (districts), which were governed by an *ali`i` aimoku,* each carefully chosen for his loyalty and close relationship to the ruling chief. The largest district was Kona, the former kingdom centered at Waimea, followed in size by Puna, [then] Koolau...between Makaleha mountains and the [northeast] sea...[that] had a teeming reef along its shores. Halele`a, with its spectscular mountains and waterfalls, and Nāpali of the western-facing valleys surrounded by two-thousand-foot cliffs and open ocean, are the most spectacular. The island of Ni`ihau was populated from Kauai during the years of sufficient rainfall and abandoned when the drought beset it (Wichman 2003:53-54).

> The genealogy of Kaua`i *ali`i* was considered the most ancient and impeccable in all the Hawaiian islands. *Ali`i* from other islands were eager to introduce the Kaua`i bloodline into their own.... A chiefess would live with a Kaua`i chief for a time, bear one or more children, then send the chief on his way, leaving his bloodline and genealogy to mingle with those of her own family on Maui and Hawai`i. Marriage to the O`ahu families was commonplace for Kaua`i chiefesses. It was a peaceful kingdom that Mano-ka-lani-pō inherited and helped to create. He ruled over the Golden Age of Kaua`i history (Wichman 2003:55).

It was during the reign of Mano-ka-lani-pō [b. ca 1430], that the Mū-ai-mai`a people who were living on the edges of Alaka`i swamp at the top of Wainiha Valley, lost their *kahuna nui.* They sent their *kilokilo* (reader of omens) to find a successor. He went to *heiau* Hānai-ma`a in Hā`ena where the three gods of Kahiki (Nā-maka-o-ke-ahi, Hānai-ma`a and Kaunu) had landed during the time of La`a-mai-Kahiki. While there a local fisherman asked him to be his *kilo i`a* (fish spotter), so he abandoned his mission until the *kahuna* for Mano-ka-lani-pō reminded him. After spending time at the Wailua royal court and several other adventures, the *kilo kilo* saw Kāne-huna-moku, the homeland of the Mū people off the shores of Miloli`i Valley. He led his people to the beach of Maniniholo in Hā`ena and when the island of Kāne-huna-moku came into view, the Mū-ai-mai`a people left Kauai just as the Menehune had done before (Wichman 2003:56-57).

It was also during the reign of Mano-ka-lani-pō that legends say that huge voyaging canoes came from Samoa with sisters who were accompanied by several female attendants. These flaming-haired sisters became the subject of poets who created sagas of the sisters who were viewed as the goddesses Kapō-`ula-kina`u (goddess of hula, poison, black sorcery and healing mental diseases), Pele (fiery goddess of volvanoes) and Hi`iaka (also goddess of hula). Most of their attendants were married off to Kauai chiefs. Pele went to Kē`ē in Hā`ena where she met Lohi`au, brother of Limaloa the *konohiki* of Mānā who married Kapō-`ula-kinau's companion Moe-ha`una. Pele fell in love with Lohi`au; she dug a cave at Hā`ena for them, but it filled with water. Pele left Kauai promising Lohi`au that she would return. After a period of time she sent her younger sister Hi`iaka-i-ka-poli-o-Pele to fetch him. However, in his longing and despair for Pele he hung himself in a cave above Kē`ē beach and was guarded by two mo`o sisters, Kilioe and Aka who refused to let Hi`iaka enter so she turned them to stone. She restored Lohiau and took him to Hawaii to see Pele who had broken her promise to Hi`iake to spare her forests and friends. In anger Hi`iaka embraced Lohi`au. In anger Pele covered him with lava. Hi`iaka was persuaded by her brothers to spare Pele even though they felt Pele was wrong. Hi`iaka left Hawaii for Kauai vowing never to see Pele again. Her brothers restored Lohi`au and brought him to Kauai; there Lohi`au and Hi`iaka were reunited and spent the rest of their lives at Hā`ena (Wichman 2003:56-59).

This was also the period of the greatest population growth, the development of large irrigation field system projects, and dry land farming. The uniquely Hawaiian invention, the *loko* or fishpond aquaculture, was developed in the fifteenth century or the later half of this period (Kirch 1985: 303). Monumental *heiau* building flourished in this Period, as "religion" became more complex. Other monumental building included irrigation ditches or *auwai* such as the Pi`ilani *Auwai* in Lahaina, Maui and the Menehune Ditch in Waimea, Kauai.

During the last 200 years of the Expansion Period, the concept of *ahupua`a* (land division) was established, as well as class stratification, territorial groupings, powerful chiefs and *"mo`i"* or king (Kirch 1985:303-6). Most prominent during this period was Liloa and Umi of Hawai`i Island; Kawaokalole, Pi`ilani and his children Lono-a-Pi`ilani, Pi`ikea and Kiha-a-Pi`ilani of Maui; Kakuhihewa and Ku`alii of O`ahu; and Ka-lani-kukama, Kamakapu and the beginning of the Kawelo line of *ali`i nui* on Kauai.

Mano-ka-lani-pō died peacefully and was succeeded by his oldest son Kau-maka-a-Mano [b. ca 1455] who had married Kapō-inu-kai – she had come to Kauai on the voyaging canoe with Kapō-`ula-kina`u; they had only one son Ka-haku-a-Kāne [b. ca 1480] who may have been named after one of the sons of Kumuhonua, older brother of Mo`ikeha. Ka-haku-a-Kāne, like many of his ancestors, visited the other islands. On one trip to Maui, he married Kapō-nae-nae, sister of Maui Mo`i Kahekili I (father of Kawaokaohele, grandfather of Pi`ilani). They had two children: Ka-hekili-a-Kāne (his granddaughter married Lono-a-Piilani, oldest son of Pi`ilani) and Kū-o-nā-mau-a-ino. Ka-haku-a-Kāne then returned to Kauai and he married Mano-kai-ko`o who like Ka-haku was a grandchild of Mano-ka-lani-pō; they had a son Kū-walu-paukū-moku [b. ca 1505] who married Hame-a-Waha`ula, possibly a descendant of Pā`ao (Wichman 2003:59-63).

Their son Kahakumakapaweo [b. ca 1530] was a contemporary of Pi`ilani of Maui, Liloa of Hawaii and Kūkaniloko of O`ahu. He married Ka-haku-a-kuka-'ena and they had three sons: Kaile-lalāhai, `A`a-nui-kani-a-weke, and Ka-lani-kukuma [b. ca 1555] who succeeded him (Wichman 2003:63). Ka-lani-kukuma married Kapo-lei-kauila, lineal descendant of Haulani-nui-ai-akea of the Maweke-Kumuhonua ohana of Oahu; they had two sons, Ka-haku-maka-lina [b. ca 1580 – 14th Alii Aimoku & sacred kapu chief] and `Ili-hewa-lani [chief of Waimea, Kauai] (Wichman 2003:67).

It was during the time of Ka-lani-kukuma that the Legend of Pāka`a gets its start. When `Umi-a-Liloa's son Keawe-nui-a-`Umi was born he was placed in the care of Kū-a-Nu`uanu, a close advisor of the chief. After many years Kū-a-Nu`uanu decided to go traveling and came upon Kapa`a where he met chiefess La`a-maomao [named after her ancestor who helped Mo`ikeha] whom he married; she had inherited the calabash of the winds. After six months, word came that Keawe-nui wanted Kū-a-Nu`uanu to returned to Hawai`i and his duties. Kū-a-Nu`uanu gave his pregnant wife a white *malo* and a cape woven of *kalukalu* grass; if the child was a boy she to give the items to the child who would then search for his father. When the child was born he was named Pāka`a as his father requested. After a time he traveled with Ka-lani-kukuma, learning the ways of the chiefs. On one of the journeys they went to Waip`io Valley on Hawai`i Island and there he met up with his father who trained him as *`iwi kua mo`o* of Keawe-nui-a-`Umi (Wichman 2003:63-65) [the legend is long and can't be continued here].

Ka-haku-maka-lina succeeded his father and it was during his time that Lono-i-ka-maka-hiki [Hawai`i Mo`i] arrived on Kauai, having just defeated and slain Kama-lālā-walu [Maui Ruling Chief, son of Kiha-a-Pi`ilani and Kumaka of Hana] who invaded Hawai`i; he was looking for the trunkless koa tree, which he found in Halele`a after much searching and hardship (Wichman 2003:67-68). On one of his travels to neighbor islands, Ka-haku-maka-lina met and married `Akahi-`ili-kapu, daughter of Umi-a-Liloa; they had two children on Kauai: a daughter Koihalauailaua who bacame wife of Keawe-nui, Hawai`i Island Mo`i and a son Ke-li`i-ohiohi. For an unknown reason Akahi-`ili-kapu returned to Hawai`i Island with her two children [who later married into the Hawai`i `Umi-a-Liloa line]. Ka-haku-maka-lina then married Ka-haku-mai`a and they had a son Kama-kapu [b. ca 1605] who succeeded him. Kama-kapu married Pa-wahine and had a son Kawelo-maha-maha-ia [b. ca 1630] [Wichman 2003:70; Wikipedia-Kahaumakapaweo].

At this time Kā-kuhi-hewa [he was born ca. mid to late 1500s at Kū-kani-loko, Oahu] was an old man, but still ruling chief of O`ahu. He chose as his fourth wife, Kauai chiefess Ka-hā-malu-`ihi (also called Ka-lua-o-Ho`ohila) who had many powerful *kānāwai* (she was the daughter of Kawelo-`ehu (k) and maternal descendant of `Ili-hiwa-lani, second son of Ka-lani-kukuma). However, Kā-kuhi-hewa died shortly thereafter and she married his son Kāne-kapu-a-Kā-kuhi-

hewa who succeeded Kā-kuhi-hewa as ruling chief of O`ahu; they were the great-grandparents of Kūali`i (Wichman 2003:70-71).

Mo`olelo* about events that took place in the early to mid 1600s were revealing in that they illustrate that many of the battles of this period were relatively quickly contained by the opposing *ali`i. These stories also illustrate the on-going inter-relationships between the families of the various islands. In *History of Kualii*, the exploits of Kualii [great-great grandson of Kakuhihewa (ca. A.D. 1580/Oahu)] take him to every island and he eventually unites all the islands "from Hawai`i to Ni`ihau" (Fornander 1917: IV: II: 364-434).

3.2.4 Proto-Historic Period. The Proto-Historic Period, AD 1650-1795, appears to be marked with both intensification and stress. Many wars took place during this time between intra-island chiefdoms and inter-island kingdoms, although life with Kauai *ali`i nui* was somewhat peaceful.

Kawelo-mahamaha-i`a was considered one of the great *ali`i nui* of Kauai; the land prospered, peace prevailed and the population and wealth increased. He married the High Chiefess Ka-pōhina-o-kalani/kapoko and had three sons and two daughters: Kawelo-maka-lua (k) [b. ca 1655], Kaweloikiakoo (k), Kooakapoko (k), Ka-`awihi-a-kalani (w) and the Malaiakalani (w). His son Kawelo-maka-lua [b. ca 1655], succeeded him as king of Kauai where he ruled from the royal residence of Wailua. He married his sister Ka-`awihi-a-kalani and they had twin *ni`aupi`o* sons Kawelo-pe`ekoa (who was taken by the *kahuna* to be raised in seclusion) and Kawelo-`ai-kanaka [b. ca 1680] who succeeded his father. However, he was later usurped by his cousin Kawelo-a-Maihunalii/Kawelo-lei-makua (who was born the same day), son of Malaiakalani, his mother's sister [daughters of Kawelo-mahamaha-ia].

Kawelo-lei-makua (Kawelo) was exiled by his cousin Kawelo-ai-Kanaka (`Aikanaka) who humiliated Kawelo whenever he could, yet grew tired of Kawelo's teasing and pranks. Kawelo found refuge with his ohana -- Kaihikapu-a-Kakuihihewa in Ewa, Oahu, who gave him land bordering on Kolekole Pass in the Waianae Mountains (Halemanu). In time he obtained both men and canoes to invade Kauai and make war on his cousin, `Aikanaka. Kawelo's only wife was Kāne-wahine-ikiaoha, daughter of Kalonaikahailaau [Koolau chief]; they had a daughter, Kaneikaheilani, who became the wife of Kaaloapii, a Ka`u chief of Hawaii Island and grandmother to Ha`alou, one of the wives of Kekaulike of Maui and to Kamakaeheukuli, one of the wives of Kameeiamoku, a Hawaii chief and grandson of Lonoikahaupu (Wichman 2003; Fornander 1969 in Wikipedia). The war between the cousins proved to be very costly for Kauai.

Word got to Kawelo via his uncles that `Aikanaka stripped his parents of their lands and threw them off the top of Hā`upu; they wanted Kawelo to return to Kauai and wage war on `Aikanaka. After a long battle that took many lives, `Aikanaka was defeated by Kawelo, his wife Kāne-wahine-iki-aoha and his younger brother Ka-malama. Kauai now belonged to Kawelo who gave his wife Halele`a; Ka-malama took over the Kona district; his adopted son Ka-lau-meki was given Ko`olau; his other adopted son Ka-`ele-hā-o-Puna stayed with Kawelo to manage Puna. Kauai was at peace once again, but not for long; Ka-`ele-hā-o-Puna fell in love with `Akanaka's daughter and he betrayed Kawelo and killed his brother Ka-malama by stabbing him in the back. Kawelo killed both `Aikanaka and Ka-`ele-hā-o-Puna, but later is thrown over the Hanapēpē cliffs by his followers who had grown fearful of him and his obsession with hunting down `Aikanaka's family (Wichman 2003:75-86).

It was during this period that the *Royal Kolowalu Statute* or Kuali`i's Law was enforced. Kualii Kuniaakea Kuikealaikauaokalani (ca A.D. 1655?-1730) lived for a long time, was said to sometimes have supernatural powers, and was the first to "unite" all the islands. Kū-ali`i

acquired Kaua`i (ca A.D. 1680) after the deaths of cousins [Kawelo had ceded Kaua`i to Kū-ali`i should they both die in battle there. Kū-ali`i was a descendant of the Kawelo line on his grandmother's side—she was the daughter of Kawelo-mahamaha-i`a.] Kū-ali`i went to Kaua`i and declared himself *ali`i nui* and installed his son Pele-iō-hōlani (ca A.D.1680-1755+) as governor (Wichman 2003:89).

> It (Kuali`i's Law) was strict, unvarying and always just. It was for the care and preservation of life; it was for the aged men and women to lie down in the road with safety; it was to help the husbandmen and the fishermen; to entertain (morally) strangers, and feed the hungry with food. If a man says, "I am hungry for food," feed (him) with food, lest he hungers and claims his rights by swearing the *Kolowalu* law by his mouth, whereby that food becomes free, so that the owner thereof cannot withhold it; it is forfeited by law. It is better to compensate.... A transgressor or one who is about to die, is, under the application of this law exonerated of his death or other penalty... (Fornander 1917: IV: II: 432).

Kū-ali`i, *ali`i nui* of O`ahu, died at Kailua in Ko`olaupoko in AD 1730, supposedly at the age of one hundred and seventy five. His son Pele-iō-holani became the ruler of O`ahu.

> When Pele-iō-hōlani left Kaua`i to pursue his destiny as the future ruler of the O`ahu kingdom, he left his daughter Ka`apuwai as governor of Kaua`i. She was the first chiefess since Ka-`ili-lau-o-ke-koa, some centuries before, to become paramount ruler. She was married to Ka-`ume-he-iwā, a high chief of Kaua`i. They were both descended from Ka-lani-kukuma, and their marriage joined the junior and senior genealogical lines that stemmed from their common ancestor, thus giving their daughter Ka-maka-hele a stronger *mana* than either of her parents (Wichman 2003:92).

In 1736, Maui *ali`i nui* Kekaulike died. He chose his *ni`aupi`o* son Kamehameha-nui to be his heir, though Ka`uhi`aimoku-a-Kama was the oldest, he was of a slightly lower rank.

> Alapa`i sailed from Kohala on Hawai`i with a great company of chiefs of Hawai`i, his war leaders, warriors, and the district chiefs of the island...but when he landed at Mokulau in Kaupō and heard that Ke-kau-like was dying, he gave up all thought of war and wished only to meet Ke-kau-like and his (half) sister Ke-ku`i-apo-iwa-nui. He heard that Kamehameha-nui had been chosen ruler over Maui and he had no desire to make war upon his sister's child (Kamakau 1992:70).

In 1737 and 1738 a couple of great battles took place in the districts of Lahaina and Kā`anapali. Kauhi-`aimoku-a-Kama (Kauhi), oldest son of Ke-kau-like rebelled against his younger brother, Kamehameha-nui. "Near the house of David Malo is a breadfruit tree on which the first victim of the battle was laid. There the fighting men of Kamehameha-nui were slaughtered." This prompted Kamehameha-nui to flee to his uncle's canoe, big island *ali`i nui* Alapa`i-nui-a-Ka-uaua (Alapa`i), who took him to Hawai`i island where they spent a year preparing for war. Alapa`i was the half-brother of Kamehameha-nui's mother (Kamakau 1992:73-74).

When Ka-uhi heard that Alapa`i was heading back to Maui, he enlisted the help of his uncle, Pele-i`ō-hōlani, Kaua`i *ali`i nui*, ruling chief of O`ahu, son of Kū-ali`i and cousin of Alapa`i. Alapa`i attacked Maui (A.D. 1738), drying up the streams of Kaua`ula, Kanaha and Mahoma near Lahainaluna, destroying the taro patches. His men kept guard over the streams of Olowalu, Ukumehame, Wailuku and Honokawai (sic). "When Pele-iō-hōlani heard that Alapa`i was in Lahaina he gathered all his forces at Honokahua and at Honolua. At Honokawai (sic) an engagement took place between the two armies, and the forces of Alapa`i were slaughtered and fled to Keawawa." Pele-iō-hōlani had 640 men to Alapa`i's 8,440. The cousins once again came face to face in Pu`unene and decided to once more opt for peace between the families.

Kamehamehanui ruled Maui in peace; Pele-iō-hōlani retired to Molokai, and Alapa`i went back to rule Hawai`i (Kamakau 1992:74).

About AD 1755 Kaua`i's rule went to Ka-maka-helei, granddaughter of Pele-iō-hōlani.

> Ka-`apuwai died before her father [Pele-iō-hōlani], and the government of Kaua`i passed to Ka-maka-helei...[who] owed allegiance to her grandfather Pele-i`ō-hōlani.... Her first husband was a Kaua`i chief, Kiha, and with him she had three children: first a daughter, Lele-māhoa-lani, then a son, Keawe, and finally another daughter, Ka-lau-i-pihana. Then Pele-i`ō-hōlani sent his grandson Ka-neoneo to Kaua`i to ensure the island would remain loyal to him. Ka-neoneo and Ka-maka-helei were first cousins, and soon Ka-maka-helei put Kiha aside and took Ka-neoneo for her husband (Wichman 2003:92-93).

A few years later, around AD 1759, High Chief Kalani'opu'u from the Island of Hawai`i made war on East Maui and conquered Hāna from *ali'i nui* Kamehameha-nui, brother of Kalola and Kahekili (Kamakau 1992:81-82). Kamehameha-nui relinquished Hāna and lived in peace in West Maui with his wife and half-sister, Namahanaikaleleonalani. In 1766 the peaceful Maui *ali'i nui* died. After ruling Maui for 29 years, Kamehamehanui was taken ill at Kawaipapa, Hāna on a journey about the island. While still in Hāna, Kamehamehanui ceded his lands and rule to his younger brother Kahekilinui'ahumanu (Kahekili), a fierce warrior and "manipulator" (Kamakau, 1992:82-84; Kame'eleihiwa 1992:47). During this period the socio-political intrigue continued to affect all islands including Kaua`i.

> On O`ahu, Kūmahana, who was Pele-i`ō-hōlani's regent, proved himself to be an entirely unsatisfactory ruler. The O`ahu chiefs rebelled against him and sent Kūmahana, his wives, and children into exile on Kaua`i. Pele-i`ō-hōlani returned posthaste from his skirmishes against Kahekili on Maui to renew his claim to O`ahu. Kahekili...took this opportunity to lead his forces once again against those of Pele-i`ō-hōlani. After several battles, Kahekili was victorious. To consolidate his rule, he married his sister Kalola to Ka-lani-`opu`u of Hawai`i in the hopes that he would either help by sending men and arms or at least, remain indifferent to the situation.... From O`ahu, Pele-i`ō-hōlani sent Ka-neoneo to join him to help stem Kahekili.... This left Ka-maka-helei vulnerable. Although she was the nominal ruler of Kaua`i, her uncle Kūmahana began to make his moves to take over her government (Wichman 2003:93).

> Kahekili...was quick to realize the opportunity this presented to neutralize Kaua`i. He sent his young half-brother Ka-`eo-kū-lani to Kaua`i to woo Ka-maka-helei. Ka-`eo-kū-lani was successful...since she was nine years older than Ka-`eo-kū-lani, she did not expect to bear any more children, and her oldest son, Keawe, was named heir to the kingdom.... By this time, all of Maui, Moloka`i and Lāna`i were under the rule of Kahekili who had succeeded in taking them from Pele-i`ō-hōlani. He was gearing up for an invasion of O`ahu where Pele-i`ō-hōlani, now a very old man, had turned over the government to his grandson Ka-neoneo (Wichman 2003:93-94).

In 1775 Kalani'opu'u, son of Ka-lani-nui-i-a-mamao (*Kumulipo* composed for him) and his forces in Hāna raided and severely destroyed the neighboring Kaupō district, before continuing several more raids on the islands of Molokai, Lāna`i , Kaho'olawe and parts of West Maui. He returned again in 1776 and for several years later, raiding and treating the *maka'āinana* cruelly. The Alapa, the fierce fighting men of Kalani`opu`u, were defeated; only two men escaped. The chiefs and fighting men of Kalani`opu`u wanted to continue; Ka-hekili prepared for the "great battle" which took place on the sand hills between Waikapu and Wailuku; Ka-hahana, now ruling chief of O`ahu and Molokai came to his aid. Kahekili eventually stopped that war and made peace at the request of his sister Ka-lola, but a few years later Kalani`opu`u once again sailed to ravage the lands of Maui and Lāna`i. It was during this war that Kamehameha I, nephew of Ka-

lani-ʻopuʻu was noticed as a great and brave warrior by both sides.

In January 1778 Cook landed in Waimea, Kauaʻi and the culture of old Hawaiʻi began its spiraling change (Day 1992). Fishermen off of Koloa, Kauaʻi first saw the ship *Discovery* and rushed to tell Kauaʻi *aliʻi nui* Ka-maka-helei and Kaʻeo-kū-lani. The *kahuna nui* Kū-ʻohu declared "that can be nothing else than the *heiau* of the god Lono. In the center is the tower of the demi-god Ke-o-lewa, and there in the back is the place of sacrifice at the altar" (Wichman 2003:94; see also Kamakau 1961:92-96). However, after several days of observation the *kahuna* concluded that these were not gods, but men. He said they were like the two white priests who had come to the islands when Paumakua was living and they were like the *haole* Kū-aliʻi had seen on his travels less than a hundred years earlier (Wichman 2003:94). According to Captain Clerke, he was visited by a young chief named Kaneoneo; up to this time "no chief had come to see either Clerke or Cook" (Beaglehole 1967:38 In Kikuchi et al 1978:8). According to Wichman (2003) and Kamakau (1961:93-96) Ka-neoneo was now on Oʻahu, replaced by Kaʻeo-kū-lani as husband of Ka-maka-helei, granddaughter of Pele-iʻō-hōlani.

> [Ka-maka-helei] sent three men on board to see what this strange ship really was and to asses those on board.These three were *kahuna* Kūʻohu, wearing his *lei palaoa* (necklace of woven human hair holding a hook of carved whale ivory), chief Kāne-a-ka-hoʻowaha, and chief Kiʻi-kīkī who was Kaʻeo-kū-lani's trusted man who had come with him from Maui.... Captain Cook gave Kūʻohu a dagger, a gift beyond price. It was the first gift from Western civilization to Hawaiʻi, and it was considered an omen.... Kiʻi-kīkī reported back to Kaʻeo-kū-lani and described the dagger. Ka-pupuʻu, one of the guards surrounding Kaʻeo-kū-lani...went out to the ship and saw quantities of iron things just lying about on deck. He grabbed as many pieces as he could and threw them into his canoe. One of the ship's guards raised his rifle and shot Ka-pupuʻu dead. He was the first Hawaiian to die by a bullet....
>
> Some chiefs thought that Captain Cook should be put to death for killing Ka-pupuʻu but the *kahuna* Kūʻohu said "No they were not to blame...Kapupuʻu was to blame, for he went to steal even though our *aliʻi nui* had forbidden it." The following day Captain Cook came ashore for the first time. His longboat landed at the mouth of the Waimea River, on the beach of Luhi beside Lāʻau-ʻōkala Point. He was greeted by a huge crowd of people pushing and shoving to get a look at this...living god come among them. People had come from Nāpali, Mānā, and Kīpū like a rushing stream during the night.
>
> Captain Cook wandered about Waimea for a time before returning to his ship.... Ka-maka-helei presented gifts to Cook: hogs, chickens, bananas, taro, sweet potatoes, sugarcane, yams, fine mats, and tapa cloth. In return Cook presented them with cloth, iron, a sword, knives, bead necklaces, and mirrors. Then Ka-maka-helei offered Cook her own daughter, Lele-mahoe-lani. According to the Kauaʻi source of this story, she spent the night on board with Cook. She left the following morning laden with presents (Wichman 2003:95-96).

Cook also gave the chiefs some goats (Beaglehole 1974:677 In Mills 1996:72), sheep and a new breed of pigs (Joesting 1984:199). After visiting Hawaii Island Cook left Hawaiʻi for several months, but returned later in the year. Kalaniʻopuʻu was fighting Kahekili's forces in Wailua, Maui on November 19, 1778 when Cook's ship was sighted on his return trip to the islands. Kalaniopuʻu visited Cook on the *Resolution*, while Kahekili visited Clerke on the *Discovery* (Kuykendall and Day 1976:16). When Cook sailed into Kealakekua Bay on January 17, 1779, Kalaniʻopuʻu was still fighting Kahekili on Maui. At this time Kahekili's brother, Kaeo was ruling chief of Kauaʻi [co-ruler with Ka-maka-helei, granddaughter of Pele-iʻō-hōlani]; Kahekili's nephew Ka-hahana of Oʻahu and Molokai; Kalaniopuʻu of Hawaiʻi and Hāna [East Maui]; and

Kahekili of West Maui, Lānaʻi and Kahoʻolawe (Kamakau, 1992:84-86, 92, 97-98). On January 25th Kalaniopuʻu visited Cook again at Kealakekua Bay, presenting him with several feather cloaks. By February Cook's scheme to kidnap Kalaniopuʻu as a hostage were thwarted and Cook was killed following a skirmish over a stolen cutter (Kuykendall and Day 1976:18). His ships and crew visited Kauai once more (1799) after Cook's death. A battle had taken place the day before and warriors had been killed. It was also evident that venereal disease had spread throughout the island as a result of their first visit to the island (King 1967: part 2:585-586 In Mills 1996:78).

On Kauai:

> In 1780, Ka-maka-helei gave birth to another son, Ka-umu-aliʻi. The situation on Maui grew uncomfortable for Kahekili. He sent a message to his brother Ka-ʻeo-kū-lani to return to Maui. Ka-ʻeo-kū-lani brought his two trusted counselors, Kiʻi-kīkī and Kai-ʻawa with him. Ka-umu-aliʻi, his son with Ka-maka-helei, was declared heir to Kauaʻi, passing over his older half-brother, Keawe (Wichman 2003:96-97).

The warring between the Hawaiʻi and Maui forces continued. On his way to Kona from Kaʻu, Kalaniʻopuʻu was taken ill. He went instead to Kaʻiliki'i at Waioʻahukini in Pakini where he died in January 1782. In 1781 a few months before the death of Kalani'opu'u, when Kahekili heard how ill Kalaniopuʻu was, he split his forces and sent them through the south-eastern Kaupō Gap and the north-eastern Koʻolau Gap into Hāna. After damming and diverting the supply of spring water to Puʻu Kauʻiki, the Hawaiʻi chiefs were finally defeated, and the Maui *aliʻi nui* regained control of Hāna in 1782 (Kamakau, 1992:84-86; 110, 115-116; Fornander 1900: Vol II 146-7, 150, 216).

Kahekili reclaimed Hāna, then through war and trickery went on to gain control of all the islands except Hawaiʻi (Kamakau 1992:116, 128-141).

> The Oʻahu chief [Ka-hahana, nephew and foster son of Kahekili] was living in Nuʻuanu Valley above Honolulu when he received word that Ka-hekili had landed on the beaches with a large fleet of war canoes and was gathering his warriors about him for an attack on the defenders of Oʻahu. In January 1783, a decisive battle was fought. Kaʻ-hekili's wife, Kau-wahine, who was also a noted fighter, took part in this battle.... Confusion seized the ranks; the warriors of Ka-hahana were dispersed while he and his wife fled to the forest. Thus, Oʻahu and Molokai were taken by Ka-hekili.... [However] fighting erupted on his home island of Maui among minor chiefs...[along with] the growing threat from Hawaiʻi.... Kahekili's son and designated heir, Ka-lani-kū-pule, was dispatched to Wailuku to prepare for the coming attack. Ka-lani-kū-pule took with him Maui's war leaders and Ka-hekili's best warriors, the battle-scarred veterans of the war on Oʻahu (Speakman 2001:40-41).

In early 1790 when Captain George Vancouver made his first stop in the Hawaiian Islands he was told that Kalaniopuʻu was dead; Hawaiʻi was ruled by Keoua Kuahuʻula (half-brother of Kiwalaʻō), his uncle Keawe-mau-hili, and Keoua's cousin, Kamehameha (Day 1984:77). Vancouver went on to trade with Kalanikūpule in Waikīkī. He then found that the ruling chief of Kauaʻi, Ka-umu-aliʻi, was a mere child; his father Kaʻeo was on Maui with Kahekili. Vancouver also noted a decrease in the population and the number of chiefs since the arrival of Cook (Kamakau 1992: 162-163), but foreigners continued to arrive.

In spite of the on-going battles, the foreign explorers and merchants were not deterred; foreign vessels continued to come to the islands.

> By 1790 several other foreign ships also visited the islands, helping to establish them as a "familiar resort for the fur traders" and as a "port of call and wintering place – for those engaged in the more general trade which grew up between Asia and the west coast of North and South America." These voyagers included English Captains Portlock, Dixon, and Meares and French naval vessels under the command of La Perouse.... Because of their excellent harbors and strategic location nearly equidistant from the coasts of the Orient and North America, the Hawaiian Islands quickly became a primary stop on the Pacific trade routes. These islands contained more cultivated land than most of the other Pacific islands, forming "an oasis in the ocean desert" (Greene 1993: Chap II).

By 1790 Kamehameha I had gained enough control of the island of Hawai`i from his uncles and cousins that he could leave to join the war parties on Maui. His canoe fleet "beached at Hāna and extended from Hamoa to Kawaipapa" to battle Kalanikūpule, son of Kahekili (who now ruled from O`ahu). After several battles along the East Maui coast, Kamehameha's forces reached Wailuku where the "great battle" took place. This would be the beginning of the end of independent ruling chiefs because of the inequity of battle strategy and weaponry. Kamehameha had brought a cannon from the *Eleanora* along with her captain, Isaac Davis and crewmember John Young, who were now his *aikane punahele* (favorites) and advisors (Kamakau 1992:147-148). This battle of 1790 was known as the *Battle of Kepaniwai* where the bodies of fallen warriors dammed `Īao Stream in Wailuku or "water of destruction" (Engebretson 2000:2).

> While Kamehameha was at Wailuku with his followers he heard of Ka-lola's being on Molokai with her daughters and granddaughter and he sent word by Kikane for her not to proceed to O`ahu as he was coming to escort her to Hawai`i. He sailed with a great company, among them Ke`eaumoku, Keawe-a-heulu, Ka-me`e-ia-moku, and Ka-manawa, the brothers of Ka-lola, and landed at Kaunakakai. They met Ka-lola at Kalama`ula and, when Kamehameha saw how ill she was and of an incurable disease according to kahuna's diagnosis, he asked, "Since you are so ill and perhaps about to die, will you permit me to take my royal daughter and my sisters [Ke-opu-o-lani, her mother Ke-ku`i-apo-iwa and aunt Ka-lani-hau-io-kikilo] to Hawai`i to rule as chiefs?" Kalola answered, "If I die, the girl and the sisters are yours." Then Kamehameha and all the chiefs waited until the death of Ka-lola [widow of Ka-lani-`opu`u; sister of Kahekili, aunt of Kamehameha I and highest ranking *ali`i*] (Kamakau 1992:149).

While Kamehameha was on Molokai waiting for the passing of Kalola, *kapu* chiefess of Maui, he sent two messengers to O`ahu; one to Kahekili and one to find the Kaua`i *kahuna* Kapoukahi of the *kahuna* order Hulihonua, as he was skilled in the art of reading omens and signs. It was Kaua`i *kahuna* Kapoukahi who advised that if Kamehameha wanted to rule over all the islands that he should build a great *heiau* at Pu`ukohola at Kawaihae (Kamakau 1992:149-150).

While on Molokai Kamehameha heard that his cousin Keoua Kuahu`ula, Ka`u chief, had waged war on other chiefs of Hawai`i Island and had killed Keawe-ma`u-hili, the Hilo chief who had aided Kamehameha in the Maui battle, in spite of an agreement with Keoua that he wouldn't "fight the sons of Kahekili." Keoua took over Hilo then went on to Waipi`o where he destroyed the fishponds and plundered the taro patches and robbed the people from Waipi`o to Waimea, then went on to ravage Kohala. Kamehameha returned to Hawai`i Island from Molokai and proceeded to wage war on Keoua. Several battles later, both sides could not gain an upper hand. Although Keoua's warriors seized the muskets of Kamehameha, they didn't have the powder to make them work. It took an act of nature or the goddess Pele to turn the tide as Keoua's army was annihilated by a volcano eruption (Kamakau 1992:151-152).

In the meantime, Ka-`eo-kū-lani, ruling chief of Kaua`i and brother of Kahekili, heard what happened to his nephew Kalanikūpule on Maui and how they narrowly escaped death. He heard "how the waters of `Īao had been choked with the bodies of the slain in this war." He was so upset that he decided to wage war against Kamehameha (Kamakau 1992:148, 159). The shift in warfare style that Kamehameha started during the *Battle of Kepaniwai* in Wailuku, Maui continued.

> [Ka-`eo-ku-lani] set out with [nephew] Pe`ape`a, son of Kamehameha-nui, his counselor of war, Ki`ikiki`i, Kai-`awa, and chiefs, warriors, and paddlers, all well armed with muskets and weapons of all kinds, and with his two man-eating dogs. (He also took with him) Maka`eha and Mr. Mare Amara [foreigner], a man skillful in the use of arms who acted as his gunner (Kamakau 1992:159).

On O`ahu Ka`eo met up with his brother Kahekili, ruling chief of O`ahu, Maui, Molokai and Lāna`i and persuaded Kahekili to join him in the war against Kamehameha. Kahekili left his son Kalanikūpule in charge of O`ahu and left for Molokai.

> The war party landed at Kaunakakai on Molokai, and when the Kaua`i chief saw for the first time, by the ovens they had left, the size of the camp which Kamehameha had occupied he said, "Where a big squid digs itself a hole, there crab shells are heaped at the opening." Upon their reaching Maui...the army camped at Wailuku and at Waiehu the Kaua`i chief remarked, "Here is the land of the warrior to whom Kamehameha owes his kingdom (alluding to Ke`eaumoku whose wife Namahana, brought him the land of Waiehu).... Waiehu fell to Ki`iki`i and it was, alas! The Kaua`i people who ate the poi of Waiehu.... Kahekili gave some of the land of Maui to the ruling chief of Kaua`i to be divided among his men.... This caused discontent among the chiefs of Maui, who had thus to lose some of their land, and they rose against the Kaua`i chief. A battle was fought at Paukukalo adjoining Waiehu while some of the people were out surfing (Kamakau 1992:159-160).

It is not clear what happened right after that battle because what follows is Kahekili leaving Maui with his warriors from Kaupō; while Ka`eo sails for Hawai`i with his warriors from Hāna. However, they both land in Waipi`o and Ka`eo keeps his vow and "wantonly destroyed everything in Waipi`o" including the sacred places and the tabu threshold of Liloa...not even Keoua who has passed through there the year before and destroyed the land and the food, had made such wanton destruction" (Kamakau 1992:160). Kahekili in the meantime goes on to Halawa in Kohala where fighting occurs, then sails from Halawa and joins Ka`eo in Waipi`o. When Kamehameha hears about Ka`eo and Kahekili, he sails with John Young and Isaac Davis and meets up with Ka`eo and Kahekili at Waimanu cliffs. The battle of 1791 called *Kepuwaha`ula*, was a stand-off with loss to both sides. Kahekili left and returned to Maui (Kamakau 1992:161-162).

Kamehameha decided to take the advice of the Kaua`i *kahuna* Kapoukahi and build a *heiau* at Pu`ukohola. Kamehameha personally helped to construct the *heiau* Pu`u Koholā in the summer of 1791, to assure his victory over his cousin, Keoua Kuahu`ula, son of his father's older brother. Messengers were sent to Keoua to ask him to come to the *heiau* so that there would be peace between the cousins. Keoua left Ka`u with a fleet of twenty-seven canoes. As he sailed into Kawaihae Bay at Mailekini, Ke`eaumoku thrust a spear at Keoua, which he dodged, snatched and thrust back. Suddenly muskets were fired from the shore, leaving Keoua and all the others from his canoe dead. The rest of Keoua's warriors were spared when Kamehameha declared the law of the broken paddle [*Mamalahoa*] (Day 1984:77; Kamakau 1992:154-157).

Vancouver returned to Hawai`i Island in February 1793 to find all the chiefs wanting guns and powder. Instead he gave Kamehameha a bull and heifer from California and asked that all the chiefs stop fighting. In March he sailed to Lahaina and saw Kahekili who was now an old man. He also asked Kahekili to stop the fighting. Kahekili said that "it was not right for the chiefs of Hawai`i to raid Maui and rob and pillage without cause." He told Vancouver he should stay and guard him against further wars. Vancouver went on to O`ahu to see Kalanikūpule, then to Kaua`i before going to North America. It was the last time Vancouver saw Kahekili who died later that year at the age of eighty-seven, after becoming ill and returning to Waikīkī, O`ahu. His bones were carried by his twin brothers Ka-me`e-ia-moku and Ka-manawa and hidden in a secret cave in Kaloko, North Kona. His gods were Ku-ke-olo-ewa, Kuho`one`e-nu`u, Kalai-pahoa, Ololupe, Kameha`ikana, Kala-mai-nu`u, Kiha-wahine, Haumea and Wali-nu`u (Kamakau 1992:164-166).

On Vancouver's third visit to the islands in 1794, Kamehameha I was ruling chief of Hawai`i; Ka`eo was ruling chief of Maui, Molokai and Lāna`i; Kalanikūpule of O`ahu and Ka-umu-ali`i of Kaua`i. Then Ka`eo got tired of Maui and wanted to go back to Kaua`i. Not knowing what his uncle's plans were, Kalanikūpule prepared for war. A few skirmishes and reconciliations took place that year on O`ahu, but as Ka`eo prepared to embark to Kaua`i from West O`ahu he discovered a conspiracy among some of his chiefs, principally his two counselors Ki-kīkī and Kai-`awa, who were planning to throw him overboard in mid-ocean. He decided it was better to die in battle, then alone in the ocean so he dismantled his canoe and proceeded to make war on Kalanikūpule. Ka`eo won a couple of skirmishes, but in the end was defeated in Ai`ea by Kalanikūpule who was aided by foreign vessels in Pearl Harbor, guarding the shores with guns and cannons. Ka`eo died in mid-December 1794 (Kamakau 1992:168-169).

The captain and some of his crew of the foreign vessels were then tricked and killed. Kalanikūpule confiscated the vessels and munitions with the intention of sailing to Hawai`i to overtake Kamehameha. Just one day out they all got seasick and had to return to Waikīkī with Kalanikūpule and his wife still on board. The foreigners sailed off during the night, but put Kalanikūpule and his wife aboard a canoe and let them go back to O`ahu. The foreigners then sailed for Hawai`i Island to tell Kamehameha what happened and to give him all the munitions on board (Kamakau 1992:170-171).

Demographic trends during the Proto-Historic Period indicate a population reduction in some areas, yet show increases in others, with relatively little change in material culture. There was a continued trend in craft and status material, intensification of agriculture, *ali`i* (chief) controlled aquaculture, upland residential sites, and oral records [*mo`olelo*] from that period were rich in information. The Ku cult, *luakini heiau*, and the *kapu* (restriction or regulation) system were at their peak, although Western influence was altering the cultural fabric of the islands (Kirch 1985:308, Kent 1983:13). By 1794 American, English, Irish, Portuguese, Genoese, and Chinese foreigners were living in the islands (Day 1992:23-25). Between 1778 and 1794 at least 21 ships from various countries had visited Kaua`i for provisions and to trade (Mills 1996:68).

3.2.5 Early Historic Period. The Early Historic Period (AD 1795-1900) is marked by very significant events. Kamehameha left Hawai`i Island in early 1795 and landed in Lahaina, taking over all the food patches and cane fields before leaving for Molokai where the "whole coast from Kawela to Kalama`ula was covered by canoes. There on Molokai he awaited for the proper time to sail for O`ahu, where the chiefs and warriors of Kalanikūpule were slaughtered.... In the *Battle of Nu`uanu* O`ahu, Molokai, and Lāna`i were conquered" (Kamakau 1992:170-171). Kamehameha took Keku`iapoiwa Liliha and Kalanikauiaka`alaneo to O`ahu to witness this battle

of Nu`uanu Pali and the defeat of O`ahu. It was during this trip that Kalanikauiaka`alaneo was given the name Ke`ōpūolani (Klieger 1998:21).

During this Early Historic Period, "between one hundred and two hundred foreigners lived in the islands.... Hardly a ship touched without leaving a deserter or two behind.... A white man automatically ranked as a chief, although he could not own land in fee simple or build a permanent house...[and] they took Hawaiian wives" (Day 1992:25).

In 1802 and 1803, Kamehameha I and his court resided in Lahaina where he had a two-story brick house built (Alexander 1953:63). Lahaina became the capitol of the islands (except for Kaua`i). This was short-lived, however, as Kamehameha I moved to Honolulu in 1803 (Klieger 1998:22). In 1802 on the island of Lāna`i a Chinese man named Wong Tze Chun is believed to have been the first person to mill sugar cane (WSC 1962:7); he came to Hawai`i as part of the sandalwood industry. In 1803 the first horses landed in Hawai`i from California (WSC 1962:7).

Hawai`i's culture and economy continued to change radically as capitalism and industry established a firm foothold. In 1810, Kaua`i *ali`i nui* Ka-umu-ali`i ceded his kingdom of Kaua`i, Ni`ihau, Lehua and Ka`ula to Kamehameha (see more C-3) although Ka-umu-ali`i continued to have autonomy over the island. At this time the sandalwood trade in Hawai`i was flourishing; the Fijian and Marquesan supply of sandalwood was exhausted. Sandalwood came under the personal control of Kamehameha I, who had become "a fervent consumer of high-priced western goods." The sandalwood industry was thriving to the point where the subsistence levels declined, as farmers and fishermen spent most of their time logging, causing famine to set in (Kent 1983:17-20). Hawai`i became known as "Tan Heong Shan" or the "sandalwood mountains" to entrepreneurs of Southern China, who first came as early as 1794 in search of this prized wood (WSC 1962:41).

Although white men from various countries stayed over in temporary houses, it wasn't until 1816 when a large structure (80 x 100 meters) was constructed, primarily under the supervision of employees of the Russian-American Company (RAC), on the eastern banks of the Waimea River; it was known as *Hippo* or *Fort Elizabeth*—made of stone and adobe apparently with the help of Kaumuali`i's wives and over 300 "native Hawaiians" (Mills 1996:145). Before its completion the employees of the RAC were expelled from the island; the fort was then completed by Kaumuali`i, who had "acquired one of the most important symbols of European power" (Mills 1996:149, 151). However, Kamehameha continued to exercise his suzerainty by collecting tribute from Kauai in the form of sandalwood, hogs and vegetables (Mills 1996:153).

On May 8, 1819, Kamehameha I died at Kamakahonu, Kailua, Hawai`i Island. Following his death, his son and heir Liholiho banished the *kapu* system at the advice of his queen mother Keōpūolani and queen regent Ka`ahumanu (Kamakau, 1992:210, 222). On October 1819, seventeen Protestant missionaries set sail from Boston to Hawai`i. The missionaries arrived in Kailua-Kona on March 30, 1820, to a markedly changed culture; one with a "religious" void and a growing appetite for western products. They brought George Humehume, the 21-year old son of Ka-umu-ali`i, who had been living in the United States since he was six or seven--sent there by his father so he could receive an education (Mills 1996:155). Humehume finally returned to Waimea, Kaua`i in May, 1820 where his father Kaumuali`i and the queen Debra Kapule, primarily resided. Kaumuali`i gave Humehume the district of Waimea, including *Hipo* (Damon 1925:205-206, In Mills 1996:160). Shortly after arriving Humehume married Betty, a daughter of Isaac Davis whom he met on Hawaii Island (Mills 1996:163).

The missionaries quickly started missions on all of the islands, at the objection of the trading community (Mills 1996:158). In 1820 Lahaina was proclaimed the capital of Hawai`i; this lasted until 1845 (Wisecarver 1983:18) when the court moved to Honolulu. Ka`ahumanu, the *kuhina nui* of Kamehameha II (Liholiho) was not automatically a convert to Christianity, however, when she finally embraced it, it was with tremendous zeal. Missionary Bingham (1847:162) wrote an entry in his journal in 1822:

> Kaahumanu with husband made tour of windward islands with a large retinue, including sister Namahana [II], her brother-in-law Laanui...and while on this pleasure-seeking tour, searched out and destroyed many idols. On the 4th of June, she sent for Kalaipahoa, the so-called poison deity, and caused it to be publicly burnt, with nine other images. On the 26th of the same month, one hundred and two idols, collected from different parts of Hawai`i, where they had been hidden 'in the holes of the rocks and caves of the earth,'... [were] committed to flames.

In 1821 Liholiho paid a visit to Kaua`i, intending to resolve the issue of his sovereignty over all the islands. Kaumuali`i met him at Waimea, making a pledge to him the same as he had done to his father; he offered Liholiho the fort, his vessels, his munitions and even the island. Liholiho told him to keep the island. But Liholiho did take one of Kaumuali`i's wives. After spending a couple of months on the island, Liholiho invited Kaumuali`i onto his ship. When they had settled on board, Liholiho gave his men a signal to set sail, thus "kidnapping" Kaumuali`i. A few after they arrived on O`ahu, Ka`ahumanu married her cousin, Kaumuali`i (Mills 1996:171-172) [her mother was the half-sister of his father]. Ka`ahumanu, then married one of Kaumuali`i's sons, cementing her position of power. Kaumuali`i died a few years later in 1824 (Mills 1996:173).

In August 1824, after Ka`umuali`i's death, a skirmish took place at Fort Elizabeth that included his oldest son George Humehume who was married to a daughter of Isaac Davis. He wanted revenge and felt that his father had been poisoned. Kalanimoku had arrived to check on Kauai and was faced with some opposition. He sent back to Oahu for reinforcements; they came led by Maui governor Hoapili, a former warrior and counselor to Kamehameha I, whose warriors were more experienced and had more weapons. The rebel warriors, including George Humehume, held a position overlooking Hanapepe Valley. They were subsequently outnumbered and defeated by the forces of Hoapili. George, with his wife and infant daughter fled to the mountains on horseback. They were later captured and shipped off to Oahu, where he died two years later at age twenty-nine (Joesting 1984:104-111).

In the 1820s and 1830's other industries such as whaling, merchandising and sugar crept into Hawai`i. "For the first time Hawaiian masses were drawn to a cash economy as workers and producers." By 1825 most of the powerful chiefs/cheifess' had become Protestant Christians. In the 1830s, first sugar plantation was established on Kaua`i in 1836 (Kent 1983:22, 23, 29). The 1840s heralded other changes as well. The Hawaiian government, with the aid of the missionaries, encouraged the sugar industry as well as other enterprises such coffee, cotton, rice, potatoes, and silk worms (Speakman 2001: 93).

In the mid-1840s a political act of the Hawaiian Kingdom government would change forever, the land tenure system in Hawai`i and have far-reaching effects. The historic land transformation process was an evolution of concepts brought about by fear, growing concerns of takeovers, and western influence regarding land possession. King Kamehameha III, in his mid-thirties, was persuaded by his *kuhina nui* and other advisors to take a course that would assure personal rights to land. One-third of all lands in the kingdom would be retained by the king; another one-third would go to *ali`i* as designated by the king; and the last one-third would be set aside for the *maka`ainana* or the people who looked after the land [native tenants or *kuleana* lands]. In 1846

he appointed a Board of Commissioners, commonly known as the Land Commissioners, to "confirm or reject all claims to land arising previously to the 10th day of December, AD 1845." Notices were frequently posted in *The Polynesian* (Moffat and Kirkpatrick, 1995). However, the legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Kirkpatrick 1995:48-49), known today as *The Great Mahele*. In 1850, the Kingdom government passed laws allowing foreigners to purchase fee simple lands (Speakman 2001:91).

In1846 there were only eleven mills in Hawai`i manufacturing sugar and molasses; two on Kaua`i, three on Hawai`i Island and six on Maui (WSC 1962:10). The whaling industry was at its peak between 1846 and 1860 with almost 600 ships reaching Hawai`i ports in one year. But the late 1850s saw a decline in the whaling industry with the discovery of oil in Pennsylvania, the Civil War, and the sinking of at least forty whale ships by the Union to block the harbors; as well as the early freeze in the Bering Strait in 1871 which trapped thirty-three ships. Although the crews escaped, five hundred Hawaiian sailors returned home penniless (Speakman 2001:88-89).

Disease had a devastating affect on the population and the landscape, killing *ali'i* and *maka'ainana* alike; measles epidemics in 1848 and 1849, were followed by the horrendous smallpox epidemic in 1852-1853. Ten thousand people are said to have died of this disease in Hawai`i (Kamakau, 1992:411, 418). John Papa `I`i in *Fragments of Hawaiian History* (1984) talks about the impact of this disease and as *kahu* or guardian of several young *ali`i*, he had to take several of them off of O`ahu island. They just kept sailing from island to island and usually were not allowed to land as O`ahu was thought to be the source of the smallpox.

By 1858 at least 2,119 foreigners lived in Hawai`i. Many were merchants who traded with whalers, while the missionaries lived in various locations throughout the islands. The foreigners also included one hundred and eighty Chinese contract laborers from Hong Kong (Speakman 2001:109). Some "foreigners engaged in agricultural pursuits with the idea of reaping a profit from the land, in contrast with the Hawaiians, who carried on...subsistence agriculture" (Coulter 1971:11).

The U. S. Civil War of the 1860s brought about a boost for the sugar industry in Hawai`i as sugar plantations in the South were boycotted or destroyed (Speakman 2001:91-96). The rise in the number of plantations brought about a radical change in both the population in general, and the number and ratio of foreigners to native Hawaiians. As more and more labor was needed to accommodate the expanding industry, plantations sought laborers from several countries.

> Statistics...show that far from being unsuited to plantation labor, or considered inefficient workers, Hawaiian labor was considered the best obtainable by many planters. As late as 1869 some plantations employed Hawaiian labor exclusively.... 'The true reason why there is a dearth of Hawaiian labor is the increase of the planting interests from some 2,000,000 of pounds in nine or ten years to 18 or 20,000,000, requiring from eight to ten times as many men now as then.' This source found more Hawaiians employed in such labor than ever before, and statistics for that year (1873) showed that out of 3,786 laborers employed on thirty-five plantations, 2,627 were Hawaiian men and 364 were Hawaiian women.... Nevertheless, the population decline was palpable and became a matter of public concern for the kings and their advisors, of the Hawaiian legislature, and of the sugar planters.... Immigration of labor from China and Japan [filled] the population and labor gap...it was from these two countries that the largest contingents of immigrants came, though supplemented by Caucasians, including Portuguese, and Filipinos, Koreans, Puerto Ricans, Germans, Pacific Islanders and many others.... In that period the population rose from 55,500 in 1876 to 154,000 in 1900. The following table (Table 1) shows the changes in percentages (Speakman 2001:107-108):

	1876	1900
Hawaiian & Part-Hawaiian	89.2%	26.0%
Caucasian	6.3%	17.5%
Oriental	4.5%	56.5%

The Overthrow of the Hawaiian Kingdom government in 1893 and the subsequent annexation to the United States in 1898 (Daws 1974:289-290) heralded even more radical changes to the Hawaiian culture and to the local landscapes.

3.2.6 Territorial History (AD 1900-1959). In 1900 Hawai`i had a population totaling 154,000 of whom only 29,799 were pure Hawaiians, 7,857 part-Hawaiians and the rest of 116,244 consisting of many other races (Wisecarver 1983:13). This period saw Native Hawaiians running for Congress (Daws 1974 297); and much of the lands being sold in fee simple. The Organic Act was effective on June 14, 1900 and Hawai`i became a Territory of the United States; in 1901 the first Territorial Legislature convened and passed the first income tax law (WSC 1962:26). In the 1940s, World War II also had some lasting influence on lives and industries as young men left the islands by the hundreds, for the front lines abroad.

3.2.7 Modern History (AD 1950-). Post World War II brought about an influx of people and industries to Hawai`i, allowing the tourism industry and offshoot enterprises to flourish. Along with the rise of the tourism industry, and competing sugar markets abroad, the sugar companies saw a sharpening decline in business (the Sugar Acts of 1934 and 1937, and ILWU Strike of 1946 didn't help). 1950 marked the introduction of radiocarbon analysis which shifted the focus of study in archaeology to excavation as a primary method of data recovery, with a research focus on settlement patterns, subsistence, land and marine use. The 1950s and 1960s were the bleakest years for the sugar industry and it was becoming apparent that the sugar industry was beyond salvage (Kent 1983:107-108). More changes were soon to take place on the landscapes of Hawai`i.

In the 1960s, various federal and state environmental and historic preservation laws and regulations were passed, mandating surveys and impact studies of the landscape, prior to development. In 2000 Hawai`i Legislature passed an EIS amendment resolution which the governor signed as Act 50. This legislation has broadened the scope of environmental impact studies to include cultural impact studies to assure that traditional Hawaiian and other ethnic cultural practices are not adversely impacted, as vacant sugar fields give way to the ever-growing populations and expanding tourist and real-estate industries.

3.3.0 Traditional Literature

The ethnographic works of the late 19th and early 20th century contribute a wealth of information that comprise the traditional literature--the *mo'olelo, oli,* and *mele*--as well as glimpses into snippets of time, and a part of the Hawaiian culture relatively forgotten. The genealogies handed down by oral tradition and later recorded for posterity, not only give a glimpse into the depth of the Hawaiian culture of old, they provide a permanent record of the links of notable Hawaiian family lines. The *mo'olelo* or legends allow *ka po'e kahiko*, the people of old, the *kupuna* or ancestor, to come alive, as their personalities, loves, and struggles are revealed. The *oli* (chants) and the *mele* (songs) not only give clues about the past, special people, and *wahi pana* or legendary places, they substantiate the magnitude of the language skills of *na kupuna kahiko* (the people of old).

3.3.1 Genealogies. *Po'e ku'auhau* or genealogy *kahuna* (masters) were very important people in the days of old. They not only kept the genealogical histories of chiefs "but of *kahunas*, seers, land experts, diviners, and the ancestry of commoners and slaves.... An expert genealogists was a favorite with a chief." During the time of 'Umi (ca. AD 1500-1600s) genealogies became *kapu* (restricted) to commoners, which is why there "were few who understood the art; but some genealogists survived to the time of Kamehameha and even down to the arrival of the missionaries" (Kamakau 1992:242).

Surviving genealogies illustrate that the ruling families of each island were interrelated quite extensively. The chiefs of O`ahu, Kaua`i, Hawai`i, Maui and Molokai had common ancestries. Families branched out, but conjoined several times in succeeding generations (Kamakau in McKinzie, 1983: xxv). Not only were the chiefs or *ali'i* related to each other, they were also related to the commoners. In *Ruling Chiefs,* Kamakau states that "there is no country person who did not have a chiefly ancestor" Kamakau (1992:4). In the following passage Kamakau (1992) explains how some of the *ali'i* were connected.

> It is said that the chiefs of Hawai'i island were from Maui and from O`ahu and Molokai between the times of 'Aikanaka and Hanala'anui. Thus 'Aikanaka was the chief of Koali and Mu'olea in Hāna; Hema, the chief of Ka'uiki in Hāna; Kaha'i, the chief of 'Īao in Wailuku; Wahieloa, the chief of Papauluana in Kīpahulu. Laka the chief was born at 'Alae in Kīpahulu, Maui; he ruled in Ko'olaupoko, O`ahu; the site of his house, Hale'ula, was at Waikane, O`ahu. Lu`anu`u was born at Waimea, Kaua`i, and ruled that kingdom. Kamea was from Waikele, `Ewa, O`ahu; Pohukaina was from Kahuku; Pau, that is Ka-pau-nui-kua-'ōlohe, was from Kea`au in Wai`anae. Hua was from Lahaina, Maui...this is Hua the son of Kapua`i-manakū [Pohukaina] whose *heiau* was Luakona, near to Kapō-'ulu. Huanuilkalāla`ila'i [son of Pau, that is Kapaunuikua'ōlohe] was born at Kawelo in Honolulu; Paumakua-a-Lonoho`onewa was born at Kua-`a-`ohe, Ko`olaupoko, and rules there; Haho was born by the *kawa*, the leaping place, of Kua`ikua at the stream of Kua`ikua in Wahiawā. Palena [-i-Haho] was born on the hill of Ka`uiki, in Hāna, at the site Hānanaikū; he ruled and died on O`ahu; his remains and also his stone are at Ka-lua-o-Palena in Kalihi on O`ahu. Hānala`a-nui and Hā nala`a-iki were the twin sons of Hī-ka-wai-nui and Palena; they were born at Kahinihini`ula, at Mokae and Hāmoa, and a certain *moku`āina* land was named after these boys. Lana-ka-wai [son of Hā anala`a-nui] was born at the *kawa* of Kua`ikua in Wahiawā, O`ahu (Kamakau, 1991:101).

Malo (1971) also wrote about the connection between the *maka'ainana* and the chiefs. "Commoners and *ali`i* were all descended from the same ancestor, Wakea and Papa" (Malo, 1971:52). This is evident in the genealogies. Genealogies were very important to the chiefs, because ranking was very important. The genealogies not only indicated rank, they ascertained a link to the gods. The following excerpt explains the idea and importance of rank and the role of genealogies:

> Position in old Hawai`i, both social and political, depended in the first instance upon rank, and rank upon blood descent—hence the importance of genealogy as proof of high ancestry. Grades of rank were distinguished and divine honors paid to those chiefs alone who could show such an accumulation of inherited sacredness as to class with the gods among men...a child inherited from both parents.... The stories of usurping chiefs show how a successful inferior might seek inter-marriage with a chiefess of rank in order that his heir might be in a better position to succeed his parent as ruling chief...a virgin wife must be taken in order to be sure of child's paternity—hence the careful guarding of a highborn girl's virginity (Beckwith 1990:11).

One could defend and/or prove their rank by knowing or having one's genealogist recite one's genealogy. "To the Hawaiians, genealogies were the indispensable proof of personal status.

Chiefs traced their genealogies through the main lines of 'Ulu, Nana'ulu, and Pili, which all converged at Wakea and Papa (Barrere, 1969:24). Two well-known genealogy chants are the *Kumuhonua* and the *Kumulipo*.

3.3.1.1 Kumuhonua. The *Kumuhonua*, first published by Fornander in 1878 in *The Polynesian Race* Vol. I was based on information from Kamakau and Kepelino. Kumuhonua, the man, was of the Nanaulu line, and the older brother of Olopana and Moikeha (McKinzie 1986:14-15). However, the birth chant *Kumuhonua* has been a subject of controversy (Barrere, 1969: i). Some of the *Kumuhonua* legends were recorded by Kamakau and Kepelino between the years 1865 and 1869, however, the 'genealogy' of the *Kumuhonua*, published by Fornander, was given to him "to provide credibility to the legends...this 'genealogy' (was) constructed from previously existing genealogies--the *Ololo* (*Kumuhonua*) and the *Paliku* (*Hulihonua*) which are found in the *Kumulipo* chant (see Beckwith 1951:230-234) and interpolations of their own invention" (Barrere, 1969:1).

3.3.1.2 Kumulipo. A better example is the famous Creation Chant *The Kumulipo*. Feher (1969) has several notable Hawaiian scholars write passages in his *Kumulipo: Hawaiian Hymn of Creation-Visual Perspectives by Joseph Feher.* In the *Introduction* Momi Naughton states "The Kumulipo belongs to a category of sacred chants known as *pule ho'ola'a ali'i,* 'prayer to sanctify the chief,' which was recited to honor a new-born chief (Feher, 1969:1).

In her passage, Edith McKinzie states:

> "The *Kumulipo* is a historical genealogical chant that was composed by the court historians of King Keaweikekahiali'iokamoku of the island of Hawai'i about 1700 AD in honor of his first born son Ka-lani-nui-'i-a-mamao.This important chant honors his birth and shows the genealogical descent of both the *ali'i* (chiefs) and the *maka'ainana* (commoners) from the gods, in particular Wakea...." (Feher, 1969:1).

In a passage by Roger T. Ames, he corroborates this idea and states that "what is of particular humanistic interest is the way in which the *Kumulipo* as a repository of cultural authority served Hawaiian society in transmitting its cultural legacy and organizing its community. In doing so, it combines both a linear sense of temporal development and the richness of one particular moment in time" (Feher, 1969:3).

3.3.1.3 *Hawaiian Genealogies.* Edith McKinzie completed the first volume of *Hawaiian Genealogies* in 1883, based on genealogy articles translated from 19th Century Hawaiian newspapers such as *Ka Nonanona* and *Ka Nūpepe Kū`oko`a* in the late 19th century and early 20th century. These articles were in response to a call to preserve the Hawaiian heritage. Some of the information came from Malo's (1838) *Hawaiian History*, and in Fornander's (1880), *The Polynesian Race* (Book I) (McKinzie, 1983:1).

Using thirty years to account for one generation, McKinzie determined that Wakea was born in A.D. 190; Umi-a-Liloa in A.D. 1450; Keawekehahialiiokamoku in A.D. 1650, Kalanihuiikupuapaikalanui Keoua in A.D. 1710; and Kamehameha I in A.D. 1740" (McKinzie, 1983:12). Volume Two of *Hawaiian Genealogies* was published in 1986 and consists of information extracted from genealogical lists published in thirteen Hawaiian language newspapers from 1858 to 1920. It compliments genealogies found in other works, such as Fornander's (1880) *An Account of the Polynesian Race...* and David Malo's *Hawaiian Antiquities* (McKinzie, 1986: v).

The following excerpt is from Kamakau's article in *Ka Nūpepe Kū`oko`a* October 7, 1865, and was translated by McKinzie (1986). It illustrates some of the mid-19th century sentiment regarding genealogies:

> To the commoners, a genealogy was of no value because their parents forbad (sic) it lest comparisons should occur and country children be born and rise up as chiefs. Therefore, the children of the commoners were not taught beyond father, mother, and perhaps grandparents.... To us, the people of this time, there is no value of this thing of a chiefly lineage; we have no great interest in it. But in our thoughts it is of great value. We have entered into discussion of it; the chiefs valued the chiefs and ancestors; and we also value our knowledge of it. Because it was forbidden to the commoners, they were not to know this. However, due to the rise of wisdom and skill of the children of the commoners, therefore, all of the ranking privileges were no longer restricted; it was only lifted. What remains of the ancestors is something of value (McKinzie 1986:18-19).

3.4.0 Mo'olelo. Legends, stories or *mo'olelo* are a great cultural resource as well as entertaining. Leib and Day (1979) state in their annotated bibliography of Hawaiian legends, that legends "are a kind of rough history." They noted Luamala's idea of the value of legend and myth in the serious study of a culture and her following quote. "To a specialist in mythology, a myth incident or episode is as objective a unit as an axe, and the differences and similarities of these units can be observed equally clearly and scientifically." Leib and Day also expressed concern about authenticity, and sometimes found it difficult to determine if a legend was a primary or secondary source. The following definitions of terminology, including the Hawaiian classification of prose tales--*mo'olelo* or *ka'ao,* come from their work (Leib and Day 1979: xii, 1):

Tradition	used to refer to that which is handed down orally in the way of folklore
Folklore	a rather inclusive term, covering the beliefs, proverbs, customs, and literature (both prose and poetry) of a people
Myth	a story of the doings of godlike beings
Legend	deals with human beings and used interchangeably with 'myth'... because the collectors and translators of the tales often failed to make the strict distinction
Ka'ao	"pure fiction"
Mo'olelo	deals with historical matters and somewhat didactic in purpose... included tales of the gods, as well as tales of historical personages... many have recurring patterns, plots, and types of characters

3.4.1 History of Mo'olelo Collecting. According to Leib and Day (1979) a substantial number of legends were collected and written in Hawaiian, during the century following Cook's arrival in Hawai'i. A few accounts of the mythology were printed in the journals of missionaries and travelers, and a few of the Hawaiian lore were printed in languages other than English.

3.4.2 Legends involving Hā`ena (HSPLS 1989 v1,2,3).

Ancient faiths of Kauai	In Skinner, *Myths & Legends of Our New Possessions & Protectorate* [RH 398.2 S, pp 178-187] (HSPLS-vl 1989:208).
The Fire Goddess	In Colum, *Legends of Hawaii.* [RH 398.2 C p. 25-37]

The History of Moikeha	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* V1 [RH 507 B4M v4 p. 112-159]
How the Menehune saved their fish	In Pukui, *Tales of the Menehune* [RH 398.2 P pp12-13]
Kawelo	In *The Hawaiian Romance of Laieikawai.* RH 398.2 L, pp 357-358] (HSPLS-vII 1989:92; vI 207).
Kawelo	In Westervelt, *Legends of Old Honolulu* [RH 398.2 W, pp 173-188] (HSPLS-vI 1989:208).
Kawelo's Conquest of Kauai	In *Legend of Kawelo* RH 398.2 L, pp. 30-111] (HSPLS-vII 1989:927).
Kawelo's parentage	In *Legend of Kawelo* [RH 398.2 L pp 4-17]
Kawelo: The overthrower of the giant champion	In Colum, *The Bright Islands* [RH 398.2 C, pp 45-65] (HSPLS-vI 1989:207).
Kila the undaunted	In Thrum, *More Hawaiian Folk Tales* [RH 398.2 T pp 20-45]
Laie i ka wai	*The Hawaiian Romance of Laieokawai* [RH 398.2 L]
Laukaieie	In Westervelt, *Ledgens of Gods and Ghosts* [RH 398.2 W pp 36-48
Legend of Kawelo*	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* v2 [RH 507 B4M, v5 pp 2-71] (HSPLS-vII 1989:927, 944).
Legend of Kawelo*	In *Selections from Fornander's Hawaiian Antiquities and Folklore* [RH 398.2 F, pp 32-113] (HSPLS-vII 1989:927, 944; vI 207).
Legends of Kawelo	In Thrum, *More Hawaiian Folk Tales* [RH 398.2 T, pp 149-163] (HSPLS-vI 1989:208).
Legend of Kuapakaa	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* v2 [RH 507 B4M, v5 pp 78-135] (HSPLS-vI 1989:207).
Legend of Palila	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* v2 [RH 507 B4M, v5 pp 136-153] (HSPLS-vI1 1989:207).
The love of a chief	In Knudsen, *Teller of Hawaiian Tales* [RH 398.2 K pp 99-102]
The love of a chief	In Lawrence, *Stories of the Volcano Goddess* [RH 398.2 L pp13-26]
Lohiau	In Westervelt, *Hawaiian Legends of Volcanoes* [RH 398.2 W pp126-138]
The Maile	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* V2 [RH 507 B4M, v4 pp 614-619]
Moikeha	*The Hawaiian Romance of Laieokawai* [RH 398.2 L pp 363-364]
Na Oahi O Kauai	In Knudsen, *Teller of Hawaiian Tales* [RH 398.2 K pp 143-146]
Pele and Hi`iaka	In Emerson, *Pele and Hi`iaka* [RH 398.2 E]

Pele and Lohiau	In Nakuina, *Hawaii, its People, their Legends* [RH 398.2 N p 26]
Pele's long sleep	In Westervelt, *Hawaiian Legends of Volcanoes* [RH 398.2 W pp 72-86]
The phantom goat of Honopu	In Knudsen, *Teller of Hawaiian Tales* [RH 398.2 K pp 82-85]
Pohaku-loa, long stone of Kauai	In Amritage, *Ghosts Dog and other Hawaiian Legends.* [RH 398.2, A p. 136]
Relating to the dead In ancient time	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* [RH 507 B4M, v5 pp 570-577] (HSPLS-v1 1989:207).
The shark gods of Ka`ū	In Green, *Folk-tales from Hawaii* [RH 398.2 G pp105-107]
Story of King Ola*	In Thrum, *More Hawaiian Folk Tales* [RH 398.2 T, pp 94-97] (HSPLS-vII 1989:944).
The story of Laiekawai	In Kalakaua, *Legends and myths of Hawaii* [RH 398.2 K pp 455-480]
Story of Lonoikamakahiki	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* v1 [RH 507 B4M, v4 pp 256-363]
Tradition of Kamapua`a	In Fornander, *Fornander Collection of Hawaiian Antiquities and Folklore* v5 [RH 507 B4M, v4 pp 314-363]

3.4.3 Excerpt from Emersion's *Pele & Hi`iaka* in Hā`ena (In Maly 2003:41).

> Hi'iaka and her companions then traveled to where they met with chiefess, Kahuanui, elder sister of Lohiau. Upon meeting Kahuanui, Hi'iaka asked her where the body of Lohiau had been buried. Now, Kahuanui was greatly distressed at the passing of her brother (blaming Pele), and she did not trust Hi'iaka. So she and Lohiau's trusted friend, Kauakahiap)'oa, set out to deceive Hi'iaka and not identify the true location of the body. Kahuanui pointed out some place on the cliffs from which the *koa'e* birds flew, saying that that was where the body had been placed... Hi'iaka then made plans to restore the spirit of Lohiau to his body. She instructed Kauakahiap)'oa to have a *hale lau'T* (ti-thatched house) built, and explained that it was within that house that she would attempt to restore Lohiau to life.
>
> The *hale lau'T* was built at Hā'ena, and Hi'iaka called to Kahuanui, ordering her to place a *kapu* on all of the people who lived at Hā'ena. They were to remain in their houses, and make no noise for the period of the *kapu*. She then told Kahuanui, that even she was to adhere to the *kapu*. The penalty for breaking the *kapu* would be death. Hi'iaka discerned that Kahuanui had tried to deceive her, and found the true location of Lohiau's body. It was high on the cliffs above Hā'ena. Hi'iaka, Wahine'4ma'o and Pā'ūopala'e, started their journey along the cliffs to fetch the spirit of Lohiau. The *mo'o* women, Kilioeikapua and Kalanamainu'u, tried on several occasions to block the path, but Hi'iaka avoided their obstacles.
>
> Kilioeikapua and Kalanamainu'u tried again to thwart Hi'iaka's journey, and ridiculed Lohiau's spirit for calling out to her. The *mo'o* women, then caused a great slide of rocks and trees to cascade down the cliffs, hoping to crush Hi'iaka and her companions. Hi'iaka caused the slide to miss, and continued towards the spirit-body of Lohiau. Arriving before Kilioeikapua and Kalanamainu'u, Hi'iaka and her companions confronted the *mo'o* women. Pā'ūopala'e called upon her myriad forest body-forms and caused a growth of *pala'ā, palapalai,* and other plants to cover the two *mo'o*. The roots of the plants then

sunk down into the cliff of Ke'e and held so tightly, that Kilioeikapua and Kalanamainu'u were unable to move. Hi'iaka then struck them with her lightening skirt, turning the two *mo'o* women into their stone forms...

Kahuanui and Kauakahiapā'oa repented for their deception, and were forgiven by Hi'iaka, and she succeeded in restoring Lohiau to life... When the ceremonial cleansing observances completed, Kahuanui approached the *hale lau'I*. This was on the night of *Lono*. Arrangements were made for a great celebration of *hula* and all other manner of festivities to be held on the night of *Hilo*. The people were commanded to build a great *lānai* (shelter). All of the items for the feast were prepared, and the *hula* masters from Hā'ena and Wainiha, and from the famous sands of Mahamoku (at Hanalei), were called to gather for the night of festivities.

In two days time all of the preparations were made, and the multitudes of people arrived. People came to Hā'ena from the deep cliffs of Nāpali and all about the island. And the sands of Hā'ena were covered with the fleets of canoes. Everyone rejoiced at the return of the chief Lohiau to life. During the celebration, Hi'iaka informed those assembled that Lohiau, she and her companions would soon depart from Kaua'i, to make the journey back to Hawai'i so that Lohiau could be reunited with Pele...

**3.5.0 Mo`ōlelo and Genealogy of Ali'i nui of Kauai.** In the legends or *mo'olelo* collected by Fornander, Wichman, Knudsen, Kamakau, and others, we can get a glimpse into the lives of some of the *ali`i nui* or ruling chiefs of Kauai. The history of the Kauai *ali`i* begins in Waimea where according to Wichman (2003) the first settlers to Kauai landed. From many of these *ali`i* one can understand why the genealogy of Hawai`i's chiefs and people on all the major Hawaiian islands share common ancestries. To reproduce any legend completely would take too long, therefore only excerpts are generally used for the following ancestors and descendants of the first settlers and *ali`i* of Kaua`i.

3.5.1 Papa and Wākea. Papa and Wākea or Wākea and their daughter Ho`ohoku-i-ka-lani are said to be the progenitors of all Polynesians, however the islands were already populated when they arrived and settled in Nu`uanu, O`ahu. Hāloa is the name given to both sons of Wākea and Ho`ohoku-i-ka-lani. Kauai historians claim that a younger brother of Hāloa, Chief Ka-māwae-lua-lani-moku, son of Papa and Wākea, discovered and settled the island.

3.5.2 *Ka-māwae-lua-lani-moku* & *Kahiki-lau-lani*. Chief *Ka-māwae-lua-lani-moku*...traveled to this island with his wife, *Kahiki-lau-lani*, and her two paddlers *Kō-nihinihi* and *Kō-nahenahe*. Because of his great deeds, the great number of his descendants, and the prosperity of his reign, people called the island Kau-a`i (*"place of abundance"*).... Kaua`i is also the name of the youngest son of ancient voyager Hawai`i-loa. His wife was Wai`ale`ale, and her name was given to the lake beside the highest peak of the island. The word *Kaua`i* itself is older than Hawai`i-loa; it's true meaning is lost in the mists of the cosmic night from which Kaua`i's ruling chiefs descended (Wichman 2003:5).

Whether *Ka-māwae-lua-lani-moku* and *Kahiki-lau-lani* ever lived on Kaua`i is unknown. It is certain that one day, not too many generations after Papa and well before the descendants of Nana`ulu came to Kaua`i, a voyaging canoe commanded by *Kū`alu-nui-kini-ākua* [also spelled *Kū`alu-nui-kini-ākea*] approached the island from the west. Nothing is known of him except his name and that he had a son...and a counselor *Pi`i-ali`i* (Wichman 2003:5).

**3.5.3 *Kū`alu-nui-kini-ākea and Kalaimoku Pi`i-ali`i*.** The first known settler to Kauai, *Kū`alu-nui-kini-ākea,* chose Waimea Valley for his new home. The shallow sea between

Kauai and Ni`ihau teemed with fish, the river delivered fresh water and food, and even the climate was warm, ideal for growing crops, and comfortable to a people who wore a minimum of clothing.... The first settlers worshipped Kāne, god of sun and fresh water, and thus all living things. The few *kānāwai* (laws) concerned the preservation of agriculture and marine resources. All ceremonies in the *heiau* (temple) were simple and the audience participated in all the rites. *Heiau* were built so that all priestly ceremonies could be seen by the assembled people who participated in the rites. From the beginning, there was a lack of distinction among the Kauai *ali`i* (chiefs). The rank of the mother determined in large part the rank of her child (Wichman 1998:6-7).

**3.5.4 *Kū`alu-nui-paukū-mokumoku* & the *Menehune*.** *Kū`alu-nui-paukū-mokumoku* followed his father *Kū`alu-nui-kini-ākea* as *ali`i nui*. He sent back to his homeland for a people called *Menehune*, who were masters of stonework and engineering. The *Menehune* were an energetic, short but broad-shouldered, muscular people. They were organized in divisions based on their skills and work duties and were completely obedient to their leaders. They worked as a team and if a project was interrupted for any reason, they abandoned it and never returned to finish it. Under *Kū`alu-nui-paukū-mokumoku*, many *heiau*, fishponds, and irrigation systems for wet-land farming were built. These *Menehune* explored the island from one side to the other and left stories of their adventures in place-names that still remain (Wichman 1998:8).

3.5.5 *Kū`alu-nui-paukū-mokumoku, Ola* and *Kailaimoku Pi`i*. The son of *Kū`alu-nui-paukū-mokumoku* was Ola. He opened the land between the ridges and the sea to agriculture. The land was considerably higher than the river, and separating the rich bottomland from freshwater was the cliff **Pali-uli,** "green cliff," which rose directly from the riverbed.... Ola gathered the *Menehune* and asked that an irrigation ditch be built around Pali-uli (Wichman 1998:8).... The ditch was called *Kīkī-a-Ola,* "container acquired by Ola." The new farmland was named after their ancient homeland, *Pe`e-Kauai*, "hidden Kauai" (Wichman 1998:9).

Like his ancestor Hawai`i-loa, Ola also contended with cannibalism. For several nights in a row, Ola and Pi`i noticed a bonfire flickering on the shores of Ni`ihau where no one lived. He asked his friend *Ka-hao-o-ka-moku,* who was about to set off on a fishing expedition to Ka`ula islet, to stop by Ni`ihau and find out who was there. Two days later Kāne-opa, the head *lawai`a* (fisherman) of the expedition, returned alone with a harrowing tale. As they landed on Ni`ihau, the fishing party had been greeted by a man who offered them food, shelter, and women. This unknown man had then shown them into a house where, tired from fishing, one by one they fell asleep, all except Kāne-opa who was suspicious by nature and who had not liked the stranger's manner (Wichman 2003:13-14).

Kāne-opa was the only one to survive; he went back to Kauai and told Ola and Pi`i about the cannibals of Ni`ihau. They devised a plan and went back. Their plan worked and the cannibals were killed. "No mention of Ola's marriage or direct descendants has survived" (Wichman 2003:14).

3.5.6 Kā-la-kāne-hina and Lohipono. Sometime after Ola, *Kā-la-kāne-hina* became the *ali`i nui*. He lived at Lā`au-`ōkala, the eastern point of the Waimea river outlet. He married Lohipono, a chiefess of Wainiha valley. She left her infant son *Kāne-a-Lohi* with her brother *Ka-lālā-pōpō`ulu*, a bird catcher who brought up his nephew in the mountains and trained him in the art of catching birds whose feathers were greatly prized (Wichman 2003:14).

3.5.7 *Kāne-a-Lohi*. *Kāne-a-Lohi* exasperated his uncle a great deal, for he refused to eat most kinds of food and always demanded the flesh of small birds. To feed this

> prodigious appetitive, Ka-lālā-pōpō'ulu moved to the cliffs above **Halulu** waterfall on the very edge of the immense cliffs of Wai'ale'ale. Here *uwa'u* (dark-rumped petrel) nested in deep holes dug into the sides of the cliffs. Each morning the *uwa'u* flew out to sea and each evening they flew home to their caves. The young...are good to eat (Wichman 2003:14).

A giant, Ka-wai-pe'e, from Pe'ape'a above Hanapēpē liked destroying the nests and killing the birds and throwing them away. *Kāne-a-Lohi* and his uncle set a trap for the giant and killed him as he came after a distressed bird. However, the Waimea chief Kā-la-kāne-hina also heard that men were eating his favorite *kapu* birds and set out for the mountains to catch and kill them. But *Kāne-a-Lohi* and his uncle destroyed his army and would have killed him too. But Kā-la-kāne-hina called out "Save me, in the name of your mother, Lohipono. I am your father." Kā-la-kāne-hina returned to Waimea and built a house and invited his son. They suspected a trap when all the chiefs' men were sitting in a circle next to the wall while the mat in the middle of the room sagged. Kāne-a-Lohi barred the door and a rush to get out the chief and his men fell into the hold. Kāne-a-Lohi then set the house on fire. Kāne-a-Lohi became *ali'i nui* for a short time, married and had a son *Ka-lau-lehua*. He later took his mother and son back to the mountains he loved (Wichman 2003:15-16).

3.5.8 *Ka-lau-lehua*. *Ka-lau-lehua* later became *ali'i nui*. For reasons not mentioned in the legends, Ka-lau-lehua wanted to dig a ditch leading from Wai'ale'ale to the cliff's edge so that the pond would be the headwaters of the Wailua River. Ka-lau-lehua sailed to the mythical island of *Kāne-huna-moku* to fetch the *Mū-'ai-mai'a* (banana-eating people). He tricked four Mū men and three Mū women into coming with him from their homeland to build his ditch. They refused and asked to be returned home. Ka-lau-lehua wouldn't help them, instead he imposed a *kapu* forcing them to live in the Alaka'i swamp. They planted bananas wherever they found a suitable spot and slowly they grew in numbers. They were a shy people and even though they lived in the same area as the Menehune, they avoided them too, but watched unhappily as the Menehune sailed away from Kauai. The Mū had lost their knowledge of the stars that could lead them back to their homeland (Wichman 2003:16-17).

> The landing on the west side of the [Waimea] river mouth was named *Ke-ahi-lele*, "flying fire," perhaps after a shooting star or a comet that marked their arrival. On the opposite side was *Lā'au-'ōkala*, "thorny tree...." Upriver of *Lā'au-'ōkala* is a small plain edged on one side by twenty-foot-high cliffs. This is *Maha'iha'i*, "brittle." On this plain *Ka-iki-pa'a-nanea*, a descendant of Ola, had a large sports field... *Ka-iki-pa'a-nanea* was so cruel that no Kauai woman would marry him (Wichman 1998:9-10).

> **3.5.9 Ka-iki-pa'a-nānea.** Several generations later [after Ka-lau-lehua], Ka-iki-pa'a-nānea... became the *ali'i nui* of Kauai. His headquarters was on the small plateau on the eastern side of the Waimea river mouth. Ka-iki-pa'a-nānea had two major passions: sports and riddles. He was a champion wrestler and boxer who always tried to kill his opponent. Everyone feared and hated him...only his personal servant, Kūkae'a was ever in his company.... Worst still, when every chiefess on Kaua'i refused to marry him after the death of his wife, Ka-iki-pa'a-nānea sent his messengers to O'ahu, ordering them to bring him a wife (Wichman 2003:17-18).

Ka-iki-pa'a-nānea's men kidnapped Mākolea who was surfing at Waikīkī and took her back to Kaua'i where she too refused to marry him. So he locked her up until a time when she would agree. Mākolea was already married to a Maui warrior Ke-paka-'ili-'ula. He sailed to Kaua'i and befriended Kūkae'a. Eventually Kūkae'a gave him the answers to the riddles. Ke-paka-'ili-'ula challenged Ka-iki-pa'a-nānea to a boxing match, which he won; and answered the riddles correctly. He then seized Ka-iki-pa'a-nānea and tossed him into a firepot. Earlier Ka-iki-pa'a-

nānea had been so preoccupied with his riddles and athletics that he had allowed an ocean-traveler from Marquesas, Puna-nui-ka-ia-'āina to settle with his entourage on the banks of the Wailua river where the Menehune had constructed their temples. Now there were two chiefdoms on Kaua'i--Puna and Kona (Wichman 2003:18-19).

> **3.5.10 Nana'ulu and 'Ulu.** More than three hundred years after Papa-nui-hānau-moku and Wākea, a chief from Tahiti, Ki'i and his wife Hina-kō-'ula, became parents of two sons, Nana'ulu and 'Ulu. When they were grown Ki'i asked them to go on voyages of discovery.... Nana'ulu sailed north in his canoe named Manō-nui (Great Shark) and found the islands of Hawai'i...voyagers came in increasing numbers. Meanwhile the descendants of 'Ulu spread out over the South Pacific. Among them were extraordinary people who lived such wonderful adventures that storytellers had rich material to develop into entertaining sagas [e.g., Maui, 'Aikanaka-a-Mako'o, Puna & Hema, Kaha'i & Wahieloa and Laka].... There were so many astonishing ancestors like these that the genealogists added them all into the 'Ulu genealogy. Today there seems no way to reconcile the short Nana'ulu and very long 'Ulu genealogies (Wichman 2003:20, 23).

> **3.5.11 Puna-nui-ka-ia-'āina and Puna-kai-'olohia.** Two voyaging canoes set out from Tahiti fifteen generations after Nana'ulu and arrived on O'ahu and Kauai. *Maweke* and *Paumakua* settled peacefully on O'ahu and quickly became ruling chiefs of a district of that island. At that same time, Puna-nui-ka-ia-'āina, whose genealogy has not survived, arrived on Kauai, having come, most likely from the Marquesas Islands. Puna-nui-ka-ia-'āina arrived when the chief with the deadly riddles, Ka-iki-pa'a-nānea, was ruler of Waimea.... Puna-kai-'olohia followed his father... as leader of his people along the banks of Wailua. Nothing is known of him or his reign, except that he had a son [**Puna-'ai-koā-i'i**].... Puna-'ai-koā-i'i had only one child, his daughter, Hina-'a-ulu-ā...they called her Ho'oipo-malanai (*sweetheart of the gentle breeze*) (Wichman 2003:23-24).

3.5.12 Puna-'ai-koā-i'i, Hina-'a-ulu-ā & Mo'ikeha. Puna-'ai-koā-i'i (Puna) urged his daughter to marry, but she couldn't choose from the many suitors who came to court her from many islands--they were all equal to her. Finally Puna and his *kahuna nui* devised a plan--a contest of strength and speed. A *lei palaoa* would be taken to Ka'ula island and the first chief to retrieve it would win her hand. All were pleased with the contest rules. Then on the evening of the contest a stranger arrived in a voyaging canoe on the shores and said he was Mo'ikeha and asked to participate in the contest. The competing chiefs said as long as he could recite his genealogy and that it was equal to theirs. Mo'ikeha chanted his own genealogy: "Nana'ulu the husband, Ulukou the wife...Kekupahaikala the husband, Maihikea the wife; Maweke the husband, Naiolaukea the wife...Muli'ele-ali'i the father, Wehelani the mother; Mo'ikeha the man, Hina-a-'ulu-ā the wife." Everyone enjoyed the boast and the chiefs agreed to his participation (Wichman 2003:23-24).

The names of these chief's names and places of residence is slightly different according to Kamakau's (1991) version:

> The chiefs of Kaua'i who lived at Kapa'a while Mo'ikeha was living there were **Puna-nui-kai-anaina, Puna-kai-'olohe,** and **Puna-'ai-koa'e.** A beautiful daughter of the Puna chiefs, Ho'oipo-i-ka-malani - also called Hina-'au-lua - lived at Waimahanalua because of the excellence of the surf of Makaīwa there Mo'ikeha took her to wife, and they were united in a lasting union. When their oldest son was born, Mo'ikeha gave him the name Ho'okamali'i for the skin of 'Olopana [Mo'ikeha's older brother]. Their second son he named Haulani-nui-ai-ākea for the eyes of 'Olopana, and their third son he named Kila for Lu'ukia, the wife of 'Olopana (Kamakau 1991:106).

3.5.13 Mo`ikeha, La`amaomao and Haulani-nui-ai- ākea. Mo`ikeha's companion was La`a-maomao, his foster son and owner of a large calabash which contained all the winds of the world. Mo`ikeha was able to use the winds and beat the other contestants and win the hand of Hina-`a-ulu-ā. Later Mo`ikeha's youngest son went back to Raiatea to bring La`a-maomao to see Mo`ikeha before he died. La`a [also called La`a-mai-Kahiki because he came from Kahiki] went to O`ahu where he sired three sons by three different chiefesses at the requests of the *kahuna* of Kualoa as La`a was a descendant of Paumakua and they were afraid this line was dying out.

According to Kamakau (1991) "La`a-mai-Kahiki became an ancestral chief of chiefs and commoners of O`ahu and also for Hawai`i and Kaua`i. You will find his chiefly descendants in the *mo`o kū`auhau* of Nana`ulu, Puna-i-mua, and Hanala`a-nui" (Kamakau 1991:110).

Mo`ikeha's three sons went different routes; the oldest son Ho`okamali`i became the ruling chief of Kona, O`ahu; the second son Kila went to Waipio on the Big Island [Kila later went to Kahiki]; and the youngest son Haulani-nui-ai-ākea stayed on Kauai where he became the *ali`i nui* after the death of Mo`ikeha (Wichman 2003:23-35).

3.5.14 Haulani-nui-ai-ākea, Ke-oloewa-a-Kamaua and Ka`ili-lau-o-ke-koa. Haulani-nui-ai-ākea was not a good chief so he was dethroned by Ke-oloewa-a-Kamaua a Molokai chief married to one of Maweke's granddaughters. However Ke-oloewa-a-Kamaua refused the throne and Kila was sent for in Raiatea, but he too refused wishing to stay with his [foster] brother La`a-mai-Kahiki. Ka`ili-lau-o-ke-koa, a granddaughter of Mo`ikeha was asked to rule and to marry *Ke-li`i-koa*, a Kona, Kauai chief. However she fell in love with someone else of Puna, Kauai. This created a riff between Puna and Kona. Ka`ili-lau-o-ke-koa's husband died after a few years and Ke-li`i-koa invaded Puna and the two armies fought at Kuamo`o ridge. With the help of the women, the Kona chief was killed and the army defeated. Ka`ili-lau-o-ke-koa died childless and the chiefdom of Puna was offered to Ahukini-a-La`a, a son of La`a-mai-Kahiki (Wichman 2003:36-39).

> **3.5.14 Ahukini-a-La`a, Kama-hano and Lu`anu`u.** Ahukini-a-La`a...and Ha`i-a-Kama`i`o had a son, Kama-hano. Kama-hano lived with Ka-`auea-o-ka-lani...they had a son, Lu`anu`u. It was at this time that the first warrior hero of Kauai appeared. The war between Kona and Puna flared up (Wichman 2003:40-42).
>
> **3.5.16 Akua-pehu-`ale.** Akua-pehu-`ale of Kona swept ashore at Wailua and the surprised Puna chiefs fled for the uplands. Akua-pehu-`ale was considered a *kupua*, a supernatural being who could take two forms...that of a man and that of a giant sea monster. He was greatly feared and hated even by the men on his side. Once he vanquished the Puna forces he settled at the seashore (Wichman 2003:42).
>
> **3.5.17 Ke-`āhua, Ka-uhao, Lepe-a-moa and Ka-u`i-lani.** One of the exiled [Puna] chiefs, Ke-`āhua, found refuge in a remote valley in the Wailua uplands, which today bears his wife's name, Ka-uhao, daughter of Hono`uliuli and Ka-pā-lama of O`ahu. Their first child was Lepe-a-moa, a *kupua*, who could take the form of a beautiful woman or a ...feathered chicken. She was taken at birth to be raised by her O`ahu grandparents. Shortly after their defeat, Ka-uhao gave birth to a son...named Ka-u`i-lani (Wichman 2003:42).

When Ka-u`i-lani grew up he became a great warrior and defeated Akua-pehu-`ale. After the victory feast he led the Puna people back down to the mouth of Wailua (Wailua-nui-hōano) river.

He later sailed for O`ahu to find his sister, Lepe-a-moa whom he had never seen (Wichman 2003:42-44).

3.5.18 Lu`anu`u and Palila. Lu`anu`u, grandson of Ahukini-La`a, was named after the grandfather of Ki`i, father of `Ulu and Nana`ulu. He was a good chief and was greatly admired in spite of the continuing wars with Kona--references to him indicate a close relationship to Kona. During the time of Lu`anu`u there was a great warrior named Palila, son of Ka-lua-o-pālena and Maihi-iki. He was taken at birth and raised by his grandmother Hina in a sacred temple of Alana-pō where he was trained very well. Later he helped his father defeat Kona chief Ka-maka-o-ka-lani on the plains of Koloa. Shortly after, a messenger from the ruling chief of O`ahu arrived asking for Palila's help. Palila had many adventures on O`ahu and Hawai`i and later became the ruling chief of Hilo (Wichman 2003: 44-47).

> **3.5.19 Kūkona, Makali`i-nui-ku-a-ka-wai-ea, Mano-ka-lani-pō and Palekaluhi.** Kūkona [son of Lu`anu`u] inherited an island at war and left it united as one kingdom. From then on, the legends of the Kona kingdom were seldom told and the genealogies of the first settlers were forgotten.... Kūkona's *ali`i wahine* was Lau-puapua-ma`a and they had twin sons, Mano-ka-lani-pō and Palekaluhi. When Kūkona became *ali`i nui* of Puna, the Kona chief was Makali`i-nui-ku-a-ka-wai-ea. He had been at the royal court of O`ahu for many years and several times had fought in battles against Kama-pua`a.... Makali`i-nui-ku-a-ka-wai-ea had been sent by Kama-pua`a to the royal court with the bad news of defeat. Eventually Makali`i-nui-ku-a-ka-wai-ea returned home to Waimea and organized his own force. Makali`i-nui-ku-a-ka-wai-ea's army included the father and older brother of Kama-pua`a (Wichman 2003:47-48).

3.5.20 Kama-pua`a, Limaloa, Kūkona and Makali`i-nui-ku-a-ka-wai-ea. The Kona and Puna armies met at Koloa Gap and the war became a stalemate until Limaloa and Kama-pua`a joined the Puna army. Limaloa was a giant and had become friends with Kama-pua`a when he first came to Kauai. Kama-pua`a dared Limaloa and Kūkona to join him in one-to-one combat against any Kona champions. Kahiki-`ula of Kona was the first to step forward and was struck down by Kūkona, but as he was going to give the finishing blow Kama-pua`a stopped him and said he would finish the job and to go and look for other opponents. Instead of killing the man, he whispered to Kahiki-`ula, who was his father, to go back to his family in Kalalau. Limaloa was engaging another warrior, Kahiki-honua-kele, whom Kama-pua`a recognized as his older brother. When Limaloa struck him down, Kama-pua`a told Limaloa he would finish up. Instead he whispered the same thing to his brother. Then Kama-pua`a faced Makali`i-nui-ku-a-ka-wai-ea who did not recognize his former enemy. Kama-pua`a chanted a list of all the warrior's he ever defeated and when he was done Makali`i-nui-ku-a-ka-wai-ea replied that he was defeated (Wichman 2003: 48-49).

> **3.5.21 Puna and Kona merger.** The two kingdoms were merged into one with Kūkona as the *ali`i nui*. To cement the new situation, Nae-kapu-lani, the daughter of Makali`i-nui-ku-a-ka-wai-ea, was married to Kūkona's son Mano-ka-lani-pō. Meanwhile, on the island of Hawai`i, Ka-lau-nui-o-Hua dreamed that his hand was possessed by the god Kāne-nui-akea...he dreamed that he would become the ruler of all the islands (Wichman 2003:49).

3.5.22 Kūkona and Peace in the islands. Ka-lau-nui-o-Hua successfully defeated Maui's Ka-malu-o-Hua, Molokai's Ka-haku-o-Hua and O`ahu's Hua-i-pou-leilei. He took the three chiefs with him on his invasion of Kauai where they landed at Māhāulepu, Pā`ā and Weliweli with no opposition. What he didn't know was that Kūkona knew of the invasion as the guardian watchers of Hā`upu had seen the fleet as it left O`ahu. Kūkona ordered everyone to leave their homes, take all their food with them, and go to the center of the island. He had all of his warriors

hide among the trees on all the ridges overlooking Māhāulepu to Lāwa`i. He also ordered every canoe on the island to gather at Hanapēpē Bay. Kūkona surrounded the invaders by land and by sea. By nightfall Kūkona had all the rulers of the major islands as his prisoners. He took his prisoners on a tour of the island and while taking a nap had a dream that three of the four rulers tried to plot his death, but Ka-malu-o-Hua of Maui rejected the plan saying that Kūkona had been good to them instead of killing them all and taking over all the islands. Kūkona woke up to discover that his dream was true, but instead of putting them to death he said he only wanted peace. He freed the rulers except for Ka-lau-nui-o-Hua whom he kept for ransom, and made them swear that they or their descendants would never invade Kauai again. Kūkona ordered the *heiau Ka-unu-o-Hua* built near Alaka`i swamp and it was here that the rulers all swore to uphold their promise not to invade Kauai. This peace was called *Ka-lai-loa-ia-Kamaluohua* (The Long Peace of Kamaluohua), which lasted over five hundred years. The royal court was kept at Wailua, but a permanent home was also maintained at Waimea (Wichman 2003: 49-52).

3.5.23 Golden Age of Mano-ka-lani-pō and Nae-kapu-lani. The reign of Mano-ka-lani-pō was considered the "Golden Age" because it was so peaceful that warriors became athletes and people lived to an old age. Mano-ka-lani-pō and Nae-kapu-lani had three sons: Kau-maka-a-Mano, Nā-pu`u-a-Mano and Ka-ha`i-a-Mano. During the reign of Mano-ka-lani-pō, he eventually allowed the *Mū-`ai-mai`a* people to return to their homeland, Kāne-huna-moku, which was seen by their *kilo kilo* offshore of Miloli`i valley. They left Kauai as the *Menehune* before them had done. Also during his reign, three goddess sisters came to Kauai from the west after visiting Nihoa, Necker and Ni`ihau, in huge voyaging canoes from their homeland in Sāmoa; Kapō-`ula-kinau, who was the first to arrive on Kauai, followed by Pele and Hi`iaka-i-ka-poli-o-Pele. Kapō-`ula-kinau married off some of her women attendants to the men of Kauai, such as Limaloa the giant and Kau-maka-a-Mano, son of Mano-ka-lani-pō, then she left Kauai in search of a husband for herself. Pele also landed at Mānā, seeking a new home and safety from her sister Nā-maka-o-ka-ha`i. As Pele toured the island she met Kama-pua`a and they traded insults. Kama-pua`a tried to rape Pele, but she was saved by her sister Kapō-`ula-kinau. Pele then went on to Kē`ē, Hā`ena where she met Lohi`au, the brother of Limaloa, and fell in love with him (Wichman 2003: 55-59).

3.5.24 Kau-maka-a-Mano. Kau-maka-a-Mano reigned after his father Mano-ka-lani-pō died. He married Kapō-inu-kai and they had only one child, Ka-haku-a-Kāne. Nothing was known of the other sons of Mano-ka-lani-pō, Nā-pu`u-a-Mano and Ka-ha`i-a-Mano. Ka-haku-a-Kāne was named after one of the four sons of Mo`ikeha, the voyager from Ra`iātea (Wichman 2003: 59-61).

3.5.25 Ka-haku-a-Kāne. Ka-haku-a-Kāne, like so many of his ancestors, made a grand tour of the windward islands. He was...*ali`i nui* of Kaua`i and had an impeccable genealogy. When he reached Maui, Kapō-nae-nae, sister of the ruler, the first Kahekili, married him. They had two children, Kahekili-a-Kāne and Kū-o-nā-mau-a-ino. When Kahekili-a-Kāne's granddaughter married Lono-a-Pi`i, the *ali`i nui* of Maui at that time, Maui chiefs were able to connect themselves to the ancient Kaua`i line leading backwards to La`a-mai-Kahiki. When Ka-haku-a-Kāne left Maui and returned to Kaua`i, he married Mano-kai-ko`o, like himself a grandchild of Mano-ka-lani-pō. They had a son, Kū-walu-paukū-moku (Wichman 2003: 61-62).

3.5.26 Kū-walu-paukū-moku. His name indicates that the genealogy of the Kona kingdom had not been lost before this time. He was named after an ancestor, the son of Kū-walu-kini-akua, the first settler on Kauai. This Kū-walu genealogy had been joined to that of La-a-mai-Kahiki when Kū-walu-paukū-moku's great-grandfather Mano-ka-lani-pō married Nae-kapu-lani, daughter of Makali`i-nui-kū-a-ka-wai-ea, last ruling chief of Kona. Kū-walu-paukū-moku was a good, wise, and liberal ruler...married Hame-a-Waha`ula, a

cheifess whose genealogy has been lost.... Waha`ula was the first *heiau* built by Samoan priest Pā`ao after he made his first landfall in the district of Puna on Hawai`i island.... Pā`ao left his homeland and brought his god Waha`ula to Hawai`i.... Within Waha`ula's enclosure was a sacred grove of trees said to contain one or more specimens of every tree growing on all the Hawaiian Islands. One of these trees was a *hame*, a medium-size tree with grapelike clusters of sour but edible fruit used to dye tapa; its hard wood was used for anvils for beating *olonā* fiber (Wichman 2003: 62-63).

**3.5.27 Ka-haku-maka-paweo and Ka-haku-a-kukua-`ena.** There are no legends concerning the quiet and peaceful rule of Ka-haku-maka-paweo.... His wife was Ka-haku-a-kukua-`ena, of whom nothing is known, although the name indicates they must have been closely related. They had three sons: Kaile-lalāhai, `A`a-nui-kani-a-weke, and Ka-lani-kukuma. Nothing is known of the two older brothers (Wichman 2003: 63).

3.5.28 Ka-lani-kukuma, Kū-a-Nu`uanu and Pāka`a. During the time of Ka-lani-kukuma, two Kaua`i heroes, Pāka`a and Pikoi-a-`Alalā lived, and their adventures became popular tales of the storytellers. When Keawe-nui-a`Umi, son of `Umi-a-Liloa of Hawai`i, was born he was placed in the care of Kū-a-Nu`uanu who was entrusted as the *kahu* (guardian) to raise and educate the royal youngster.... Kū-a-Nu`uanu became the close advisor of his chief.... After many years, Kū-a-Nu`uanu toured all the islands, leaving his charge behind. Kū-a-Nu`uanu eventually came to Kapa`a where he met La`a-maomao, a descendant of the navigator of the same name who had helped Mo`ikeha, the traveler from Ra`iātea, win his wife many years before. La`a`maomao had inherited the calabash of winds as well as the name of her ancestor. Kū-a-Nu`uanu and La`a-maomao settled down on a bluff overlooking the sea between Kapa`a and Ke`ālia. After six months, word came from Hawai`i that Keawe-nui-a`Umi wanted Kū-a-Nu`uanu to return and take up his duties once again. Before he left Kapa`a, Kū-a-Nu`uanu gave his pregnant wife a white *malo* and a cape woven of *kalukalu*, a grass that grew only at Kapa`a.... After Kū-a-Nu`uanu left, La`a-maomao and her brother Ma`ilou, a bird catcher, raised her son. His name was Pāka`a.... When Kū-a-Nu`uanu died, Pāka`a took his place as the favorite friend of Keawe-nui-a-`Umi (Wichman 2003: 63-64).

**3.5.29 Ka-haku-maka-lina and `Ili-hiwa-lani.** The wife of Ka-lani-kukuma was Kapo-lei-a-kuila, a direct descendant of Haulani-nui-ai-ākea, the oldest son of the seafaring Mo`ikeha. This union of the two lines after ten generations increased the *mana* and aristocratic rank of their two sons, Ka-haku-maka-lina and `Ili-hiwa-lani. Ka-haku-maka-lina became the *ali`i nui* after his father, but within a few generations, the *ali`i* of Kaua`i successfully searched for a ruler among the descendants of `Ili-hiwa-lani. Unknown and unannounced to...Ka-haku-maka-lina, a well-known chief of Hawai`i island, Lono-i-ka-maka-hiki, arrived on Kaua`i. He had just defeated Kama-lālā-walu of Maui.... Lono-i-ka-maka-hiki landed at Waimea.... [Later] Ka-haku-maka-lina made a grand tour of the windward islands. Everywhere he was greeted warmly. When he reached the island of Hawai`i, he was feted by `Akahi-`ili-kapu, a daughter of `Umi-a-Liloa. When it was time for him to return home `Akahi-`ili-kapu sailed to Wailua with Ka-haku-maka-lina. There she gave birth to two children, Ke-li`i-ohiohi, a son, and Koihalauwailaua, a daughter. `Akahi-`ili-kapu returned to Hawai`i with her children, and eventually they married into the Hawai`i *ali`i* line, thus adding the Kauai genealogical mana to the descendants of `Umi-a-Liloa. (Wichman 2003: 67-70).

**3.5.30 Kama-kapu, Kā-kuhi-hewa and Ka-hā-malu-`ihi.** Ka-haku-maka-lina also married Ka-haku-mai`a, a Kaua`i cheifess, whose name indicates that she too was a descendant of Ka-haku-maka-paweo. They had a son, Kama-kapu. [Kama-kapu married Pā-wahine and they had Kawelo-mahamaha-i`a.] When Kama-kapu became *ali`i nui* of Kaua`i, the ruler of O`ahu was Kā-kuhi-hewa, who had earned a fierce reputation as a warrior, statesman, and keeper of the most glorious court in all the islands. By this time he was an old man. For his fourth wife, he chose a young Kaua`i chiefess, Ka-hā-malu-`ihi. She had an impeccable genealogy descending, on her mother's side, from `Ili-hiwa-lani, second son of Ka-lani-

kukuma. From her father, Kawelo-`ehu, she was a direct descendant of Ahukini-a-La`a, this giving her a double-looped genealogy, making her *mana* the strongest on Kaua`i. She owned three powerful *kumukānāwai*.... Ka-hā-malu-`ihi came from the sacred sands of Waimea...and her lands there became a *pu`uhonua* (place of refuge) for those who had broken her laws (Wichman 2003: 70-71).

3.5.31 Ka-hā-malu-`ihi and Kūali`i. Kā-kuhi-hewa died shortly after his marriage to Ka-hā-malu-`ihi, then she married Kāne-kapu-a-Kā-kuhi-hewa, his son. They had Ka-ho`owaha-o-ka-lani. Her great-grandson Kūali`i later became *ali`i nui* of Kaua`i (Wichman 2003: 71) and O`ahu.

> **3.5.32 Kawelo-mahamaha-i`a and Ka-pōhina-o-ka-poko.** It was Kawelo-mahamaha-i`a, son of Kama-kapu and Pā-wahine, who made the fateful decision to create once again a child who bore the *ni`aupi`o* rank..... Kawelo-mahamaha-i`a and his wife Ka-pōhina-o-ka-poko had six children. Their last two were a boy, Kawelo-maka-lua, and a girl, Ka-`āwihi-a-ka-lani, both still young and still virgin.... As soon as it was possible, the youngsters were mated (Wichman 2003: 73).

3.5.33 Kawelo-pe`e-koa, Kawelo-`ai-kanaka and Kawelo-lei-makua. When Ka-`āwihi-a-ka-lani felt the first pangs of labor she was taken to the sacred enclosure of Holoholokū. Ka-`āwihi-a-ka-lani had twins; her first born, Kawelo-pe`e-koa was taken by the priests to be raised in seclusion as the supreme *ali`i kapu*. The second born was Kawelo-`ai-kanaka, who was raised to be a ruler. As the children grew, the island prospered under Kawelo-mahamaha-i`a's rule and peace prevailed. Kaua`i became an island of plenty and its hospitality was renown throughout the islands. Kawelo-mahamaha-i`a had two *luakini heiau* constructed in Anahola where human sacrifices were offered. Rumors began to grow that Kawelo-mahamaha-i`a was part shark and as deaths continued and sacrifices grew, fear turned into anger. One day as Kawelo-mahamaha-i`a traveled back from Anahola he was stoned to death. Kawelo-maka-lua, father of the twins, was a thoughtful and considerate ruler in contrast to his father, Kawelo-mahamaha-i`a and his son, Kawelo-`ai-kanaka, but he didn't live long as a ruling chief. Kawelo-`ai-kanaka or `Aikanaka was afforded awesome power because of his *ni`aupi`o* rank, but his cousin Kawelo-lei-makua (Kawelo) was not impressed. The rivalry between the cousins continued until Kawelo and his younger brother Ka-malama decided to leave Kaua`i and join relatives on O`ahu. They settled on land given them at Halemanu where they often crossed the pass [Kolekole] into Wai`anae to enjoy the ocean. While on O`ahu Kawelo trained in many arts. One day Kawelo had a vision of his parents under duress. The following day two men from Kaua`i brought him a message saying that his cousin `Ai-kanaka had stripped his parents of everything and thrown them from the top of the mountain where they had sought refuge (Wichman 2003: 73-78).

3.5.34 Kawelo and Kāne-wahine-iki-aoha. Kawelo borrowed a war canoe and twenty-four warriors from O`ahu ruling chief Ka-ihi-kapu who waved payment and sailed to Kaua`i with his wife Kāne-wahine-iki-aoha, his brother, his two foster sons, his uncles who had delivered the message, twelve Ulu warriors and his war god Kāne-ika-pua-lena. A great battle ensued and all the champions of `Ai-kanaka were killed and he fled. Kawelo had avenged his parents and now Kaua`i belonged him. He divided the island between his wife, brother, and his foster sons. His brother Ka-malama presided over the Kona district and Kawelo the Puna district with the help of one foster son, Ka-`ele-hā-o-Puna. Peace came to Kaua`i again (Wichman 2003: 78-84).

**3.5.35 `Ai-kanaka and Kawelo.** One day Ka-`ele-hā-o-Puna decided to visit Mānā. He arrived at Wahiawa in the evening and was invited to spend the night. His host had another guest, none other than `Aikanaka who had gone into hiding at Kō`ula valley. `Ai-kanaka immediately recognized Ka-`ele-hā-o-Puna and invited him to spend the night in the company of his daughter Kawelo-`eha. Ka-`ele-hā-o-Puna fell in love with Kawelo-`eha and the two were quickly married. Ka-`ele-hā-o-Puna had little to give `Ai-kanaka for his kindness and eventually

gave him information that Kawelo did not learn to defend himself against an attack by stones. Huge cairns of stones were piled on the plains of Wahiawa. Kawelo heard rumors and asked his brother Ka-malama to investigate. His brother did, an altercation broke out and Ka-malama was killed by Ka-`ele-hā-o-Puna stabbing him in his back. Upon hearing this news of his brother's death, Kawelo sent for his other foster son and his wife, but left before they arrived. He met up with Ka-`ele-hā-o-Puna and `Ai-kanaka who stoned him. He recovered three times, but the fourth time he laid stunned, assumed dead. His body was wrapped in banana stalks and taken to Maulili *heiau* in Koloa to be sacrificed the next morning. The guardians of the *heiau* were Kawelo's sister and her husband. During the night they revived him and when `Aikanaka came to the *heiau* he was killed by Kawelo. However, he spared his foster son Ka-`ele-hā-o-Puna. His wife and other foster son arrived with their forces and killed the fleeing warriors of `Aikanaka. They gathered the body of Ka-malama and demanded the death of Ka-`ele-hā-o-Puna. Kawelo still refused until he was shown that his brother had been stabbed in the back. He killed Ka-`ele-hā-o-Puna with one blow. The legends are not clear at what happened to Kawelo; one possibility was that he had been thrown off the cliff at Hanapēpē by his men who feared his obsession to go after all of `Ai-kanaka's relatives. However, not much time had passed between the death of `Ai-kanaka and the arrival of Kūali`i as *ali`i nui* of Kaua`i, breaking the direct line of twelve generations of ruling chiefs from father to son beginning with Ahukini-a-La`a (Wichman 2003: 84-86).

**3.5.36 Kū-ali`i and Pele-io-holani.** In order to get warriors and a canoe, Kawelo had agreed to cede Kauai`i to Kū-ali`i in case both he and `Ai-kanaka should die in the impending war. Kū-ali`i had as good a claim on Kaua`i as any other *ali`i* as his grandmother was Kawelo-lau-huki, daughter of Kawelo-mahamaha-i`a. He had inherited the *kumukānāwai* of his great-grandmother Ka-hā-malu-`uhi who had been wife to both Kā-kuhi-hewa and his son Kāne-kapu-a-Kā-kuhi-hewa. As a young man Kū-ali`i went to Kaua`i to gather *kauila* wood for weapons and a war club and Kawelo-lei-makua (Kawelo) had been his guide. When Kū-ali`i, who was now ruling chief of O`ahu, heard that `Ai-kanaka had been killed by Kawelo and he himself killed, Kū-ali`i rushed to Kaua`i to declare himself the *ali`i nui*. He installed his son Pele-io-holani as governor. Under Kū-ali`i Kaua`i supplied men and arms to the wars that spread over the windward islands as Kū-ali`i and his son Pele-io-holani established a multi-island kingdom with Kū-ali`i *ali`i nui* of Molokai, Lana`i, and Maui. Kū-ali`i lived to a very old age [some say 175] and at his death his oldest son, Ka-pi`o-ho`okā-lani became ruling chief of O`ahu and Pele-io-holani of Kaua`i (Wichman 2003: 89-90).

**3.5.37 Pele-io-holani, Ka-naha-o-kalani and Ka-`apuwai.** Ka-pi`o-ho`okā-lani immediately invaded Molokai. Alapa`i-nui heard this and went to Molokai to avenge his relatives there and killed Ka-pi`o-ho`okā-lani whose army fled back to O`ahu where his son Ka-naha-o-ka-lani was now ruling chief. He sent a message to Kaua`i to ask his uncle Pele-io-holani for help. Pele-io-holani left his daughter Ka-`apuwai in charge while he was gone. The impending war on O`ahu was averted as the cousins Alapa`i-nui and Pele-io-holani decided to settle peacefully. Pele-io-holani remained on O`ahu as ruling chief and his daughter remained as governor. Ka`apuwai was married to Ka`ume-he-iwā--they were both descendants of Ka-lani-kukuma, giving their daughter Ka-maka-helei stronger *mana* than her parents. Ka`apuwai died before Pele-io-holani and the government went to her daughter Ka-maka-helei (Wichman 2003: 91-92).

**3.5.38 Ka-maka-helei, Kiha, Ka-neoneo and Ka-`eo-kū-lani.** Ka-maka-helei ruled Kaua`i with allegiance to her grandfather. She married a Kaua`i chief Kiha and they had three children: two daughters, Lele-māhoa-lani and Ka-lua-i-pihana, and a son Keawe. Pele-io-holani sent his grandson Ka-neoneo to Kaua`i to check on things and Ka-maka-helei put aside Kiha for Ka-neoneo; they had a daughter Ka-pua`a-moku. Kiha fled to Ni`ihau and gathered a small army

and raided Kaua`i. He was subsequently killed. Pele-io-holani sent for his grandson to help him with problems with Kahekili [II], leaving Ka-maka-helei vulnerable against her uncle Kūmuhana. Seizing this opportunity Kahekili sent his brother Ka`eo-kū-lani to Kaua`i to neutralize the kingdom and woo Ka-maka-helei, who named her son Keawe her heir. It was during this period that Captain Cook landed at Waimea in 1778. Ka-maka-helei presented Cook with gifts of hogs, chickens, bananas, taro, sweet potatoes, sugarcane, yams, fine mats, and tapa cloth. In return Cook presented her with cloth, iron, a sword, knives, bead necklaces and mirrors. Then Ka-maka-helei offered Cook her daughter Lele-māhoa-lani (Wichman 2003: 92-96).

3.5.39 Ka-maka-helei, Ka-`eo-kū-lani and Ka-umu-ali`i. Ka-maka-helei gave birth to a son, Ka-umu-ali`i in 1780 and shortly after, Kahekili sent for his brother Ka`eo-kū-lani to help with problems on Maui. His son Ka-umu-ali`i was declared heir to Kaua`i with Inamo`o as regent. Kahekili died on O`ahu in 1793 and Maui, Molokai and Lana`i came under the rule of Ka`eo-kū-lani, who ruled for a year before becoming homesick for Kaua`i. On his way back he stopped on O`ahu. His nephew, Kalani-kū-pule, thought he was invading O`ahu and a battle ensued. The battle was called off and Ka`eo-kū-lani continued on his journey to Kaua`i. While in Wai`anae he discovered that his counselors were plotting to throw him overboard in mid-channel and return to O`ahu to conquer the island. Ka`eo-kū-lani decided to go into battle with them against Kalani-kū-pule rather than die alone at sea. Ka`eo-kū-lani was killed in `Aiea in 1794 by rounds of gunfire from two foreign ships hired by Kalani-kū-pule; only the two treasonous counselors escaped back to Kaua`i. The following year Kamehameha I invaded O`ahu and Kalani-kū-pule ended as a sacrifice to Kamehameha's war god (Wichman 2003: 96-98).

**3.5.40 Ka-umu-ali`i and Keawe.** Ka-maka-helei's oldest son Keawe attacked Wailua and captured his younger half-brother Ka-umu-ali`i, who was made a privileged prisoner free to wander Wailua, but couldn't leave without Keawe. Keawe then declared himself *ali`i nui.* Ki`i-kīkī, one of the treasonous counselors and *konohiki* of Wainiha, joined Keawe. Ki`i-kīkī's brother Kāne-`ehu was *konohiki* of Hanapēpē. Keawe did well for a year. He collected all the muskets, guns and ammunition on the island as a symbol of power and put his trust in the brothers Ki`i-kīkī and Kāne-`ehu, as no one had returned from O`ahu to warn him of their treachery. They convinced him to take a tour around the island and meet his subjects. In Kapa`a Keawe went to bathe in the famous pool *Kupa-nihi.* While there Ki`i-kīkī got a rifle and shot Keawe. Kāne-`ehu advised his brother to return to Wailua and kill Ka-umu-ali`i, but Ki`i-kīkī refused saying he could control the young chief. Ki`i-kīkī took all the guns and went to Polihale, while Kāne-`ehu went back to Hanapēpē (Wichman 2003: 99).

3.5.41 Ka-umu-ali`i, Nā-kaikua`ana and Kamehameha. Although now free from his brother Keawe and his regent Inamo`o, Ka-umu-ali`i knew that Ki`i-kīkī and Kāne-`ehu were very dangerous, so he turned to Nā-kaikua`ana, a member of his court and a close friend of Ki`i-kīkī. Ka-umu-ali`i bribed Nā-kaikua`ana with his wives. After some time Nā-kaikua`ana realized that he could also be in danger of losing his life so he swore allegiance to Ka-umu-ali`i. To prove his loyalty he offered a plan to regain the guns. When Ki`i-kīkī was out surfing one day at Ka-ua, Makaweli, Nā-kaikua`ana seized the guns. Ki`i-kīkī hurried to Hanapēpē to his brother; both of them fled to `Ewa, O`ahu, but Nā-kaikua`ana followed them and killed the brothers. However, Nā-kaikua`ana returned to Kaua`i with disturbing news; Kamehameha, now ruler of the windward islands, was preparing to invade Kaua`i. After two failed attempts, Kamehameha sent a message to the young chief to recognize him as sovereign. Ka-umu-ali`i realized that it was a matter of time and he didn't have the resources to beat Kamehameha, so he accepted. However, he refused the many invitations to go to O`ahu and make a public oath fearing the same fate as Keōua. After many more invitations an order came that he could not refuse. Ka-

umu-ali`i left Kauai to meet Kamehameha on O`ahu. Kamehameha turned down the offer of the lands of Kaua`i and invited him to land where he was royally entertained. A few days later, members of Kamehameha's court invited Ka-umu-ali`i to a feast. On the way there he stopped to visit Isaac Davis who warned him that they were plotting to kill him there. Ka-umu-ali`i changed his plans. Before leaving he stopped by to see Kamehameha and Ka-lani-moku who told Ka-umu-ali`i to "take care of the chief Liholiho who belongs to you and to your cousin Ka-`ahu-manu. Liholiho shall be the heir" (Wichman 2003: 99-104).

3.5.42 Ka-umu-ali`i, Liholiho and Ka-`ahu-manu. Ka-umu-ali`i could only agree–he went to O`ahu as a ruler and returned to Kaua`i as a vassal, but he saved his kingdom from a bloodbath. Shortly after returning to Kaua`i he received word that Isaac Davis, had himself been poisoned. The young chief's world was continuously changing as more and more ships came; whalers, merchants, including sandalwood merchants, and traders. The traders built a trading post at Waimea and a fort shortly after. With his new-found income, Ka-umu-ali`i purchased guns, ammunition and ships with hopes of some day getting out of the stranglehold of Kamehameha. This was never to be; in 1819 Kamehameha died and his son Liholiho and queen Ka`ahumanu as his regent, took over.

They radically and forever changed the social structure of the Hawaiian society by extinguishing the *kapu* system. The following year Calvin Congregational missionaries arrived in Hawai`i to a society with a structural/religious void, as well as Humehume, oldest son of Ka-umu-ali`i who had been given up as lost. He had been placed in the care of a Yankee captain when he was seven, to be educated. The captain died and Humehume was turned out into the streets. He was later sent to the Congregational school in Cornwall, Connecticut where several other Hawaiian youth were. When the first missionaries left, they took Humehume (George) with them. Humehume and the missionaries were welcomed by Ka-umu-ali`i who gave the missionaries land to build a church and school; Ka-umu-ali`i was later converted.

In 1821 after spending over a month enjoying Kaua`i hospitality, Liholiho invited Ka-umu-ali`i to his brig for dinner. He quietly gave the order to set sail with Ka-umu-ali`i as his prisoner. Later that year he was "compelled" to marry his cousin Ka`ahumanu; she also married his son and heir. From then on the Kaua`i chiefs were kept at her side. In 1824, as Ka-umu-ali`i lay dying, his family were allowed to come to O`ahu, but they were not allowed to see him before he died. He was taken in state to Maui where he was buried next to Ke-ōpū-o-lani (also his cousin), sacred queen of Kamehameha. (Wichman 2003:104-110); he was the last king of Kaua`i.

3.6.0 `Ōlelo No`eau. *`Ōlelo no`eau* or proverbial/traditional sayings usually had several layers of meanings. They reflected the wisdom, observations, poetry and humor of old Hawai`i. Some of them referenced people, events or places. The following *`ōlelo no`eau* were compiled by Pukui between 1910 and 1960 with both translations and an explanation of their meaning (Williamson, et al. in Pukui, 1983:vii), which are often more *kaona* (hidden or double meaning) than obvious; they refer to places or *alii nui* associated with places and people of Hā`ena and other places in the vicinity.

`Ōlelo no`eau:	*Kilioe wahine i uka.*
Translation:	Kilioe, woman of the upland.
Meaning:	Kilioe was a *wahine mo`o* (lizard woman) famed in chants and songs of the *ali`i.* She belonged to Kaua`i and it was she who tried to prevent Hi`iaka from taking the body of Lohiau from a cave at Hā`ena (#1799, p 193).

'Ōlelo no'eau:	*'Ō'ili pulelo ke ahi o Kāmaile.*
Translation:	The fire of Kāmaile rises in triump..
Meaning:	Said of one who is victorious over obstacles, this is the first line of a chant composed for Kamehameha II. In olden days, firebrands hurled from the cliffs at Hā`ena, Kauai, made a spectacular sight (#2392, p 261).
'Ōlelo no'eau:	*Nui ka hanu o Limahuli i na Lehua o Lulu`upali.*
Translation:	Heavily-sighed Limahuli falls over the Lehua blossoms of Lulu`upali.
Meaning:	Said of a person in love who sighs over a sweetheart (#2347, p 255).
'Ōlelo no'eau:	*Na Lehua o Lulu`upali*
Translation:	The lehua blossoms of Lulu`upali
Meaning:	Famed in songs of Kauai were the Lehua blossoms of Lulu`upali (#2251, p 246).
'Ōlelo no'eau:	*Ka laua`e `ala o Kalalau*
Translation:	Fragrant laua`e ferns of Kalalau
Meaning:	Makana and Kalalau on Kauai were noted for the growth and fragrance of *laua`e* (#1433, p 155).
'Ōlelo no'eau:	*Ka pali `ō ahi o Makana*
Translation:	The firebrand-hurling of the cliff of Makana
Meaning:	*Pāpala* or *hau* wood was cut, thoroughly dried and carried up the hillside to where an *imu* lay ready to be lighted. When dusk descended, the *imu* was lighted and the logs placed in it. When the blowing of the wind was just right, the lighted log was hurled into the wind and borne seaward, high over the heads of the spectators, before dropping into the sea (#1532, p 165).
'Ōlelo no'eau:	*Ka poli laua`e o Makana*
Translation:	Makana, whose bosom is adorned with *lau`e* ferns.
Meaning:	Famed in songs and chants are the fragrant *laua`e* ferns of Makana, Kauai (#1542, p 166).
'Ōlelo no'eau:	*Laua`e o Makana*
Translation:	The *laua`e* fern of Makana.
Meaning:	Famed in songs and chants is the *laua`e* that grows everywhere at Makana on Kauai. When crushed it has a scent similar to that of the *maile* and is often used with the pandanus fruit in making *lei* (#1949, p 210).
'Ōlelo no'eau:	*Ke ahi lele o Kāmaile*
Translation:	The soaring fire of Kāmaile
Meaning:	This refers to the firebrands hurled off the cliffs at Napali, Kauai (#1669, p 180).
'Ōlelo no'eau:	*Na hala o Naue `au i ke kai.*
Translation:	The *hala* trees of Naue swim out to sea.
Meaning:	The *hala* trees of Naue, Kauai seem to reach out to sea. This expression is used in songs and chants (#12212, p 242).
'Ōlelo no'eau:	*Ka ua Makako'i o Halele`a*
Translation:	The adz-edged rain of Halele`a.

Meaning:	A rain so cold that it feels like the sharp edge of an adz on the skin. Refers to halele`a, Kauai (#1586, p 172).
'Ōlelo no'eau:	*Kauai a Manokalanipo*
Translation:	Kauai of Manokalanipo
Meaning:	Manokalanipo was a chief of Kauai in ancient times (#1556, p 168).
'Ōlelo no'eau:	*Ka moku kā`ili lā o Manokalanipo*
Translation:	The sun-snatching island of Manokalanipo
Meaning:	Kaua`i, the northwestern most island of the group, beyond which the sun vanishes at dusk. Manokalanipo was an ancient ruler of Kauai (#1488, p 161).
'Ōlelo no'eau:	*I ke kaua e `ike `ia ai a hoaloha a me na kānaka koa.*
Translation:	It is in war that one learns who his friends are and who among them is brave.
Meaning:	One learns who one's friends are when one faces trouble. Said by Ka`eo to the chiefs of O`ahu, who were fighting against Kalanikūpule (#1210, p 131).
'Ōlelo no'eau:	*`Akāhi a komo ke anu ia`u, ua nahā ka hale e malu ai.*
Translation:	Cold now penetrates me, for the house that shelters is broken.
Meaning:	Fear enters when protection is gone. Said by `Aikanaka of Kaua`i when two of his war leaders were destroyed by Kawelo (#90, p 12).

3.7.0 Place Names. Hawaiians of old generally named everything; from winds and mountains, to rocks, canoes, taro patches, fishing stations, and "the tiniest spots where miraculous or interesting events are believed to have taken place" (Elbert in Pukui et al., 1974:x). They all represented a story, some known only locally, while others became legendary. The list below (Table 2) represents place names with an association to project lands in Hā`ena and vicinity.

Table 2. Place names (*selected) and in the vicinity of Hā`ena and their significance.

Hā`ena	Tucked against the Nāpali cliffs is the ahupua`a of Hā`ena; "red hot" – possible reference to strong kapu that surrounded this place (Wichman 1998:125). Land section, village, point. *A Lohi`au-ipo i Hā`ena lā, `ena`ena ke aloha ke hiki mai;* and Lohi`au-ipo at Red-hot, hot the love that comes (Pukui et al. 1974:34). Hā`ena was always ruled by a chiefess who was independent of the *ali`i nui* and who ruled for life. One high chiefess was Kekela who was alive during the Mahele and directed the people to file their land claims. Hā`ena was also noted for the quality of dog grown here as food for the chiefesses who were not permitted to eat pork (Wichman 1998:126).
Hala-anlani	"Clear-pandanus" – the lake of fresh water within the upper wet cave of Hā`ena; it was set aside for the *ali`i* and commoners could not bathe in it. The waters were thought to be able to restore an ailing person back to health. The chiefds either drank from a calabash filled with the water or swam in the underground lake (Wichman 1998:129).
Halele`a	"House of happiness" – cited in chants as the most beautiful place in all the islands. Moku or district on Kauai that includes Kalihiwai, Kalihikai, Hanalei, Wai`oli, Waipā, Waikoko, Lumaha`i, Wainiha and Hā`ena; the extent includes

Wai`ale`ale to the sea, bordered by Napali on the west and Puna (the Makaleha Mtns) and Ko`olau on the east (Wichman 1998:105).

Ka`aulama-poko A fishing hole near shore "light from a short-burning torch" because it can be fished at night using a *kukui* nut torch, which never burned for very long (Wichman 1998:125).

Kai-kua`au-o-Hā`ena "Lagoon sea of Hā`ena" – the only lagoon on Kauai – protects Makua Bay (Wichman 1998:125).

**Ka-lua-`aweoweo** "`Āweoweo hole" is the fishing hole at the farthest point from land; the `āweoweo gather in this grotto – it was eaten raw, cooked or dried. A large school of young `āweoweo (`alalaua) swimming into the bay was an omen of the death of a high chief (Wichman 1998:125).

Ka`iwi-ku`i A Hawaiian man and his wife used to steal from the fields of the Menehune farmers in Mānoa Valley; he was chased up the ridge toward Pōhaku-o-Kāne where he put up a fight, but the Menehune used their slingshots and pelted him with stones. Some were so large thst the bones of his skull were shattered...in this form he was turned to stone -- the ridge where he lies was named Ka`iwi-ku`i or "hammered bone" (Wichman 1998:126-127).

Ka-ulu-o-Laka "Inspiration of Laka" – Hā`ena was famous for its schools where students came to study the sacred forms of *hula* or to learn the history and genealogies of the chiefs. Ka-ulu-o-laka [*heiau*] was the school of *hula*, chanting and composing religious chants as well as songs. The student remained for seven years. The *heiau* and the student were dedicated to Laka, goddess of the forest and dance (Wichman 1998:132).

Ka-ulu-o-Paoa "Inspiration of Paoa" – This *heiau* was the school for historians and genealogists. It wa said that during the final examination a student listened to a genealogical list that lasted several hours and had to repeat it withour error. Paoa was the *kahuna nui* and close friend of Lohi`au at the time of Pele's arrival. He swore to avebge Lohi`au's death and confronted Pele at her home on Hawai`i. Pele, assuming her most beautiful form, beguiled paoa into living with her for three days. He drowned himself in shame for not having kept his oath (Wichman 1998:132).

**Ke-a`a-lewalewa** "Dangling root" is a peak on the east side of Mānoa Valley; *a`a lewalewa* are aerial roots of the *`ōhi`a lehua* tree of the forests or the pandanus tree of the lowlands. Kea`alewalewa was a Wainiha man who constantly stole food from the Menehune farmers of Mānoa Valley.They got so angry after a time that they chased after him and turned him into stone (Wichman 1998:126).

**Kē`ē** "Avoidance" – beach and cliff west of Hā`ena, Kauai (Pukui 1974:105). The beach and lagoon at the beginning of Nāpali District is Kē`ē, the site of the legend of Pele, Lohi`au and Hi`iaka. Pele came to Kē`ē when she was first looking for a home and safety from her sister Nāmakaokiaha`i. Once she found her home on Hawaii Island she was lured back by Lohi`au's drumming. She returned and found him and fell in love with him, but each time she dug a cave to make a home for them, she met with water. She left Kauai as she was in her spiritual body, promising Lohi`au she would return for him. After a long wait, Lohi`au hung himself in despair. His body was placed in a cave above Kē`ē and was guarded by two *mo`o* sisters Kililoe and Aka. When Hi`iaka and Wahine-`ōma`o arrived as envoys from Pele they found Lohi`au dead. Hi`iaka killed the two guardians and with herbs and prayers restored Lohi`au's life then took him to

Pele, who in the meantimne had destroyed Hi`iaka's *Lehua* forest. The angry Hi`iaka embraced Lohi`au so Pele covered him with lava. Hi`iaka dug a tunnel from the sea to her sister's fire pit and almost succeeded in killing Pele, but their brothers persuaded her not to. Hi`iaka returned to Kauai; her brothers restored Lohi`au's life once more and sent him after Hi`iaka. They married and spent the rest of their life together at Kē`ē (Wichman 1998:130).

Kililoe The body of Kilioe became a furrowed rock beside the sea that is still used as a birth rock, a place fore safeguarding the umbilical cord of newborns. In doing so, the child is placed under the protection of Kiloe. The ancients believed that the fate of the umbilical cord foretold the child's life (Wichman 1998:130).

Koa-manō On the way to Kauai, Makani-kau, chief of the winds, god of love, was crossin g the channel between O`ahu and Kauai in his wind form and saw some people being chased by a big shark. He landed on the canoe and told the frighteded people he would play with the shark and they needn't worry. He jumped into the sea and the shark opened its mouth to seize him but he climbed onto it and caught its fins and forced it to flee through the water into the rocks and became the great shark stone Koa-manō "shark warrior." Kahuna Pa`ihutu would go to this rock and offer prayers and food to a shark. The shark would then carry him to Kalalau and back again (Wichman 1998:125-126).

Limahuli "Turning hand" – a deep valley in Hā`ena (Wichman 1998:125; Pukui et al. 1974:133).

Makana "Gift" – a triangular peak, prominent and unmistakable. Firebrands were thrown from the top of this peak. On the side of Makana is a storied stone, a reminder of a tale of friendship. Nou was a boy who saved the life of a Menehune who had fallen; in return the Menehune promised Nou that he would become a champion firebrand thrower. The other firebrand throwers became jealous of Nou and his prizes and killed him. The Menehune put Nou's body into a cave and sat at the entrance and allowed himself to turn into stone to guard the bones of his friend (Wichman 1998:129).

Makua "Ancestor" – a large lagoon and bay in the *ahupua`a* of Hā`ena (Wichman 1998:125).

Manini-holo "Traveling reef surgeon fish" – large cave on Ka`iwiku`i Ridge; Manini-holo was also the head fisherman at the time the Menehune were leaving the island to return to their homelands. He brought his workers to gather food from the reef and bay of Hā`ena; during the night all the food disappeared, but Manini-holo saw the *e`epa* in the fissures of the pali and realized they were the thieves so they killed them. The Menehune gathered in the mountains, crossed Nāpali coming to the plain in front of Manini-holo where they boarded their canoes in Makua Bay. They sailed away and never returned (Wichman 1998:127-128).

Mānoa "Thick" – a shallow valley in Hā`ena (Wichman 1998:125). Stream (Pukui et al. 1974:146).

Naenae "Congested" – wife of Hawaiian man who stole from Menehune farmers; they chased her into Limahuli Valley. She stopped to rest near the waterfall where the Menehune caught her and killed her. She was turned to stone and is called Naenae (Wichman 1998:126).

Nā-hiki "Many arrivals" – the bay beside the two *heiau*. At the end of their training students at the *hula* school had to swim the lagoon, go out the channel into the

ocean and come ashore at Nāhiki where even on calm days, the waves surge fiercely in and out. In so doing they passed the shark that was fed by the chiefess. Those students who had broken any rules were devoured by it. Those who were without fault came ashore safely (Wichman 1998:132).

Nā-piliwale "Clinging ones" – a stone formation on the Mānoa ridge looks like two running figures with skirts flying up behind them. It was the custom of the four Piliwale sisters to visit a chiefs court and remain until all the food in the area had been consumed. Therefore their appearace heralded a forthcoming famine. They had extraordinary appetites; their favorite foods were freshwater shrimp and snails and the fiddlehead fern. Two sisters came to Hā`ena and because they were *kupua* and could not tolerate the sun, Lohi`au and his sister Kahua buildt them a shelter in Maniniholo Cave and one on the ridge so they could enjoy the view. They were fed their favotite foods at night and entertained by every hula dancer at the school at Kē`ē. One night they forgot the time and raced down the ridge to the cave but the sun's rays caught them and turned them into stone; they remain there as a warning to the other two sisters not to visit Kauai (Wichman 1998:127).

`O`o`a`a "Fast-rooted one" – a boulder formerly on Hauwā reef that now lies in the depths. `O`o`a`a camed to Kauai with her two brothers in the form of rocks; after their long journey she rested on the sea and became a guardian of the reef. She was moved from the reef in the 1946 tsunami where she is still waiting for her brothers offshore. She can be seen by snorkelers (Wichman 1998:128).

Pā-ka-moi "Enclosure of the threadfish" – a boulder near the base of the upper wet cave; also connected to the story of Pele and Lohi`au. When Hi`iaka and her companion Wahine`ōma`o reached Hā`ena they asked Pākamoi a fisherman to find them a place to sleep for the night. He mistook the tenor of their request and after watching them loosen their clothes in preparation for sleeping, he attempted to fulfill his desires on Hi`iaka who was saved by Pā`ū-o-Pala`e, a friend and servant, who changed places with her. Pākamoi was turned to stone where he lay (Wichman 1998:129).

Pōhaku-o-Kāne "Stone of Kāne" – brother of `O`o`a`a who tried to climb to the peak above but because he was round and the cliff was sheer, he would roll back to the bottom where he would start over. The god Kāne took pity on him,r eached down and placed the rock on the peak. It is said that when Pōhakuokāne decides to leave his perch, Kāne will raise the waters of the ocean to his level (Wichman 1998:128).

Pōhaku-loa "Long-rock" – the other brother of `O`o`a`a who rested on the top of the sand dunes (Wichman 1998:128).

Wai-a-Kanaloa "Water made by Kanaloa" – Kanaloa was one of the four major Hawaiian gods and brother of Kāne. They were known for digging sources of drinking water as they toured the various islands. The upper wet cave (Wai-a-Kanaloa) in Hā`ena was dug by Kanaloa. Other legends say it was Pele who struck the cliff here with her staff *Pā`oa* when she was searching for a home, but was met by water instead (Wichman 1998:129).

**Wai-a-ka-Pa-la`e** "Water of the lace fern" – the lower cave in Hā`ena. In the olden times, the water in the xcave had a brownish hue, which was siaod to be the hair of a beautiful mo`o maiden who could usually be seen sitting near the entrance of the cave combing her hair. A chief from Wainiha fell in love with her and the two disappeared for several months. Then the mermaid reappeared with a baby at

her breast. When asked where the chief was , she drew her finger across her neck to indicate that he was dead. In revenge, his friends tried to kill the mo`o but she dove into the water and escaped. Her long hair spread out in the water giving the pool its color. As she grew older the brown tint turned gray. For this reason the cave was known either as Wai-a-kapa-lae - "water of twerror" or Wai-a-kapa-la`e – "water of shiny tapa" (Wichman 1998:129-130).

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* Ili place names are too numerous therefore not listed here, with the exception of Kō-`ula.

3.8.0 Wind Names.

3.8.1 Winds of Halele`a.

Halele`a is cooled by *Kaiālulu*, a pleasant and gentle trade wind; and sometimes the forceful Ko`olau trade wind *Hao-Ko`olau-o-Halele`a.*

3.8.2 Winds of Hā`ena.

A tale was recounted by Joseph M. Poepoe in 1911, Pele states, "He mau wahi makani hoakaaka ko Haena nei, a ola keia; e hoolohe mai oukou (PW 2004):

He Kalahale ka makani o Haena
He Limahuli ka manaki o Haena
He Kolokini ka makani heenalu o Kahuanui a Lohiauipo, i Haena
He Unukupua ka makani lawe leo a Lohiau-ipo i Haena
He Kanaenae ka makani kaili aloha a Lohiau i Haena
He Kilauea ka makani kaili aloha a Lohiau i Haena
He Leoikua ka makani lawe aloha a Lohiau-ipo i Haena
He Ipo noenoe lauae ka makani kii wahine a Lohiau ipo i Haena
Aloha wa'e o Lohiau-ipo i Haena e--!"

Drawing on work done by Mary Kawena Pukui as well as his own experience as a long-time resident of Ha'ena, Frederick Wichman elaborates on these winds (PW 2004):

Kalahale refers to a house gable, but was also name of a chiefess of Ha'ena.

Limahuli, "turning hand," is also the name of the valley in which this wind occurs.

Kolokini is the "surf-raising" wind (*makani he'enalu*) of the Kahuanui surfing area . Kahuanui is sister of Lohi'au. the surfing area is on the Ke'e side of where Limahuli stream enters the sea.

Unukupua, the "demi-god's altar." Mr. Wichman says this is the "voice-bearing wind of Ha'ena," which he believes must refer to a women's chorus, because it sounds like a chorus of women chanting.

Ka na'e na'e or "sweet fragrance," is the fragrance-bearing wind of Ha'ena. It is probably an evening wind. Na'ena'e is the name of several varieties of a native shrub with large cones of blossoms. But it may also refer to the scent of the laua'e ferns for which Makana mountain is famous. Ka na'ena'e is also a boulder up in Limahuli discussed in the Storied Places page.

Kilauea is the "love-snatching" wind (*makani ka'ili aloha*) of Ha'ena.

Leoikua refers to voice of the gods heard in the elements; "the love-bearing wind" (*makani lawe aloha*).

Ipu no'eno'e, or "sedate sweetheart," is "the woman-fetching" (*ki'i wahine*) wind of Ha'ena.

3.9.0 Historic References.

By and large "Historic References" pertain to notable historic events, overviews of important place names and land tenure within the project area and districts. One of the most significant practices in the history of the Hawaiian people was their concept of stewardship of the land. However, over time, these practices were replaced by more western methods of land tenure and use, as the lands of Kauai went from the domain of the monarchy to various individuals and corporate entities.

3.9.1 History of Land Divisions. It was during the time of Kūkona (ca. 1400s), father of Mano-ka-lani-pō (ca. 1405-1455) that the division of lands is said to have taken place (Wichman 2003:53-54). The islands were portioned into districts, sub-districts, and smaller divisions, each ruled over by an agent appointed by the landlord of the next larger division, and the whole under control of the ruling chief over the whole island or whatever part of it was his to govern (Beckwith 1970:383). Each island was divided into *moku* or districts that were controlled by an *ali'i 'ai moku*. According to Maly (2003:21):

> In 1859, the district boundaries on the island of Kaua'i were modified for "taxation, educational and judicial purposes." The re-districting, caused problems in regards to the traditional boundaries and storied places, and also incorporated the island of Ni'ihau into the Kaua'i jurisdiction. Section 498 of the Civil Code of 1859 laid out the districts in the following description:
>
> The islands of Kauai and Niihau shall be divided into six districts, as follows: 1. From Nualolo to Hanapepe, inclusive, to be styled the Waimea district; 2. From Wahiawa to Mahaulepu, inclusive, to be styled the Koloa district; 3. From Kipu to Kamalomalo, inclusive, to be styled the Lihue district; 4. From Anahola to Kilauea; inclusive, to be styled the Anahola district; 5. From Kalihiwai to Honopou, inclusive, to be styled the Hanalei district; 6. Niihau...
>
> ...On Kauai the ancient district of Kona was divided into two, namely Waimea and Koloa, each named from an *ahupuaa* and important town within its confines; the name of the ancient district of Puna was changed to Lihue, a place name borrowed from Oahu and used subsequently for the name of an important town in that district; the name of the ancient district of Koolau was changed to Anahola, the name of an ahupuaa within its boundaries; the ancient districts of Halelea and Na Pali were merged and called Hanalei after an *ahupuaa* and town in Halelea. The island of Niihau was made a separate district of Kauai. [King 1941:21-22]

Within each of the *moku* on each island, the land was further divided into *ahupua'a* and controlled by land managers or *konohiki*. The boundaries of the *ahupua'a* were delineated by natural features such as shoreline, ridges, streams and peaks, usually from the mountain to the sea, and ranged in size from less than ten acres to 180,000 acres (Moffat and Kirkpatrick 1995:24-29, see also Chinen 1958:3). But sometimes "only the line of growth of a certain tree or grass marked a boundary; and sometimes only a stone determined the corner of a division" (Chinen 1958:1). The ideal *ahupua`a*, from mountain to the sea, enabled a chief and his followers to obtain fish and seaweed at the seashore, taro, sweet potatoes and bananas from the lowlands, and forest products from the mountains. However, this more often than not, was not the case (Chinen 1958:3).

Each *ahupua'a* was often divided and sub-divided several times over (i.e., *`ili, kuleana, mo'o, pauka, koele, kiha pai*), answerable to *ali'i* where the lesser division was located. However the *ili kupono* or the *ili ku* was "completely independent of the *ahupua'a* in which it was situated...tributes were paid directly to the king himself" (Chinen 1958:4). Some *ahupua`a* did not have any *`ili*, while others had as many as forty, "each with its own name and carefully defined boundaries" (Chinen 1958: 3). *Mo`o* or *mo`o`āina* were the next size of land division; these were set for cultivation purposes only. *Mo`o* were subdivided into *pauka* which were also for cultivation only. Patches of land cultivated by tenants for their chiefs were called *koele* or *po`alima* because they were worked only on Fridays. A *kihapai* was cultivated only for the tenant and his family. Rights to lands were mutable or revocable; a ruling chief or any "distributor" of lands could change these rights if displeased, or as favors--usually after a victorious battle, and after the death of the *ali'inui* (Chinen 1958:5).

During the period between 1839 and 1855, several legislative acts transformed the centuries-old Hawaiian traditions of *ali'inui* land stewardship to the western practice of private land ownership. In the first stage King Kamehameha III (Kauikeaouli) divided up his lands among the highest ranking *ali'i* (chiefs), *konohiki* (land managers), and favored *haole* (foreigners) (Chinen 1958:7-14; Moffat and Fitzpatrick, 1995:11, 17). This historic land transformation process was an evolution of concepts brought about by fear, growing concerns of takeovers, and western influence regarding land possession. Kamehameha III, in his mid-thirties, was persuaded by his *kuhina nui* and other advisors to take a course that would assure personal rights to land.

In 1846 he appointed a Board of Commissioners To Quiet Land Titles, commonly known as the Land Commission, to "confirm or reject all claims to land arising previously to the 10th day of December, AD 1845." Notices were frequently posted in *The Polynesian* (Moffat and Kirkpatrick, 1995). However, the legislature did not acknowledge this act until June 7, 1848 (Chinen 1958:16; Moffat and Kirkpatrick, 1995:48-49), known today as *The Great Mahele*. "The mahele did not actually convey title to the various *ali'i* and *konohiki*; it essentially gave them the right to claim the lands assigned to them--these lands became known as the *konohiki* lands. The *konohiki* chiefs were required to present formal claims to the Land Commission and pay a commutation fee, which could be accomplished by surrendering a portion of their land to the government." The government could later sell these lands to the public. Upon payment of the commutation fee, the Minister of Interior issued a Royal Patent to the chief or *konohiki*. The last one-third was originally designated to the *maka'ainana*, but not acted on--instead it was set aside to the government, "subject always to the rights of the tenants" (Moffat and Kirkpatrick, 1995:41-43; see also Chinen 1958:15-21). *Ili kupono* were the only *ili* (parcel) recognized in this process, all the *ili* and lesser divisions were absorbed into the *ahupua'a* claim (Chinen 1958:20).

In 1892 the legislature authorized the Minister of Interior to issue Royal Patents to all *konohiki* or to their heirs or assignees where the *konohiki* had failed to receive awards for their lands from the Land Commission. The Act further stipulated "that these Royal Patents were to be issued on surveys approved by the Surveyor General of the kingdom" (Chinen 1958:24; Moffat and Fitzpatrick 1995:41-43). Kamehameha III formalized the division of lands among himself (one-third) and 245 of the highest-ranking *ali'i* and *konohiki* (one-third) between January 27 to March 7, 1948. He acknowledged the rights of these individuals to various land divisions in what came to be known as the *Buke Mahele* or 'sharing book.' These lands, however, were all "subject to the rights of native tenants" or *kuleana* lands, with reversionary rights to *ahupua`a* and *ili kupono* claimants if the tenant died without heirs (Chinen 1958: 29-30). The *Great Mahele* marked the end of the feudal system in the kingdom (Chinen 1958:15).

3.9.2 Ahupua`a of Hā`ena in the Moku of Halele`a.

The *ahupua`a* of Hā`ena is located in the *moku* of Halele`a. The *mo`olelo* depict Hā`ena as a special place for a very significant chiefly class who interacted with deities such as Pele and her sister Hi`iaka. It was a sacred place where Chief Lohiau and his sisters paid tribute to Laka and perpetuated the hula in a *halau* (school) whose significance is still honored to this day by *kumu hula* (teachers) and their *haumana* (students). Hā`ena as a chiefly residence continued into the nineteenth century with the Mahele Award [LCA 10613] of Hā`ena lands to *ali`i* Abner Pākī, father of Princess Bernice Pauahi Bishop and husband of L. Konia, granddaughter of Kamehameha I.

> Accompanying these chiefs and chiefesses were retainers and favored tenants who provided for the immediate needs of the chief's household.... Hā`ena has limited *kula* lands (flat, open fields/pastures) being that the cliffs drop so sheerly to the shore. Premium *kula* lands would be dedicated to those uses which sustain life – *auwai*, taro cultivation and residence (Silva 1995:18).

As an ahupua`a chief he was entitled to select a *kapu* fish and produce of the land (generally taro); Pākī claimed that the *he`e* was the *kapu* fish of Hā`ena and had at least 12 *koele* that were cultivated for him (Silva 1995:25).

Ahupuaa	*Number of Claims*	*Number of Awards*	*Ali'i Claimant*
Haena	34	25	A. Pākī

Kingdom Konohiki Records 1852; 1854; 1857: Abner Pākī informs that *he`e* (octopus) is the *kapu* (restricted) fish [sic] of Hā`ena (In Maly 2003:19).

Ahupua`a were allowed a *konohiki* or land manager and circa 1837, Esetera Kekela was appointed as Hā`ena *konohiki* making her one of very few women who held this position; she too later claimed Mahele lands [5 parcels] in Hā`ena.

3.9.3 Mo`olelo of Kekela

> Kekelaakalaniwahikapa`a (Kekela) had married Kamehameha I half-brother Kalaimamahu in 1804; five years later in 1809 she is widowed and in 1810 she is given [by Kamehameha I] to Kamaholelani [nephew of Kaumuali`i, king of Kauai] and returns with him to Kauai to live. Kamaholelani and Kekela settle at Lumahai, an ahupua`a not far from Haena, which Kaumuali`i had given to both of them (Kamakau 1992:195 In Silva 1995:28-29).
>
> Kamaholelani is sometimes referred as Kaumualii's cousin and his son. It was said that like Kaumuali`I and very few other chiefs of this time (early 1800s), Kamaholelani was adept at speaking and reading the English language (Kamakau 1992:244-245). He apparently was a court favorite and was well-respected among his peers. In 1820 Kamaholelani dies. Kekela remains at Lumahai until 1824. In that year, Kaumuali`I passes away, civil strife results and control of the Kauai dominions is given to Oahu and Maui chiefs. Kekela returns to Oahu and either forfeits Lumahai or is disposed of it. Further, not only is Kekela well-spoken for in the courts of Kamehameha and Kaumualii, she is also the sister of Abner Pākī's own mother. Hence, her close association to her Haena claim, Pākī's claim to the entire *ahupua`a* and her management of Pākī's Haena holdings (Silva 1995:29).

> Land records reveal that Kekela had arrived there [Hā`ena] in 1839 and had probably become settled with her entourage and tenants by 1847 [see missionary census below]. Kekela's obituary indicates that she was born about 1778, making her 69 in 1847 (Silva 1995:22).

Konohiki E. Kekela also claimed that the *he`e* (octopus) was her *kapu* (restricted) fish of Hā`ena; and the lehua the special plant of Hā`ena.

Interior Department Doc No. 11 (1850) (In Maly 2003:20):

Aina	Konohiki	Ia Hoomalu	Laau Hoomalu
Haena	*Kekela*	*He`e*	*Lehua*

> Kekla also listed among the usual *konohiki* responsibilities, the management of 12 *ko`ele* whose names she gave as: Pākī, Kahookumaka, Oahu, Kapalaa, Akole, Kaluahine, Kaililili, Peekauai, Kalaole, Koi, Kanaele and Keokea. Soon after settling in Hā`ena, testimony reported that she made three *loko* or ponds within the *ahupua`a*. Native testimony does not reveal the names, locations, sites or nature of these ponds or whether these ponds are the *loko kalo* which she claimed in her application (see LCA #7949) (Silva 1995:26).
>
> Kekela died in Honolulu in 1865 without issue. Her obituary read:
>
> > Death of an ancient woman. On Thursday, May 15, died at Honolulu, KEKELA, an aged Hawaiian female, believed to be eighty-seven years old. She was a nurse or *kahu* of the late high chief Pākī, and through a long life of upright conduct and fidelity, she has enjoyed the respect and esteem of the chiefs and all who knew her. (Hawaiian Gazette June 17, 1865 p.5 c.4) (In Silva 1995:29-30).

3.9.4 Hā`ena Mahele Awards in Hā`ena State Park Lands.

Eight LCA claims for Hā`ena were within the Hā`ena State Park boundaries and included Pākī and Kekela as well as these below (Silva 1995:30-33):

> **Haole** – LCA #7998: 8+ Lo`i 100 (f) X 25 (f), bound by Makana cliff and other cultivated lots; given to him by Mokuohai. This parcel was formerly cultivated by an older Haena tenant Hoolealii whose claim was not supported by Kekela who said Hoolealii had returned his taro land in 1834 because he suffered poor health and was unable to maintain it.
>
> **Kanehakili** – LCA #7996: His land was given to him by Kekela in 1839; his lo`i measured 50 X 35 (f) and was surrounded by lo`i on three sides and by the beach on the other side...his house was located in kekela's lot where he lived since 1839.
>
> **Nanahu** – LCA #8200B: Taro lands measured 20 X 15 (f); they appear to be situated between Loko Naia and Loko Kē`ē and his houselot is seaward of Loko Naia. Nanahu testified that his claim descended to him from his relatives from the days of Kaumualii (pre-1824). He had received the land immediately from his brother who died in c. 1839. In c. 1840, **Mokuohai** arrived at Haena, asking for a place to set up residence and plant taro. His lot was considered one of the most attractive and fertile parcels in the area. Nanahu and Kekela allowed Mokuohai use of part of the land, no gifting, however Mokuohai who may have been associated with kekela claimed a part of Nanahu's land and was awarded this parcel. Mokuohai gave Haole land to cultivate in 1846; this land was formerly cultivated by Hoolealii although Haole claimed them in LCA 7998. Hoolealii had maintained his houselot in Nanahu's parcel, thus Nanahu's *makai* parcel contained

both Nanahu and Hoolealii's houselots.... Mokuohai and Haole may have had an affiliation with Kekela as they both arrived in Haena after 1839 when Haena was under Kekela's management. Kekela testified supporting both Mokuohai and Haole claims and discredited Hoolealii....

Mokuohai – LCA #8200C/RP 7091: Mokuohai acquired his awards (houselot and pondfield adjoining Loko Naia) from Kekela in the 1840; in c. 1844 Mokuohai received Loko Kē`ē; his holdings totaled 4.25 acres 25 rods which was considered a sixable holding for Haena. Upon his death, his award descended toi his grandchild and heir, Kaenaku.

Naiwi/Naiwa – LCA #10941/RP 6388: Naiwi received his taro lands from the *konohiki* prior to 1839. These lands contained 10 lo`i, a houselot adjoined them – the houselot was given to him by Kekela in c. 1839. These parcels appear to be situated in the midst of extensively watered taro lands.

Pea – LCA #10674/RP 7638: Pea was a tenant from the days of Kaumualii [but] his claim was supported by Kekela; he claimed a houselot, 3 large taro pondfield and 10 smaller ones. His parcel was surrounded by well-watered taro lands, bound on the seaward side by sand hills. Pea died in 1849 and his widow claimed and was awarded the parcel under his name.

3.9.5 Taro Lo`i.

Land registry and testimony numbered well over 150 taro pondfields of varying sizes and shapes in Haena. Of these 40 or so were situated within the park site. That Haena was well-developed and productrive is unquestioned. Its water resources and available cultivable lands appear to be utilized maximally (Silva 1995:35).

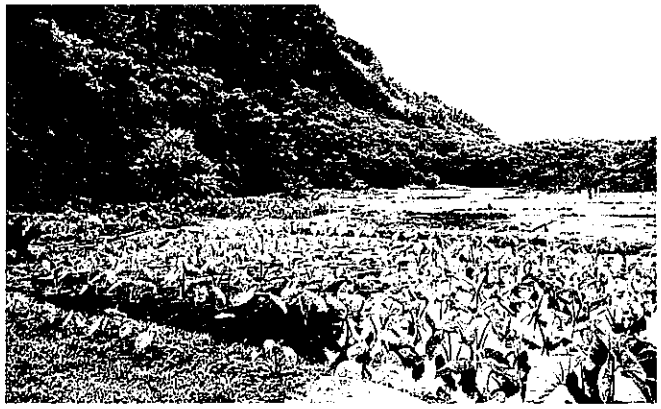

Photo 11. Taro Lo`i of Hā`ena State Park

3.9.6 Hā`ena Pu'uone (Dune-banked Ponds).

Among the significant natural features in Ke'e are the *pu'uone* (dune banked ponds), called Loko Ke'e and Loko Nai'a. The ponds, referenced in *kuleana* claims, 8200 B and 8200 C, were modified for cultural subsistence uses in antiquity, and remained in use through the early 1900s as fishponds and taro pond fields (In Maly 2003:34).

One claim in the area generally known as Ke'e, specifically, the area of Loko Ke'e (Helu 8200 C) (Maly 2003:8).

8200 B Nanahu at Haena, Kauai. House lot, kula and *Loko* "Naia". *Loko* Naia (Naia Fish Pond) is bounded *mauka* by *Loko* Kee and *makai* by sea beach.

8200 C Mokuohai at Haena, Kauai. *Loko* Kē`ē in the *ili* of Kē`ē; bounded *mauka* by Waiakapalai *pali*; Napali by sea beach; *makai* by sea beach (In Maly2003:18).

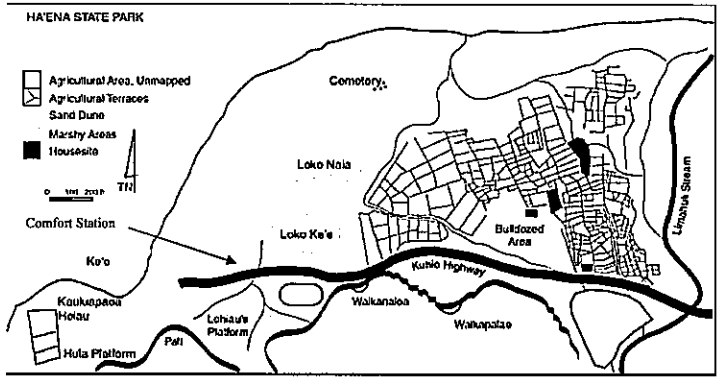

Figure 3 Kē`ē, Haena Map (Adapted from Pacific World/State Parks Map 2004)

Photo 12. Former pu`uone fishpond Loko Ke`e.

3.9.7.0 Burials.

> In August of 1994, the Hawaii DLNR Division of State Parks conducted a community meeting to gather input for a proposed Ha`ena State Park Master Plan. At this meeting, concerns were expressed regarding the neglect of known burial sites within the park. These burial areas are known to local lineal families who formerly lived in what is today Ha`ena State Park. Some of these areas were formerly landscaped and maintained, leading to their slow deterioration. Some of these burials are as recent as 30 to 50 years old. The family burials are concentrated in one area within the boundaries of the park identified as a cemetery (State site #50-30-02-1892). Also the coastal dune system, a portion of which run through the park, is a known burial area: some burials were located during previous archaeological testing and others have been exposed as a result of erosion. This pattern suggests a high potential for additional burials to be esxposed in the future. The descendant famikies requested that a joint effort between the families and the Division of State Parks be initiated to stop further deterioration and natural destruction, and to restore a sense of repect to these sacred areas (TKC-H 2001:I-12-13).

3.9.7.1 Dune Burials.

Sand dunes were considered "the most reasonable place for internment" for the Hā`ena commoners other than within the family houselot. "Hā`ena's fairly sizable resident population through time would be reflected in more than moderate burial activity in ther sand dunes.... Tidal and human impacts have negatively affected these dunes and will continue adversely unless policy, planning and enforment measures are established" (Silva 1995:18-19).

3.9.7.2 Hā`ena Caves as Burials.

> Given Hā`ena's physical environment, one would expect customary royal internment in hidden or inaccessible areas on thr steep cliffs. Numerous caves pock-marked the cliffs of this coastline, thereby providing natural tombs for the chiefly class. Mythology verifies this practice in Hā`ena; Prince Lohiau was entombed nearby in a cliff cave until revived by Hi`iaka. It is possible and even likely that others of chiefly status have found a final resting place within these cliffs (Silva 1995:18).

3.9.8 Hā`ena Caves as Places of Interest.

George Bowser, editor of "*The Hawaiian Kingdom Statistical and Commercial Directory and Tourists Guide*" (1880) wrote about various statistics and places of interest around the Hawaiian Islands. In the following excerpts from "An Itinerary of the Hawaiian Islands..." Bowser's narratives offer descriptions of the communities and various attractions of the Halele'a region (In Maly 2003:35):

> From Hanalei I rode out to Haena, which is at the northeast corner of the island, and is distant from Nawiliwili about forty-four miles. The land in this neighborhood is very sandy, and does not seem likely to be turned to account for any purpose but pasture. Two curious caves have been found near here. One of these, called by the natives Kanaloa, which means "the wife of the devil," has no floor except the water which lies in it, the depth of which no one has yet succeeded in fathoming. At its mouth this cave is about sixty feet wide and twenty feet high, and from these dimensions the sides and roof gradually draw in, with a gentle curve, until there is only six or eight feet either way above the surface of the water. The full extent of the cave has never yet been explored. Its walls

> are perfectly smooth, and their curved [page 563] surfaces are so perfect that they might have been cut by the hand of man. The other cave is dry, and is not far from Kanaloa. It is called Maninihola, and is about forty feet long, twenty feet high at the entrance, and gradually diminishing to about six feet at the inner end. The natives used to have various stories about monsters which inhabited these caves, but it is now impossible to find any connected story in what they tell you. It was on my way to this neighborhood that I lost, through death, the faithful native interpreter who had accompanied me through the other islands. The loss was one I could not replace, and greatly hindered me in the collection of information on Kauai.

In 1875 and 1890, Henry M. Whitney, editor of the Hawaiian Gazette, published a "Hawaiian Guide Book." The publication was produced as one of the early promotional guides to encourage visitation to the Hawaiian Islands, and included descriptions of the islands, harbors, agriculture, plantations, scenery, climate, population, commerce, and places to stay while visiting. His publications provide readers with commentary on travel via the old roadways through Hanalei and Nāpali, and include several "traditions" of storied places on the landscape (In Maly 2003:36-38):

> The wonderful caves, Waiokanaloa and Waiokapalae, are about ten miles from Hanalei. In the early days of Hawaiian history, it is said, a brother and sister came from a foreign land, in order to supply the people with water, of which there was a great dearth. They came to a mountain, and determined to dig into its side until water would be discovered. Kanaloa, the brother, selected a spot where he thought he would find water, and after digging a long time detected a lake, whose waters he caused to flow over the land, and to this day the taro patches are irrigated from this source. Visitors are escorted into the arched entrance, and to the lake within. Here the natives light torches, and take the tourist for a row upon the water, which is cold and clear and fresh. At the entrance the depth of the water is forty- two feet, though further in it is said that no bottom has been found [page 108].
>
> A strange sensation, a combination of awe and fear, creeps over one as daylight is left behind, and the frail bark glides into the blackness of night, and seemingly into the very bowels of the earth. The black waters reflect the ruddy glare of the torches, and the flickering flames throw strangely contorted shadows upon the rocky sides and ceiling of the cavern, while the half-nude forms of the rowers look weird and unearthly. Even the most frivolous scarcely speak a word, and then only in the faintest whisper, and it is with a long-drawn breath that the traveler steps out of the darkness into the light, but also with an impression that lasts for life.
>
> The other cave, which was dug by Kapalae, has also an arched entrance, and though much smaller than the first cave, contains a lake whose waters are ever covered by a thin film. There is a third cave, known as the "Dry Cave," which one can enter and walk through, or can ride into on horseback. A few seconds walk into its depths brings one beyond the reach of daylight, and no one has ever ventured further within its gloomy recesses. A foreigner could not find his way out, and a native could not be persuaded to enter, because it is said that a gigantic moo (dragon) guards the cave. We are told that the ancient high chiefs of Kauai were buried there, far under the mountain, and that many priceless feather cloaks and feather helmets might be found. In speaking of the largest cave, the *Hawaiian Spectator* said: "Its entrance is gothic, from twenty to thirty feet high, and as wide. The entrance to the second compartment (or lake), is also gothic, and one half as large as the other opening. The first chamber is about 150 feet long, 100 feet wide, and sixty feet high, the whole forming a beautiful arch."

Photo 13. Wet Cave on HSP lands.

Photo 14. Dry Cave on HSP lands.

3.10.0 Hā`ena Demographics (Table 3).

The missionary cenus of 1835 and 1847 a disproportion between the number of children and adults (Schmitt 1973:46 In Silva 1995:21):

1835		1847*	
Adults:	100	Adults:	108
		Male	46
		Female	62
Children:	16	Children:	54 [up to 20 yrs]
		Male	30
		Female	24
Deaths:	4	Deaths:	10
Births:	1	Births:	2

*At this time [1847] Hanalei's adut population was 376 and children 146; Kalihiwai was 156 and 54; Wainiha was 153 and 63; and Kalalau was 115 and 16 (Silva 1995:23).

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3.11.0 Previous Archaeological and Other Studies: Hā`ena and vicinity.

> At the western edge of Halele`a, just on the border with the Na Pali District, lies Ha`ena, also the scene of considerable intensive archaeological study (Griffin et al. 1977; Hammatt et al. 1978; Griffin 1983). Earle (1978) mapped several large irrigation complexes that lie just inland of a large sand dune fronted by Kē`ē Beach. Excavations by Griffin, Hammatt, and others have revealed that these dunes incorporate well-stratified occupation deposits, with many superimposed cultural strata. Unfortunately, no radiocarbon dates are available, but a series of hydration-rind age determinations on volcanic-glass artifacts suggests occupation as early as the tenth century and continuing up until historic times. A number of relatively early artifact types were also recovered, including porpoise-tooth pendants and incipiently knobbed two-piece fishhooks. Hammat et al. (1978:168) outlined a tertative sequence for the Kē`ē Beach site. They believe that the first phase consisted of a 'transient marine-oriented' fishing settlermernt.' By about A.D. 1200 there was a 'population increase with a broader resojurce base,' and settlement expanded inland. The 1400s witnessed 'the development of intensified irrigation agriculture in inland areas with a continued use of the littoral environment,' a pattern that evidently continued up until the historic period. The archaeological potential of the Ha`ena area, with both the stratisfied Kē`ē Beach deposits ans the extensive irrigation systems inland, has just begun to be tapped and future work in the region may reveal much about the development of Hawaiian society in this part of Kaua`i (Kirch 1985:101-104 In Silva 1995:14).

As early as 1931 Bennett voiced his observation: "Unfortunately the continuity of culture on the Island of Kauai is broken. The older natives who still remember heiaus (temples) are fast dying, and the younger generations are no longer interested" (Bennett 1931:3).

Cook (1784). *A Voyage to the Pacific Ocean.*

Vancouver (1801). *A Voyage of Discovery to the North Pacific Ocean and Around the World.*

Thrum (1907). "Tales from the temples." *Hawaiian Annual for 1907.* Thrum recorded three *heiau* in Hanapēpē: Makole (#54-small platform *heiau*, destroyed), Pualu (#55-partly walled, paved *heiau*) and Moloku (#59-open platform *heiau*) cited above on page 41.

Stokes (1908, 1909, 1927). Various studies.

Bennet (1931). *Archaeology of Kauai.* Bennett conducted his field work of Kauai archaeology in 1928-1929, "supplemented by a study of available collections, of published literature, and of manuscript notes on file in Bernice P. Bishop Museum" (Bennett 1931:3). Bennett (1931:60-69, 95) notes that various artifacts found are unique to Kauai such as the curved adze, gouged stone implements, polished stone knives, and Kauai pounder (ring, stirrup, and block), block grinders, the broad tapa anvil, *makaloa* sedge mats (Ni`ihau and Kauai), and decorated gourds or *ipu* (Ni`ihau and Kauai).

Handy & Handy (1972). *Native Planters in Old Hawaii: Their Life, Lore, and Environment.* Study of Hanapēpē Valley in 1964.

3.12.0 Past Oral History.

In 2003 Kepā Maly and others interviewed several *kupuna* from the Halele`a *moku,* primarily about memories of past lifestyles and people of the area and their vast knowledge of fishing. There was a lot of information shared, but a limited amount pertained to the section of the Hā`ena State Park Comfort Station and Wetlands. A crucial document, however, was an annotated map that illustrated key locations mentioned in the interviews [see below].

Table 4. Past interviews participants (from Maly 2003:IV).

Interviewee	Ethnicity	YOB	Areas Described
Ako, Valentine	Pt. Hawn	1926	Hā`ena and Nāpali
Chandler, Kapeka Mahuiki	Hawn	1931	Hā'ena & Wainiha
Chu, Charles Kininani	Pt. Hawn	1913	Hanalei - Nāpali
Chung, Agnes Leinani K. L.	Pt. Hawn	1921	Wainiha & Hā`ena
Goto, Violet Hashimoto	Pt. Hawn	1931	Hā'ena & Wanlha
Harada, Keikilani Haumea	Pt. Hawn	1952	Lumaha'i, Wainiha & Hā'ena
Harada, Wayne Haumea	Japanese	1948	Lumaha'i, Wainiha & Hā'ena
Hashimoto, Annie Tai Hook	Pt. Hawn	1933	Hā'ena & Wainiha
Hashimoto, Thomas	Pt. Hawn	1934	Wainiha, Hā'ena & Nāpali
Haumea, Mary K. Tai Hook	Pt. Hawn	1913	Wainiha & Hā'ena
Ho, Greg Kan Sing	Chinese	1905	Hanalei - Hā'ena
Ho, Stanley	Chinese	1920	Hanalei - Hā'ena
Kapahulehua, Kāwika	Hawn	1930	Nāpali & Ni`ihau
Mahuiki, Bernie Alapa`i	Pt. Hawn	1936	Hā`ena
Stanwood, Jean	Japanese	1918	Hanalei

3.12.1 Bio of Maly Interviewees (Maly 2003:IV).

Valentine K. Ako was born in 1926, at Hōlualoa, Kona, Hawai'i. He was raised as a fisherman, and upon moving to Kaua'i in the early 1950s (having married a Kaua'i woman), he became acquainted with many fishermen of the island. Among his close friends was Barlow Chu, a native of the Limahuli section of Hā'ena. Uncle Val spent years fishing with Barlow and other *kama'āina* of the Halele'a-Nāpali region, and is recognized throughout the state of Hawai'i for his knowledge of Hawaiian fishing customs and practices (Maly 2003:IV-318).

Elizabeth "Kapeka" Mahuiki-Chandler was born in Hā`ena, in 1931, one of ten. Her father's name was Lawrence "La`a" Mahuiki from Kalalau and her mother Rachel 'Īlālā'ole o Kamehameha. Kapeka now lives in Wainiha (Maly 2003:IV-540).

Charles Kininani Chu was born in Hanalei, in 1913. His mother, Uluhane, was descended from traditional residents of the Hā`ena-Nāpali region, and his father was pure Chinese. As a baby, he was adopted by his grandmother, Puaokina, and her husband, Hailama, whom *Kupuna* Chu knew as his grandfather. *Kupuna* Chu traveled the lands of the Hanalei-Hā`ena region with *Tūtū* Hailama, and learned from him native customs associated with—cultivation of *kalo* and other crops; fishing; and also about the preparation of wood for the *'Nahi* (fire brands) to be thrown from the *pali* of Makana (Maly 2003:IV-438).

Agnes Leinani Kam Lun Chung was born in 1921 at Wainiha. She is the daughter of a pure Hawaiian woman with generational ties to lands of the Halele'a (Lumaha'i and Wainiha) and Kekaha regions of Kaua'i, and a pure Chinese father. Kupuna's family raised *kalo* in Wainiha, and fished in the streams and near-shore waters. She shares

detailed descriptions of customs and practices of the Hawaiians in her youth, and recollections of the Wainiha-H)'ena community in the 1920s-1930s (Maly 2003:IV-362).

Violet Hashimoto-Goto was born in 1931, at Hā'ena. She is descended from families with generations of residency in Hā'ena, and lives on land which has been in the family for generations. Her father was a noted fisherman, and Aunty Vi is known for her "eye" for *he'e* (Maly 2003:IV-130).

Keikilani Andrade (Haumea)-Harada was born in 1952 and is descended from families with generations of residency in Wainiha and the larger Halele'a District. As a youth, she traveled the land with her father, fished along the coastal lands and learned of he family's association with the *hālau hula* at Kē`ē (Maly 2003:IV-47).

Wayne Takashi Harada was born in 1948, and raised in Hā'ena and Wainiha. He is of pure Japanese descent, though was raised with, and for all of his life, has worked with Hawaiian families of the Halele'a region. His grandfather came to the Halele'a District and originally settled in Lumaha'i, where he worked for the Robinsons. Thus, uncle also spent time in Lumaha'i. His youth was spent among the elder Hawaiian families of the Hanalei-Hā'ena region. He has worked the land and fished the coastal fisheries of Halele'a and Nāpali; and in this interview, he shares some of his personal recollections of the families and the land (Maly 2003:IV-47).

Annie Tai Hook-Hashimoto was born in 1933, the daughter Kalani Tai Hook and Annie Kupu Chung. Her family has generational attachments to the lands of Wainiha, and the Halele'a District. Her father was one of the noted fishermen of the region and her mother's family ties to Lumaha`i and Kekaha (Maly 2003:IV-130).

Thomas Hashimoto was born at Hā'ena in 1934... He is an older brother of Aunty Violet Hashimoto-Goto, and the husband of Aunty Annie Tai Hook- Hashimoto. Uncle is descended from families with generations of residency in the Hā'ena region, and is perhaps the single most knowledgeable person living today, remembering native place names of fisheries and fishing customs in the Hā'ena section of Halele'a.... Uncle Thomas has also worked *lo'i kalo* in the Limahuli and Kē'ē areas with his father and other elders. He is very knowledgeable of a wide range of native practices associated with life upon the land. He lives the saying "*Hana ka lima, 'ai ka waha,*" taught to him by his father (Maly 2003:IV-172).

Mary "Lychee" Kamakaka-'ōnohi'ulaokalā Tai Hook-Haumea, was born at Wainiha in 1913; the daughter of a pure Hawaiian woman and a pure Chinese man. Her Hawaiian ancestry ties her to families with generations of residency in Wainiha and the larger Halele'a region. Her older brother, Kalani Tai Hook, a lead fisherman of the Halele'a and Nāpali districts was married to Kupuna Agnes' sister; she is also the elder aunt of Aunty Annie Hashimoto. Kupuna Lychee, shares her recollections of life in Wainiha and Hā'ena, describing working the land, fishing, the families, and practices associated with *lapa'au lā'au* (Maly 2003:IV-362).

Greg Kan Sing Ho was born in Hanalei in 1905. He is of pure Chinese ancestry, and descended from families who planted rice in the Hanalei Valley. *Kupuna* recalled that his father learned about fishing techniques and locations from elder Hawaiians of the Hanalei-H)'ena region, and he in turn learned from his father, and others of his peers (Maly 2003:IV-86).

Stanley Ho was born in Hanalei in 1920. He is a younger brother of Greg Kan Sing Ho. Uncle Stanley shared descriptions of life in Hanalei, and travel between Hanalei and the Nāpali region. Uncle also fished, and shares his recollections of types of fish and locations where they were caught (Maly 2003:IV-104).

Bernadette "Bernie" Ka'iulani Alapa'i-Mahuiki was born in 1936 on the island of O'ahu. In 1948, she moved to Hā'ena, following her mother's marriage to Jacob Maka. Aunty Bernie has spent most of her life at Hā'ena and she married Samson Mahuiki, a native of the area. She learned many things about the land and families from her mother-inlaw, Rachel 'Īlālā'ole-Mahuiki and from other family members. During the interview, she shares some of those recollections, as well as some of her own personal experiences in Hā'ena and vicinity (Maly 2003:IV-394).

Jeanne Stanwood was born on O'ahu in 1918. In 1946, she moved to Kaua'i, and since that time has been involved with community health programs. It was through her work with the health program that she came to know some of the elder families of the Hanalei-Hā'ena region, and by which she visited their homes. In the interview, Mrs. Stanwood shared some of her recollections of the Chinese and Hawaiian families in the region, and commented on the living conditions of the elder Chinese following closure of the rice plantations (Maly 2003:IV-420).

3.12.2 Life in Hā`ena and Vicinity.

3.12.2.1 Residents of Hā`ena

Tūtū Hanohano, *Tūtū* La'a...and *Tūtū* Wahinekeoli...she was still living when I was a small kid. She couldn't walk, she could only crawl.... She had one of her sons who used to *'oli* – *Tūtū* Kila – when he's by himself and he used to own a house down here in Hā'ena. Then he moved up right next to us. When he's by himself, and some times he comes around and I hear him. They said he was a *kumu hula* too, Kila. He used to *'oli* (VH-G).

Wahinekeoli Pā (WH).

Jacob, Simeon Maka, all them; they lived in Hā'ena (AH)

Hanohano, they were born in Kalalau. Hanohano, Kila, they were the last people in Kalalau. In fact you know, most of the people when come outside, here [Hā`ena] live you know. And Hanohano he went go Wainiha live. But like the old man Kalei and the old man Kila the old man David they all went move outside here (TH).

You know Chip there were very little people over here. Like the families was...and they moved away. Like take for instance like Kaipo and Billy Ouye they moved away when they were teenagers. They used to come only during the summer (TH).

[Barlow Chu lived] at the end of the road [Kē`ē] (VA).

One time I was going with Keala (uncle's grand nephew), I told him to let us off over there by. He said, "No, no that's *kapu*, can't go in there." Only Kalei and Kila Pā lived out in Kē`ē when Kupuna Chu was young (CC).

There was one house over there. Haiama had his *poi* machine. It is the *poi* mill, adjacent to the house. (VA).

And Kila Pā was on this side. Where all these trees are, it was all *kula*, was all plains. I cannot recognize all this place hardly (CC).

During my time there was only the Pā and Kelau family lived in Kē`ē. Kila Pā and Kalei Kelau (CC).

You know where we was coming through from down the beach, coming down to the *lo'i*. You know that place where the white car was? By the dip in the *lo'i*. Kila used to have that *poi* mill. The *poi* mill, that property with all the big *hau*. That's where Kila used to live and Kalei on the other side. You know when we was coming in and parking under the pine trees. I was trying to clear over there where had the graveyard. That's where Kalei used to live back toward the *lo'i* side. Had Kalei and Kila living side by side. They were living there. They used to use the water from the taro patches to wash dishes and stuff (TH).

As far as I can remember old man Kila had one of the first of those machines. Right there where they lived in Kē`ē, they used to make *poi*. He furnished a lot of families with *poi*. Kila had one of the first machines, I think. As far as I can remember (CC).

3.12.2.2 Growing Kalo.

I remember when I was one small boy we used to raise it [kalo] right down here where you guys opening some patches (indicating below Limahuli Valley -- Ke'e section). We used to raise there [Loko Kē`ē].... Most of the families used to raise taro...I think we had about five or six real small ones [lo`i], used to be small. The one down here used to be real small.... Maybe we had some [lo`i] maybe twenty feet wide and maybe ten feet...[watered] from the ditch, the stream.... At that time most of the people used to plant the *lehua* taro.... Was more for home use; down here was more for home use (WH).

They [Barlow] had their own *lo'i*. I don't know where they had their *lo'i*, but most of them were together with the Maka's. The Maka's and Mahuiki's.... Hailama and them had their own patches. Adjacent to Hailama's place they had -- you know where that Limahuli stream? There were lo'i's inside there. The Limahuli stream had the *lo'i* below. They still have the terrace you know. And the owners today is one of Barlow's sister's, Kahili, she's Mrs. Wann. They had their own *lo'i* -- towards the end of the road before you get into Kē`ē [*maka'i*] by the wet and dry cave...*makai* was all *lo'i*. That was all Hailama them. The Hailama's were only there. When they had the division of the land, break up, part of the Chu family. Kenny Chu had that particular area. Right next to Limahuli Stream was *lo'i* below. Today the owners is Kahili and the Akana's, John Akana from the mainland. They still own that area. Their place was nice, all sand. Barlow owned and he sold. In order for him to sell he had to get the archaeologist to dig all over there (VA).

By Limahuli had lots of taro patches. *Makai*. Had the Hashimotos. At the time I didn't know he was (Hashimoto), I thought he was Mahi'ula. Had the Makas, Pās, Mahi'ula, Mahuiki (AC).

You know where the Wet Cave is that goes up to the hill? We were directly across the street. Okay. These are the taro patches here? This would be the entry into it? The wet cave would be here? Our lo'i's would be right here. We had one, two...we must have had about six or seven. All we did was we would pull one bag a week. A bag of taro at that time, a whole bag of taro was five dollars. I remember we sold one bag and we made five dollars, oh boy that was something you know. A whole pineapple brand bag -- I don't even know what weight was. But the weight right now is eighty pounds. It must have been at least a hundred pounds. That was one of our bigger patches. I think we had about two patches like that [30X30]. And then we had two patches of maybe a little bit bigger than the kitchen, going that way. We had about five or six patches. Every summer we worked every day at the taro patches, we played half of the day, and then just before *pau hana* time, everybody would start running into the patches trying to catch up with all the work. Had a little bridge just before you go down to the Wet Caves, there was a stream that went across, and then it came down into our patches. Always had a lot of

water -- never had any problems with water. And ours was more down towards Kē`ē. We were more in the swamp land than they were..... And it was just swamp land as far as we're concerned. I know my husband talked a lot about eventually that we should try and dry it up, but you know we were only kids at that time and there's not to much you can do as a kid. We spent all of our summer days at the taro patch.... We had a choice, either the *lo'i* or the garden. We had a garden by Uncle Simeon's yard; we had a big garden there. You could either go to the garden or you can go to the *lo'i*. We liked the *lo'i* better because you could go swimming all the time (BM).

3.12.2.3 Other Flora and Fauna.

Right down the *pali*. It created lot of burned *pili* grass, Makana had a lot of *pili* grass there. That's why we built... I went up Makana [looking at map] let me find it, right around this area. The *pili* grass was easy to get. We didn't go too far, right around here, *pili* grass for thatch. I remember Hailama and I re-thatching this house with the *pili*. I could see the old bamboo framing all lashed together, all this bamboo framing. All *'ohe* framing. Then he covered with *pili* grass which we got from Limahuli...on the Makana side (CC).

And down here get one rock foundation with the wall and everything. I don't know at the time whether people were keeping pigs or something. You know that's how they keep a pig that they use the stone wall...like we used to pass through that area going to our taro patch. That's where the old man Kinney used to own that place. They were the owners. We used to pass through that area. Get all these old walls over here, I'm sure it's still there, and used to get the *melia* tree, I don't know if you remember used to have one big *hala* tree in there -- the Kilipaki *hala*.... That time in the olden days you could see the *hala* tree (TH).

No trees around here, only some big mango trees and *kamani* trees. My days had *kamani* trees. All the way was all bare no more plum trees, the pine trees was just starting the pine trees. My time all bare you could see *ahuwale*. *Ahuwale ka 'āina* (CC).

3.12.1.4 '46 Tsunami.

But was Hā'ena by the Mormon Church. Had a Chinese man and some children. The Pu'ulei and La'amea, and who else. I think that was it, was mostly children [that died]. And that's how; I don't know if you heard of Mariah La'amea? She had only one leg. Because one was broken it got caught in the tree. And then the old man Kelau that lived down here [Kē`ē]. Kelau Kalei...the inside part [Kē`ē]. I think he drowned, must be he drowned in the tidal wave. Because the wave didn't come up over there where the *poi* mill was. Had the high...the wave went that way.... Maybe he went, you know that old man always went to set net. And then early in the morning he would go pick up his net. So maybe that's what happened, that's what we think happened to him. He was never found...maybe stuck under the *'āpapa*, cave. That's the only one (AH)

3.12.2.5 Hā`ena Sand Dunes and Burials.

The sand dunes around the family property are named, Nā-nalu-ewalu-e-Lono-a-pi'i; and are a sacred place. Speaking of the family home and property, where she now lives, *kupuna* recalled that her father told her the name of the *pu'u one* (dune hills) that run on the Wainiha side of her home, are called "Nā-nalu-ewalu-e-Lono-a-pi'i," having to do with the eight waves of an ancestral, Lono. Her father gave her clear instructions prior to his passing away, that the *pu'u one* of "Na-nalu-ewalu-e-Lono-a-pi'i" should never be bulldozed or knocked down, as it was a sacred place of the *kūpuna*. *Kupuna* also observed, that like at Limahuli, there at Hā'ena, "we are surrounded by our people" (VH-G).

Lot of times my lunch was two saloon pilot, most times that was my lunch. Like I told Kepā, the only thing I miss every time I come back in the later years is Hā`ena gets overgrown. Hā'ena was all a *kula* plain, you could see from down here. From Kionolua I could see way off, as far as Maniniholo you could see, it's all clear. Every time I come back I see these trees growing, and like today I can hardly recognize the spots. We just came back from Kē`ē, we had a grave site in Kē`ē, right near the sand dunes. I can't even recognize all that today. Ka'ilio nui yes, all around there. I guess that's old grave sites, because you folks remember sometimes when a big wave or *nalu,* you could see the skeletons. You remember that? Kanahā too. I remember walking down, going down Kē`ē, pass Ka'ilio nui and then all these skeletons on the beach (CC).

I guess all [burials] in the dunes (TH).

I'm sure it's all, because when they tell me about graveyards at Lumaha'i I say these guys got to be stupid. They didn't have no shovel, those days it makes sense if they went to the sand, to the beach. The sand dunes in front the Wichman's, that's where we used to play. Only Aunty Emma's side get yet, but was higher. The tidal wave went really flatten most of it (KC).

Photo 15. Historic burials in HSP.

Photo 16. Ancient sand dune birals in HSP.

3.12.2.6 Fishing Practices.

Hanohano Pā...I guess the brother was the one that take care of the stones -- Kila. This was down by his place, and the stone [ku`ula] stay over there, the fish stay outside there. I'm sure, like before, they go catch the fish you got to go up there for go bring 'em in for *aumakua*, to talk to the stone or something for make 'em go over there (TH).

Right in the [Kē`ē] bay. The *akule* used to come inside. During those days never had people over there. It was only the Hailama family. The place was fresh and we could predict what kind of species would come in at certain times (VA). [Register Map No. 1395]

And Pā; her name was Katua Pā, she married Antone Dutro. Then going to Hā'ena had the Mahikoas, 'Alohikea, Dorren, Kanehe, Hanohano Pā. Then further down had Mahi'ula, that's the Hashimoto family. Then the Makas, Mahuikis, Kalei and...Hailama. He lives ... Hā`ena where the Mahuikis live (AC).

They had only three Japanese families in Wainiha, they were the Nakatsujis, Araki and Eto. Araki was a farmer, Eto was a farmer too, and Nakatsuji was the store (AC).

And then there was an old man down Limahuli, Pa'itulu. He used to live in a grass house. And he wore a *malo*.... If you go to Charming Yokotake, she has a picture of Pa'itulu, the grass house, and the way he's dressed. Because when we had the taro festival she brought out what she had about Hanalei and Wainiha. I saw this picture I said, "I remember this old man, his name is Pa'itulu." She said, "How do you know?" I said, "We used to go to his place" (AC).

3.12.2.7 Wetlands. Loko and Auwai.

There's swamp land [in Kē`ē]. And the one thing I learned from Aunty Rena Peters, "Do not block the water. If there was a ditch you just let the water flow or else the river going eat the land up" (AC).

When I was young. And this old man was taken care of by Hailama and Puaokina. He was living in -- I'm trying to think of the owner of that house. Moewai, that was his first name. He started to build his house in Hā'ena then somehow he moved to Honolulu, and he came to Honolulu, he was a policeman. Anyway, so we moved from here because... It was Moewai Kāneali'i. Was only Kila Pā then, living in Hā'ena and Wahinekeoli, his mother. They were all living in Hā'ena, Kē`ē. Kila Pā and his mother, Wahinekeoli, lived by the *loko* at Kē`ē.... I imagine the taro...it's a swampy area. It was all taro land. And then when they gave it up, of course the water was still going in there, *nāhelehele*, and the banks all disappeared (CC).

Paul Rice [owned]. Ponds and *lo'i* in the area once hosted ducks which were hunted; watercress was also grown in the ponds...right across the cave.... Can't beat watercress. In the old days the ducks used to come from *mauka*. [But hunted] right by our place, right from the taro patches. You know when they fly over in the evening, that's when they get 'um (CC).

Figure 4. Annotated 1964 Aerial Photograph; Notes from Uncle Tom Hashimoto (from Maly 2003:IV-246)

4.0 ETHNOGRAPHIC REVIEW and ANALYSIS

The Ethnographic Survey (oral history interviews) is an essential part of the Cultural Impact Assessment (CIA) because they help in the process of determining if an undertaking or development project will have an adverse impact on cultural properties/practices or access to cultural properties/practices. The interviewee for this Cultural Impact Assessment was selected because he is familiar with the history and *mo`olelo* of Hā`ena and the vicinity in general. Due to the budget constraints and time for this project, PBR staff recommended that only one person be interviewed via telephone. The ethnographic data from this focused interview would be evaluated along with ethnographic data from previous interviews.

4.1.0 Research Themes or Categories

In order to comply with the Scope of Work for this cultural impact assessment, an ethnographic survey is designed so that information from people interviewed would facilitate in determining if any cultural sites or practices would be impacted by the implementation of a proposed undertaking. However, for this abbreviated project this was not incorporated. The focussed telephone interview pertained primarily with the area of the Comfort Station and Wetlands. The previous oral histories (Kepa 2003 and Orr 2008) were analyzed for information pertaining only to the area of the Comfort Station and Wetlands. This enothgraphic raw data was utilized as supporting evidence towards any determinations made regarding cultural impacts.

4.2.0 Interviewee Background

Usually each interviewee is asked to talk about their background; where they were born and raised, where they went to school and worked, and a little about their parents and grandparents. This category helps to establish the interviewee's connection to the project area, their area and extent of expertise, and how they acquired their proficiency. In other words, how the interviewee met the research interviewee criteria. The interviewees either have family ties to the project vicinity and/or are familiar with the history of the area. The ethnographic interviewee for this project was qualified in prior oral histories (Orr 2008).

4.3.0 Hā`ena State Park Master Plan/EIS Interviews (Orr 2008) Analysis.

Transcripts of interviews conducted for the Hā`ena State Park Master Plan (Orr 2008) were reviewed as requested by PBR staff, for information specifically pertaining to the Hā`ena State Park Comfort Station and Wetlands project area. The interview transcripts of the six interviewees [see below] were reviewed and analyzed; only two interviewees had provided pertinent information.

Table 5. Interviews for Hā`ena State Park Master Plan (Orr 2008)

Interviewee	Ethnicity	YOB	Areas Described
Alquiza, Kapu	Pt. Hawn	1953?	Hā`ena
Hashimoto, Thomas	Pt. Hawn	1934	Hā`ena
Medeiros, Clarence	Pt. Hawn	1952	Hā`ena
Wichman, Chipper	Pt. Hawn	1957	Hā`ena & Limahuli
Wichman, F. Bruce	Pt. Hawn	1928?	Hā`ena & Limahuli
Wichman, Randy	Pt. Hawn	1957	Hā`ena & Limahuli

4.3.1 Kē`ē.

My understanding is when Kē`ē originally shows up in the material is during the Mo`ikeha and La`amaikahiki saga. In that La`amaikahiki promised to Mo`ikeha that upon his death he would come back from Raiatea pick up his bones, intern them there at Taputapuatea of which he had a hereditary role there with his grandfather, Maweke. When Mo`ikeha passed away his bones were kept in Kē`ē, right there at the end of the road for safe keeping, until La`amaikahiki's return. La`amaikahiki comes there, picks up his bones, goes to `Oahu, sires that royal line, and then goes back to Taputapuatea. So that is my understanding where it first shows up in literature, the oldest. Already back then the school was evident as a place of history. The halau...the school for historians. There's always been a Center of History–this would have been your PhDs in all the various chants. I think a really good...more modern but still shows you that even in the 1880's we have really good description of historical ... I'm just showing that even as it comes up to the early 1890's -- it's still very highly respected (RW).

There is a chronology, (1) there is a genealogical chronology of the paramount chiefs, (2) there's a second chronology in the historical sequence which just shows up in our records ...but there are many aspects to it...many portions in the history. So we're starting out in the 12th century with La`amaikahiki, and Mo`ikeha, the Pele, and Hi`iakaikapoliopele also begins there at Haena also. Having grown up with the Pele stories from my youngest age, and being a soldier for Lohi`au, my relationship with Pele has been quite spiritual. But because of the whole Pele, Hi`iaka, Lohi`au connections as to the beginnings there [Kē`ē], is a critical point in history for understanding the importance of this particular site (RW).

We knew that there were numerous ceremonies that everybody would gather here along the beach and along in canoes (RW).

The Provisional Government immediately after the overthrow banned everyone from Kalalau and dumped them on the beach right here at the end of the road. And there they made their way in through Kauai, some stayed in Hā`ena; others moved on, others moved off island and went elsewhere. But the entire Na Pali Coast essentially came in on the beach right here and then entered into the new society, if you want to call it that, from Kē`ē Beach (RW).

We also know that the Lohi`au house site is not mapped, other things are not mapped. I'd like to see the preserves within preserves. Although we know we're dealing with a sacred area, there are certain sectors that are clearly more sacred than others. The pathway in which the human traffic is going through is absolutely critical that it goes around features not too close and not too far, and without going through any of the walls. So there is a sensitive approach that you really need to put the overall paths in there. Because anybody who has any understanding of Hawaiiana and they see the path not properly placed within the landscape, will cause problems. But I think in that sensitivity right there...right from the get-go will help things a great deal. We know where the burial areas are, we know this by the hard way.....well, we knew it already...but then again people needed to learn the hard way exactly where it was. So I think cross-culturally enough people know where they are right now. So we know where the pathways can be leading. I think I made the suggestion that the pathways are leading along the edge of the loko, on the belief that most of the burials are there within the dunes. And they may not be right on the edge of the loko, but at the same time these are beautiful views....and also not only enhances culturally but also within the visitor [experience] ....from the visitor's standpoint to the beauty of it is going to be really cool (RW).

The Lohi`au house site is poorly mapped. And that the road is actually coming way too close to it. The car bumper is almost touching the thing...so you need to put a larger

buffer around that...a larger buffer needs to be established around the Lohi`au house site (RW).

The comfort station, we always have these problems with comfort stations in sacred zones, culturally we give up a lot for this. In that some of us are quite aware of the circumstances of the archaeology of the bathroom...it made a lot of people uncomfortable. So I'd hate to see more of it going on, and that the existing footprint right now needs to stay. But still close within it are the preserves, because we have burials that are right in there, below and around the bathroom area. But we can presume that it's going to run along a particular strip along the dune. So that's why I'm thinking that people can either walk along the beach, or they can walk along the path that brings you a little bit closer to the *loko* (RW).

In order for us to do the turn-around areas you're in the most sensitive of the burial areas. As you start to get that footprint between the Lohi`au house site and the bath room you have a very tiny maneuvering room right there...and also, quite frankly, problematic (RW).

4.3.2 Hā`ena.

Hā`ena was unique in that when the Mahele took place, the main ahupua`a of Hā`ena was given to Abner Pākī who was kama`aina to Kauai. He had, as far as my research has shown, he had really no relationship at all to the place. It was more of a political bone that was tossed to him. So the true Ali`i from there...there is no record of it...Mahele records show that Kekela was the konahiki at the time of the Mahele, but she was from `Oahu, she had been brought over. So we don't really have a record of who the traditional chiefs of that area were (CW).

What's really interesting was that maka`ainana were able to purchase that ahupua`a back. I think it was 1875 when they formed a Hui, *Hui Ku`ai`aina o Haena*. That purchase enabled the Hawaiians living in that area to continue their traditional lifestyle. And if you think about it, in 1875 there were still many kupuna alive who had been born prior to contact. There was still a lot of knowledge of the old ways. And being that Haena was so rural, it was isolated, and being able to more or less recreate their traditional land stewardship model through the purchase of this and the ownership of it in undivided interest, it allowed Haena to really move forward into the modern era in a much more traditional way (CW).

The actual ahupua`aof Haena was not formally partitioned until the partition process began in 1955, it was concluded in 1967. It wasn't until the conclusion of that that the land was really truly cutup and divided and distributed. It was really from that point on, 1967 that we began to see real change in Haena. So change, in my mind, change really began after 1967 when people could buy and sell and develop property. The other thing that changed in 1967 with the completion of the Haena Hui Partition was the fencing of the cows. The Hui allowed the cows to run unrestrained over the common land in the ahupua`a, once the partition was completed the cows had to be controlled or locked up. Most people didn't have large enough acreage to have cattle, so the cattle began to disappear (CW).

The Ka`ulu-a-Paoa and Ke`ahu-a-Laka, you could see it from the beach. The coconut trees were all there but a lot of the octopus tree, and all of that stuff that's covering it all now, none of that was there. There were vines and stuff, but you could see the rock walls, you could see the area. None of those [false] kamani trees were covering the inside of the park, right behind the lo`i and all of that. The ironwood trees are still there,

were there originally. But it was an area that was never crowded. You could go down there and go to the beach ... it was just a great resource (CW)

4.3.3 Tsunami Impact.

The other really significant event that I think had contributed to Hā`ena being really underdeveloped and really maintaining its rural lifestyle, were the tsunamis in 1946 and 1957. Those had a really profound effect on the people alive at that time because of the incredible damage that was done by those tsunamis. When I was growing up I remember all of the coastal areas of Hā`ena...just seeing the slabs of where the houses were...nobody wanted to rebuild along the coast. Because almost within in ten years you had two severe tsunamis, so it was fresh in everybody's memory. But by 1967 the most recent tsunami was ten years away. It was beginning to fade in the memory of the people, and as new people came they had never witnessed or understood the power of those tsunamis. So really, '67 was the beginning of a lot of change (CW).

4.4.0 Hā`ena State Park Comfort Station & Wetlands Telephone Interview.

Due to limited funding and at the request of PBR, only one person was interviewed via telephone. This was a focused interview as he was previously interviewed for the HSP Master Plan CIA.

4.4.1 Randy Wichman Mana`o: Telephone Interview (6-10-09).

That's [Haena Comfort Station/Wetlands CIA Project location] a cultural area...one foot from pits the archs were digging were burials; burials all around and even under the comfort station footprint. There is a fishpond in the area. It's a culturally rich area...artifacts, post holes of the hale. Sewage draining [into "wetlands"] is serious stuff; it will punch through the cultural layers to the burials...this will be highly contentious with the Haena group...they all know about the burials and cultural layers. Comfort Station [is]...at edge of the fishpond...10-15 feet, plus right on water table; the lower slope of the dunes had houses/hale. Artifacts found when Mo and Alan did their inventory survey.

The wetland is there already – breathing...no need to convert anything; no need to clean it up; there will be a problem if effluence is pumped into the wetland.... Comfort Station/Wetlands is really rich culturally; if they trench for a septic system it will go through quite a bit. State is aware; no one wants the Comfort Station there...it should be moved to the parking lot area.... There is rancor of the residents regarding the Comfort Station; put it somewhere else--anywhere along the dunes is bad.

Haena is already riled up because of the Brescia/Naue case; Haena already a swarming beehive right now; Brescia in court-Kauai like an angry swarm of bees.... Haena is really old and any loss is significant...this is well-known. The State is trapped.

The Port-a-Potty in front of Lohiau's hale is less known, but still not culturally correct. [NOTE: These have since been removed]

Photo 17. Wall section of Lohiau's Hale.

The age of the settlement is significant; the Menehune and Mu/Mai`ia people left for their homeland from Kē`ē Beach as this was the doorway out...the safety area of Napali.

It's [Hā`ena/Kē`ē] old...should get archaeological carbon dating; would be significant to know. maybe open the area for field school...it's a rich eco-system.

That place [Kē`ē] is horrible for traffic...no easy solution. Guarantee that negotiation won't do a bit of good because the State has a bad rap...years of nothing and a bad attitude...just won't cut it on Kauai. But they have to negotiate with the people in good faith. Koke`e is an example...the problem with DLNR is a big one...ignored 7 years of testimony. They [State] need to come to the negotiation table in good faith or there will be a long battle and lose in the end...no one will roll over on Kauai anymore. It's a hornet's nest on Kauai...more and more people are standing up. Even in Haena the State has to make good faith effort or it won't make it...help promote a true interest of Kauai and people; just no credibility...it's a sticky one. Koke`e affects Haena with the toll booth revenue...must stay in Koke`e...learned from Diamond Head Park...the entry booth revenue—55% is used for Diamond Head—it sets a precedence. Koke`e wants 100% of entry fee to stay in Koke`e ...this will affect Haena. So State needs to sit at the table and hammer out; do the right thing in order to get credibility; right now NO credibility–very hostile here. My take on the view of the lay of the land...no hope if State does not hold up their part of the bargain. Right now don't see any change...bad attitude...no door open for communication...no good faith. Need to talk. Not to any ones' benefit to butt heads right now; reputations will be ruined. I know there is a solution somewhere.... Kauai fought the Super-Ferry; can fight again; more contentious-more united than ever. No respect for the State because of attitude. DLNR see lands as ATM/Cash Cows. State happy to have DLNR take the fall; more hostility towards DLNR...no respect for SHPD...they have dug a hole and can't get out. The political climate volatile at best...need major attitude shift. Make example of concessions. There are good ideas on Kauai...listen to recommendations. State has to show different frame of mind--its just a hornet's nest.

5.0 SUMMARIES and ASSESSMENTS

This cultural impact assessment is based on two guiding documents: Act 50 and OEQC Guidelines.

5.1.0 Act 50 [State of Hawai`i 2000]. H.B. NO. 2895 H.D.1 was passed by the 20th Legislature and approved by the Governor on April 26, 2000 as *Act 50*. The following excerpts illustrate the intent and mandates of this Act:

> The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit' in Hawai`i. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.
>
> Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.
>
> The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

5.2.0 Summary of Findings.

The following summaries are based on the information presented in the previous sections: the traditional and historical literature review in Part III and the ethnographic data and analyses in Part IV. References are not cited here unless it is new information and not already cited in the text above. These summaries condense the information above, but also serve to focus on a few significant individuals and events in Kauai's history in relation to the *ahupua`a* of Hā`ena in the traditional *moku* of Halele`a.

5.2.1 Summary of Significant People and Events: Project Area or Vicinity

5.2.1.1 Ancient or Mythic People.

Hā`ena figures significantly in the legends of volcano goddess Pele and her sister Hi`iakaikapoliopele (Hi`iaka). Pele falls in love with the local chief Lohi`au and requests that her sister go to Kauai to bring him back to Hawaii Island. The house ruins of Lohi`au still exists in Hā`ena today, as does the hula platform associated with him, where he paid tribute to Laka. What is not clear, is when, in relation to the ali`i below, Pele, Hi`iaka and Lohi`au are in Hā`ena. Other people during this period are Lohi`au's sister Kahuanui, his friend and companion Paoa, the Piliwale sisters, a *kupua* named Kapalae and mo`o wahine Kilioe and Kalanamainu`u who guarded the spirit body of Lohi`au in the cave and fought with Hi`iaka and her companion Wahine`oma`o when they tried to take his spirit body.

The Menehune are said to be legendary as well, yet they appear to be a very real part of Kauai's history and said to have finally left the island from Hā`ena, as did the subsequest Mai`a people who were also connected to the early people of Kauai.

5.2.1.2 Significant Ancient Events

The significant ancient events connected to the project area (vicinity) include the origin of the hula -- the hula halau or school that included use of the lands of Kē`ē for practices, ceremonies and habitation; the spirit visit of Pele where she follows the sounds of the hula drum to Kē`ē, and manifested as a beautiful woman whom Lohi`au fell in love with; the visit by Hi`iaka sent by Pele to fetch Lohi`au who had died of a broken heart when Pele left Kē`ē; and the exodus of the Menehune and the Mai`a. Other than Lohi`au's house, the hula platform (Ke Ahu A Laka) and the heiau (Ka Ula a Paoa), any evidence on the landscape connected to these events within the project area was most likely destroyed over time by both natural (storms surges, tsunami) and human means.

5.2.1.3 Ali`i nui.

Kauai was first settled by people during the time of Papa and Wakea who came well before the descendants of Nana`ulu came to Kauai from the south of Hawai`i around the 6th century along with other families from Tahiti or Samoa and brought their Polynesian traditions. Chief Ka-māwae-lua-lani-moku traveled to Kauai with his wife, Kahiki-lau-lani, and her two paddlers Kō-nihinihi and Kō-nahenahe. Because of his good deeds, the great number of his descendants, and the prosperity of his reign, people began to call this island Kau-a`i (*Place of Abundance*). Then a few generations after Papa and Wakea and also well before the descendants of Nana`ulu came to Kaua`i, a voyaging canoe commanded by Kū`alu-nui-kini-akua landed on the west shores of Kauai, at the mouth of the Waimea River. His counselor named Pi`i-`ali`i came with him. They settled in Waimea along its bountiful river and surrounding valleys. Over time they expanded into nearby canyons, valleys and coasts, from Napili to Kōloa. Kū`alu-nui-paukū-mokumoku followed his father as leader of the people of Kona and it was during his reign that he sent for a group of people called *Menehune* from his homeland. They helped to construct *heiau*, fishponds and irrigation systems for raising taro. His son Ola was responsible for having the *Menehune* construct the ditches of Pali-uli.

Over time other settlers inhabited all the Hawaiian Islands. Many genealogies of Hawaiian *ali`i* indicate that Nana`ulu and `Ulu (ca A.D. 830) were prominent ancient ancestors who settled all over the Pacific Islands. Around A.D. 1090 Puna-nui-ka-`āina arrived on Kauai, said to have come from the Marquesas Islands. Puna-nui-ka-`āina arrived when the chief with the deadly riddles, Ka-iki-pa`a-nānea, was ruler of Waimea. He chose to settle along the banks of the Wailua River and this land came to be called Puna. This was the beginning of two chiefdoms on Kaua`i; Puna in the east, and Kona on the west.

Changes occurred during this period that brought about a uniquely Hawaiian culture, documented by the material culture found in archaeological sites. Kauai developed a unique form of poi pounder such as *pōhaku ku`i poi* (ring and stirrup pounders), double-grooved stone club heads, and a broad anvil kapa beater. The early culture evolved as the population grew, and many of the changes were related to significant socio-economic changes. Marriages between chiefly families on all islands are very common as families and alliances are strengthened. During the 1300s the Kona chiefdom is defeated by the Puna chiefdom. Moikeha arrives on Kauai and enters a contest which he wins; his prize is the daughter of the Puna chief. His father-in-law orders the construction of Holoholokū (birthing stones of Wailua), for the birth

of Moikeha's children. Moikeha became the first ali`i aimoku of Kauai. When Mo`ikeha passed away his bones were kept in Kē`ē, right there at the end of the road for safe keeping, until La`amaikahiki's return.

Early in the 1400s the two chiefdoms were united during the reign of Kūkona, father of Mano-ka-lani-pō and Palekaluhi. Mano-ka-lani-pō married Nae-kapu-lani, the daughter of Kona chief Makali`i-nui-ku-a-ka-wai-ea. During the reign of Kūkona, Hawaii Island chief Ka-lau-nui-o-Hua defeated Maui chief Ka-malu-o-Hua, Molokai chief Ka-haku-o-Hua, and Oahu chief Hua-i-pou-leilei and set out with his hostage chiefs to Kauai where he planned to defeat Kūkona. However, Ka-lau-nui-o-Hua was in turn defeated by Kūkona. The hostages were set free after promising never to attack Kauai again; the Hawaii chief remained a prisoner for a while, but he too was later freed.

With Kauai kingdoms united, the royal residence was set up at Wailua, but Waimea remained significant. It was during the reign of Mano-ka-lani-pō that Kauai prospered during its Golden Age; this was the period of fishponds and monumental *heiau* and complex irrigated *lo`i* or pond fields. This continued on to the mid-1500s and mid-1600s when Liloa and Umi of Hawai`i Island reigned; Kawaokalole, Pi`ilani and his children Lono-a-Pi`ilani, Pi`ikea and Kiha-a-Pi`ilani of Maui reigned; Kakuhihewa and Ku`alii reigned on O`ahu; and Kalanikukama, Kamakapu reigned; this was also the beginning of the Kawelo line of *ali`i nui* on Kauai.

O`ahu *ali`i nui* Kū-ali`i was a descendant of the Kawelo line on his grandmother's side. During the battles of the Kawelo cousins Kawelo-lei-makua (Kawelo) and Kawelo-`Aikanaka (`Aikanaka) in the late 1600s, Kawelo ceded Kauai to Kū-ali`i if they should both die. Kawelo defeated the forces of `Aikanaka who escaped and hid in a cave. He was later found and supposedly thrown off the cliffs of Hanapēpē. However, Kawelo was also supposedly thrown off the cliff as well by his warriors who were afraid he was going crazy. Kū-ali`i came to Kauai and declared himself the ruling chief and installed his son Pele-i`ō-hōlani as governor. After Kū-ali`i died in Kailua, Oahu in A.D. 1730, Pele-i`ō-hōlani left Kauai to become the ruling chief of O`ahu. He left his daughter Ka`apuwai as governor.

Ka-`apuwai died before Pele-i`ō-hōlani, so the government of Kaua`i passed to Ka-maka-helei who owed allegiance to her grandfather Pele-i`ō-hōlani. She married Kiha, a Kaua`i chief, and had three children: a daughter, Lele-māhoa-lani, a son, Keawe, and another daughter, Ka-lau-i-pihana. Pele-i`ō-hōlani sent his grandson Ka-neoneo to Kaua`i to ensure the island would remain loyal to him. Ka-neoneo and Ka-maka-helei were first cousins and Ka-maka-helei set Kiha aside and took Ka-neoneo for her husband.

During this time, Maui ruling chief Kahekili won several skirmishes with Pele-i`ō-hōlani who then sent for Ka-neoneo to help him on O`ahu. This left Ka-maka-helei vulnerable. Kahekili took advantage of this and sent his half-brother Ka`eo-kulani to Kauai to woo Ka-maka-helei; she married Ka`eo and they later had Ka`umu-ali`i, who was to become the last ruling chief of Kauai.

5.2.1.4 Ancient Practices.

As stated above, the hula (halau) was an ancient practice connected to Kē`ē/Hā`ena, as was the ancient practice of sand dune burials and fishpond aquaculture. The bones of Moikeha were buried in Kē`ē until La`amaikahiki returned to collect them and take them to Kahiki.

Ancient voyaging practices can also be implied to be connected to the area because of the Menehune and Mai`a departing from Hā`ena. The ancient ceremony of throwing fire brands

(*ʻōahi*) off the mountain was performed at the top of Mauna Makana; the project area is located at the northern base of the mountain.

5.2.1.5 Historic People

One of the first significant historic people to land on Kauai shores was Captain James Cook who landed at the mouth of Waimea River, the same place as Kauai's first legendary Polynesian settlers, centuries before. His contact with the people of Kauai would have far reaching and devastating effects. Cook gave Ka-maka-helei and Kaʻeo and others gifts, including goats, sheep and a new breed of pig. Cook's men gave the people of Kauai venereal disease. Many more foreign ships made contact with the island people of Kauai; some stayed and became residents. In 1820 the first missionaries landed in Hawaii; they brought Humehume back with them. He was the oldest son of Kaʻumu-aliʻi, who had been sent by his father to the mainland to obtain an education. Since he had not been heard from in years, it was assumed that he was dead. Kaʻumu-aliʻi later converted and gave the missionaries lands to build a church and school.

Kaʻumu-aliʻi was later coerced into ceding Kauai to Kamehameha I who had conquered the other island kingdoms, but Kaʻumu-aliʻi was allowed to continue to rule Kauai. A couple of years after the death of Kamehameha I, his son and heir Liholiho (Kamehameha II) visited his cousin Kaʻumu-aliʻi on Kauai. Kaʻumu-aliʻi was subsequently "kidnapped" by Liholiho and taken to Oʻahu, never to return to Kauai or to his family. He was coerced into marrying his cousin Kaʻahumanu, former queen of Kamehameha I and *kuhina nui* or regent to Liholiho. Kaʻumu-aliʻi died a few years later.

During the reign of Kamehameha III, lands were assigned to and claimed by lesser chiefs and *konohiki* in what was called *The Great Mahele* (ca. AD 1846-1856). The lands of Hāʻena with the exception of *kuleana* lands, were awarded to Abner Pākī, grandson of Maui moʻi Kamehameha Nui (older brother of Kehekili and Kaʻeo) and father of Pricess Bernice Pauahi Bishop; Pākī's *konohiki* was E. Kekela, sister of Pākī's mother, wife of Kamehameha I half-brother and after his death, she became the wife of Kamaholelani, ohana of Kaʻumualiʻi. After Pākī's death (1855) the lands went to his daughter Princess Pauahi.

5.2.1.6 Historic Events.

Historic events connected to Hāʻena would have included the awarding of the ahupuaʻa to Abner Pākī, which were managed by Konohiki Kekela; the visit by Hawaii Island aliʻi Mokuʻohai who claimed lands at Hāʻena. Hāʻena was later purchased (1866) by surveyor W. H. Pease; after his death it was purchased by William H. Kinney (1872); and in 1875 Hāʻena was conveyed to Hui Kūʻai ʻĀina o Hāʻena (Andrade 2008:99).

5.3.0 Summary of Cultural Impact Assessment

5.3.1 Cultural Resources. This category entails sites or places associated with significant events and/or people important to the native Hawaiian patterns of prehistory; embody distinctive characteristics; or are likely to yield information important for research on the prehistory of Hawai'i. It also includes sites that yield resources important for native Hawaiian Cultural Practices, past and present; and items that are part of a cultural context. *Wahi Pana* or sacred places are important cultural resources to native Hawaiians regardless that the original sites that may have been there no longer exist.

The project lands were once part of an ancient Hawaiian ahupuaʻa life-system as well as a support system for the *aliʻi* who lived there. The physical evidence of multi-use ancient or traditional cultural practices still exists near-by (e.g. Lohiʻau's hale, hula platform, heiau, fishpond's and loʻi), which not only indicate traditional land-use of the area, but that it (Kēʻē) was/is considered *wahi pana*. They also indicate that Hāʻena was not only well established but part of ancient Hawaiian life-systems that included the *aliʻi*, officiating *kahuna* and people who lived and cared for the land. The hale of Lohiʻau confirms that portions of Hāʻena were *aliʻi* lands with all the infrastructure and required support systems.

According to several sources, the footprint of the Comfort Station is a part of burial grounds for ancient as well as historic Hawaiians. The area of the Wetlands was once part of a fishpond, Loko Kēʻē – fishponds were considered resource/property of the aliʻi nui.

5.3.2 Cultural Practices. This category includes items that are essential to the practices that have cultural value to either native Hawaiians or other ethnic groups. Burials are considered a very significant cultural practice. The whole area of Kēʻē, Hāʻena, was once part of the original hula halau connected to Laka, honored by Hāʻena aliʻi nui Lohiʻau whose hale or house is located directly across from the Comfort Station.

5.3.3 Historic Resources. This category entails sites associated with significant events and/or people important to the broad patterns of history [post Western contact], which includes other ethnic groups; embodies distinctive characteristics of an historic era or master; or are likely to yield information important for research on the history of Hawaiʻi. There are probable historic burials within the footprint of the Comfort Station and Wetlands.

5.4.0 SUMMARY of CONCERNS.

5.4.1 General Concerns Regarding the Proposed Project:

- Sewage draining [into "wetlands"] is serious stuff; it will punch through the cultural layers to the burials...this will be highly contentious with the Haena group...they all know about the burials and cultural layers.
- Comfort Station [is]...at edge of the fishpond...10-15 feet, plus right on water table
- The lower slope of the dunes had houses/hale...artifacts found when Mo and Alan did their inventory survey.
- The wetland is there already -- breathing...no need to convert anything; no need to clean it up; there will be a problem if effluence is pumped into the wetland....
- Comfort Station/Wetlands is really rich culturally; if they trench for a septic system it will go through quite a bit. State is aware; no one wants the Comfort Station there...it should be moved to the parking lot area.... There is rancor of the residents regarding the Comfort Station; put it somewhere else--anywhere along the dunes is bad.
- Hāʻena is really old and any loss is significant...this is well-known.
- The age of the settlement is significant; the Menehune and Mu/Maiʻa people left for their homeland from Kēʻē Beach as this was the doorway out...the safety area of Napali. It's [Hāʻena/Kēʻē] old...should get archaeological carbon dating; would be significant to know. Maybe open the area for field school...it's a rich eco-system.

- That place [Kē`ē] is horrible for traffic...no easy solution. Guarantee that negotiation won't do a bit of good because the State has a bad rap...years of nothing and a bad attitude...just won't cut it on Kauai. But they have to negotiate with the people in good faith.

- We just came back from Kē`ē, we had a grave site in Kē`ē, right near the sand dunes. I can't even recognize all that today. Ka'īlio nui yes, all around there. I guess that's old grave sites, because you folks remember sometimes when a big wave or *nalu*, you could see the skeletons.... I remember walking down, going down Kē`ē, pass Ka'īlio nui and then all these skeletons on the beach.

5.5.0 OEQC Guideline Criteria in Relation to Project Lands:

According to the OEQC Guidelines, the types of cultural resources, practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, religious and spiritual customs.

5.5.1 Cultural Practices/Resources in Project Area. The burials and fishpond are the only evident cultural practice/resource in the immediate project area today.

5.6.0 CULTURAL IMPACT ASSESSMENT

5.6.1 Cultural Resources (Land and Water) Impact. The lands within the project area were impacted by natural and human activities of the 19th, 20th and 21st centuries. However, while some of the burials may have been disturbed over time, they are still within the sand dunes, which include the footprint of the Comfort Station. There appears to be a clear message that people culturally connected to Kē`ē/Hā`ena do not want the Comfort Station located there or the remnants of Loko Kē`ē modified.

5.6.2 Cultural Practices/Access (Land) Impact. While there hasn't been any recent (continuing) burials in the project area or functioning use of the fishpond, access to the traditional/ancient sand dune burials will be impacted by the Comfort Station and modification of the Wetlands.

5.6.3 Historic Resources (Land and Water) Impact. This category overlaps Cultural Resources in that sand dune burials continued into the historic period, as did the use of fishponds. While both of these resources were damaged by historic tsunami, they still qualify as historic resources (religious/spiritual and subsistence example).

5.6.4 Historic Practices (Land and Water) Impact. The historic practice of sand dune burials was discontinued; the historic use of the fishpond aquaculture was also discontinued in Hā`ena. However, the restoration and continued practice of growing kalo (taro) has been revitalized in recent years in Hā`ena and elsewhere in Hawai`i. Fishpond aquaculture has also been revitalized around Hawai`i and there is some hope that this will happen in Hā`ena as well for subsistence and cultural purposes.

5.7.0 ASSESSMENT SUMMARY. When the ethnographic survey for this CIA and the Master Plan/EIS CIA was conducted, the Comfort Station was already in the early stages of construction, however modifications for the Wetlands proposal had not started. Further undertaking for the proposed Wetland will impact the cultural footprint of Loko Kē`ē and needs to be discussed further with the Hā`ena community. [NOTE: Community meeting took place October 14, 2009 and some interveners support the project but want to be kept updated.]

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APPENDIX A
A BILL FOR AN ACT RELATING TO
ENVIRONMENTAL IMPACT STATEMENTS
[UNOFFICIAL VERSION]

HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAI'I

A BILL FOR AN ACT
RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAI'I:

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B
Scope of Work (SOW)
Cultural Impact Assessment
[in accordance with OEQC Guidelines]

- identify and consult with individual with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua`a;
- identify and consult with individual with knowledge of the area potentially affected by the proposed action;
- receive information from or conduct ethnographic [telephone] interview with person having knowledge of the potentially affected area;
- identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
- assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Methods

The specific tasks listed below expand on the above scope of work:

- [State Parks staff will] conduct historical and cultural background research (i.e., business records, land records; archival documents, literature, reports, letters, photographs, journals, or newspaper files) to locate material that will provide broad patterns of the history of the project area such as subsistence, religious, recreational, and commercial uses of the land; as well as settlement and residential patterns of the area and region; major family groups that inhabited, used or controlled lands within the project area and region; documented legends, myths, or traditional histories associated with the area; and descriptions of traditional practices, customs and beliefs associated with identified traditional cultural practices;[NOTE: Unfortunately this did not take place.]
- Conduct and record [take notes] ethnographic [telephone] interview with knowledgeable individual.
- Prepare a report that will include an overview of the archival material, and an analysis of the ethnographic data.

APPENDIX C
Guidelines for Assessing Cultural Impacts
Adopted by the Environmental Council, State of Hawai`i
November 19, 1997

I. INTRODUCTION

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

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

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

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

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

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

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

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

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

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

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua`a;

2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

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

1.A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2.A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances, under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well

as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6.A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10.An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

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

APPENDIX D
Ali`i Aimoku of Kauai

The monarchs of island Kauai, like those of the other Hawaiian islands, claim descent from Wakea and Papa. Nanaulu, a descendant in the fourteenth generation from Wakea, was the ancestor of Moikeha, 1st Alii Aimoku of Kauai, but his dynasty was supplanted after two generations. The second, or Puna dynasty was established by La'amaikahiki, eleventh in descent from Puna who was twenty-fourth in descent from Wakea. O'ahu, Kaua'i – are the most ancient.... The last Alii Aimoku of Kauai of the old uninterrupted line of Puna was Kawelo'a'maihunali'i. After his death the kingship of Kauai fell on Kuali'i, the Alii Aimoku of Oahu and cousin of Kawelo'a'maihunali'i. In 1810, King Kaumualii, the 23rd Alii Aimoku of Kauai, ceded his kingdom to King Kamehameha I of Hawaii, in an effort to avoid bloodshed. Thereafter, he ruled as a tributary, until kidnapped by King Kamehameha II and taken to Honolulu in 1821. After his death in 1824, his son and heir, George Humehume attempted to re-establish his independence on Kauai, but was also eventually captured and taken to Honolulu. Ironically, the rights to the crown of the Hawaiian Islands now rest with Kaumualii's heirs the Kawananakoas after the death of the Kamehamehas and Kalakauas.

List of Aii Aimoku of Kauai

- Ali'i nui Moikeha 1st Alii Aimoku of Kauai
- Ali'i nui Haulanuiaiakea 2nd Alii Aimoku of Kauai
- Ali'i nui La'amaikahiki 3rd Alii Aimoku of Kauai
- Ali'i nui Ahukini-a-Laa 4th Alii Aimoku of Kauai
- Ali'i nui Kamahano 5th Alii Aimoku of Kauai
- Ali'i nui Luanu'u 6th Alii Aimoku of Kauai
- Ali'i nui Kukona 7th Alii Aimoku of Kauai
- Ali'i nui Manokalanipo 8th Alii Aimoku of Kauai
- Ali'i nui Kamakamano 9th Alii Aimoku of Kauai
- Ali'i nui Kahakuakane 10th Alii Aimoku of Kauai
- Ali'i nui Kuwalupaukamoku 11th Alii Aimoku of Kauai
- Ali'i nui Kahakumakapaweo 12th Alii Aimoku of Kauai
- Ali'i nui Kalanikukuma 13th Alii Aimoku of Kauai
- Ali'i nui Kahakumakalina 14th Alii Aimoku of Kauai
- Ali'i nui Kamakapu 15th Alii Aimoku of Kauai
- Ali'i nui Kawelomahamahaia 16th Alii Aimoku of Kauai
- Ali'i nui Kawelomakualua 17th Alii Aimoku of Kauai
- Ali'i nui Kaweloiakanaka 18th Alii Aimoku of Kauai
- Ali'i nui Kawelo'a'maihunali'i 19th Alii Aimoku of Kauai
- Ali'i nui Kuali'i ? - 1730 20th Alii Aimoku of Kauai and 19th Alii Aimoku of Oahu
- Ali'i nui Peleioholani 1730 - 1770 21st Alii Aimoku of Kauai and 22nd Alii of Oahu
- Ali'i nui Kamakahelei 1770 - 1794, 22nd Alii Aimoku of Kauai
- Ali'i nui Kaumuali'i 1794 - 1810, 23rd Alii Aimoku of Kauai

http://en.wikipedia.org/wiki/Alii_Aimoku_of_Kauai (2009)

APPENDIX E

Pre-Consultation Correspondance

BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

DONALD M. FUJIMOTO
COUNTY ENGINEER
TELEPHONE 241-6600

EDMOND P.K. RENAUD
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 96766-1340

April 1, 2008

PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Towers, Suite 650
Honolulu, HI 96813-3483
Attention: Mr. Vincent Shigekuni

SUBJECT: PRECONSULTATION FOR THE DEPARTMENT OF LAND AND NATURAL RESOURCES HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS DRAFT ENVIRONMENTAL ASSESSMENT
PW3.08.116

Gentlemen,

We reviewed the subject pre-consultation request to construct wetlands as an alternative secondary treatment facility for the waste water associated with the proposed park's comfort station. We offer the following comments:

1. Based on Panel no. 80 E of the FIRM (Federal Insurance Rate Maps) dated September 16, 2005, the subject property along the coastal reaches are susceptible to flooding from the Pacific Ocean. The flood zoning is a Zone VE, or Coastal High Hazard Area, or Tsunami Zone. The Coastal High Hazard Area is subject to high velocity waters, including but not limited to coastal and tidal inundation or tsunami. We recommend comments be solicited from our Flood Plain Coordinator for building within a flood zone.

2. Our Flood Plain Management Ordinance No. 831 prohibits filling for structural support and manmade alteration of sand dunes and mangrove stands are prohibited.

3. A grading permit can be exempted for the wetland constructions since the work will be within a self contained government controlled area. However, we expect the State to be responsible for implementing Best Management Practices (BMP's) at all times to the maximum extent practicable to prevent damage by sedimentation, erosion, or dust to streams, watercourses, and natural areas and the property of others and to monitoring the grading activities. The grading exemption does not exempt the sites receiving the excess wasted excavated material or the borrow site if the site requires embankment. A separate grading permit may be required for the disposal sites and/or borrow sites.

4. The Army Corp of Engineers should be contacted to identify whether a Federal Permit (including a Department of Army Permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters..."

Thank you for this opportunity to provide our comments. We wish to remain on your mailing list in receiving a copy of the draft Environmental Assessment. Should you have any questions, please contact me at 808-241-6498.

Very truly yours,

Wallace Kudo, P.E.
Chief, Engineering Division

CONCUR:

DONALD M. FUJIMOTO, P.E.
County Engineer

wk
cc:
Building Division
Design and Permitting
Construction Inspection

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December 1, 2009

Wallace Kudo, P.E.
County of Kaua'i, Department of Public Works
4444 Rice Street
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SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Kudo,

Thank you for your letter dated April 1, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we respond to your comments, below:

1. Please see the attached Flood Hazard Assessment Report which shows that the project site is located within flood zone X – outside the 100 year flood plain. We acknowledge that there are other areas of the park within the flood zone VE, Coastal Hazard Area.
2. No fill for structural support will occur. No alterations to sand dunes or mangrove stands will occur with this project.
3. The State is committed to implementing Best Management Practices (BMP's) to prevent erosion, sedimentation or dust during construction of the project. The completed project will be vegetated, ensuring long-term, sustained erosion control.
4. The Army Corps of Engineers has been consulted with this application. A wetlands delineation report and the Army Corps response will be included with the Draft Environmental Assessment.

The participation of the Department of Public Works in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

C Fernandez

Catie Fernandez
Planner

Attachment

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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LINDA LINGLE
GOVERNOR

RUSS K. SAITO
Comptroller

BARBARA A. ANNIS
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING
AND GENERAL SERVICES
Kauai District Office
1680 Haleukana Street
Lihue, Hawaii 96766-9053

KDO 08.0311

March 24, 2008

Mr. Vincent Shigekuni, Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Consultation for the Department of Land and Natural Resources
Ha'ena State Park Comfort Station Constructed Wetlands Draft
Environmental Assessment

The proposed project will have no impact on any of our existing or proposed projects, plans, policies, or programs.

Should you have any questions, please call me at (808) 274-3030.

Thank you.

Sincerely,

Stanley S. Doi
District Engineer, Kauai

kk

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& ASSOCIATES, INC.

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December 1, 2009

Stanley S. Doi
State of Hawai'i
DAGS – Kaua'i District Office
1680 Haleukana Street
Lihue, HI 96766-9063

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Doi,

Thank you for your letter dated March 24, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge that you anticipate the project to have no impact on any of your Agency's existing projects, plans, policies or programs.

The participation of the Department of Accounting and General Services in the Environmental Assessment process is appreciated.

Sincerely,

PBR HAWAII

C. Fernandez

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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MAY 06 2008
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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 2, 2008

Vincent Shigekuni, Vice President
PBR Hawai'i & Associates, Inc.
1001 Bishop St.
ASB Tower, Suite 650
Honolulu, Hawai'i 96813-3484

Dear Mr. Shigekuni:

Re: Pre-Consultation for the Department of Land and Natural Resources
Hā'ena State Park Comfort Station Constructed Wetlands Draft
Environmental Assessment

This is in response to your request for our comments regarding the subject matter.

State Parks made a commitment to actively work with the community to seek funds for the design and construction of a wetlands wastewater treatment system for the new comfort station. The new system would replace the current septic tank and leach field treatment system and would alleviate the discharge of wastewater into the sand dunes known to contain cultural deposits and burials. This commitment was part of the settlement agreement that was reached with five individuals who filed Petitions to Intervene with the Kaua'i Planning Commission opposing the granting of a Special Management Area (SMA) permit to replace the existing comfort station. The Petitioners all have ancestral ties to the area and are descendants of the persons who are buried in the known cemeteries within the park. Other issues such as the location of the new comfort station and how park visitors usage can be better managed will be addressed in the master planning process that will begin around May 2008.

We would like to emphasize the importance of involving the Petitioners in all aspects of this project and to acknowledge that the wetlands wastewater treatment system is the result of actions taken by the community during the SMA process.

An update of the comfort station project follows:

Capital improvement funds were used to retain Environmental Solutions Inc. (ESI) as the primary consultant and Strategic Solutions Inc. (SSI) as the subcontractor for the design of the enhanced subsurface treatment and disposal system. January 2009 is the anticipated design completion date.

ESI will have a planning consultant for the environmental assessment and the major SMA permit application. The regulatory processes are expected to run concurrently with the design completion.

$500,000 in construction funds for the enhanced treatment system was released by the Governor. Should the project cost exceed the budgeted amount, we are committed to obtain additional funds.

Work on the replacement of the comfort station started in October 2007. Progress was impeded by the structural problems associated with the Wainiha Bridge No. 3. The consultant contract for the Hā'ena State Park Master Plan and EIS project is currently being processed and is anticipated to be fully executed in May 2008. A wastewater treatment study is included to find the most appropriate treatment system for the park.

We appreciate the oppportunity to provide comments. Should you have questions, please contact Lauren Tanaka at 587-0293 or by email to: Lauren.A.Tanaka@hawaii.gov

Very truly yours,

Daniel S. Quinn
State Parks Administrator

copy to: Development Branch

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December 1, 2009

Daniel S. Quinn
DLNR, State Parks
PO Box 621
Honolulu, HI 96809

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Quinn,

Thank you for your letter dated May 2, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge your department's commitment to actively work with the community towards a new wastewater treatment system.

The participation of State Parks in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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LINDA LINGLE
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BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
DIR 0471
STP 8.2822

April 3, 2008

Mr. Vincent Shigekuni
Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Haena State Park Comfort Station Constructed Wetlands
Draft Environmental Assessment (DEA)

Thank you for requesting the Department of Transportation's (DOT) review of the subject project. DOT's prior comments (STP 8.2304 dated 10/13/06) to the Kauai Planning Department for the SMA Use Permit application to demolish and replace the park comfort station are still applicable. The proposed project to construct an alternate secondary treatment facility for wastewater associated with the park's comfort station is not anticipated to impact DOT's transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

BRENNON T. MORIOKA, Ph.D, P.E.
Director of Transportation

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
FRANCIS PAUL KEENO
BARRY FUKUNAGA
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
DIR 1453
STP 8.2304

October 13, 2006

Mr. Ian K. Costa
Director
Department of Planning
County of Kauai
4444 Rice Street
Lihue, Hawaii 96766

Dear Mr. Costa:

Subject: Haena State Park Comfort Station Replacement
SMA Use Permit Application, SMU(U)-2007-2
Department of Land and Natural Resources, State of Hawaii
TMK: 5-9-008: 001

The proposed project shown in the subject application to demolish the existing comfort station and construct a new ADA accessible station on the same State park site is anticipated not to have an impact on our State transportation facilities. It is also our understanding that the comfort station parking lot space abutting our highway right-of-way is not being changed and, therefore, the same no impact to the State highway from the parking is expected.

We appreciate the opportunity to provide our comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

DS:km

bc: HWY, -P, -K, STP(DS)

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December 1, 2009

Brennon T. Morioka
State of Hawai'i, Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Morioka,

Thank you for your letter dated April 3, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge that your department's comments to the SMA permit still pertain to the project. We also acknowledge that the previous comments anticipated no impacts to the State highway from the project.

The participation of the Department of Transportation in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

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

March 24, 2008

Vincent Shigekuni, Vice President
PBR Hawaiii
1001 Bishop Street, ASB Tower Suite 310
Honolulu, Hawai'i 96813

LOG NO: 2008.1086
DOC NO: 0803NM24
Archaeology

Dear Mr. Shigekuni:

SUBJECT: Chapter 6E-42- Historic Preservation Review –
Pre-Consultation for the Haena State Park Comfort Station Constructed Wetland DEA
Haena, Hanalei, Kauai
TMK: (4) 5-9-008: por. 001

The aforementioned project is for Haena State Park Comfort Station Constructed Wetland DEA.

We believe that **"no historic properties will be affected"** by this undertaking because:
- ☐ Intensive cultivation has altered the land
- ☐ Residential development/urbanization has altered the land
- ☐ Previous grubbing/grading has altered the land
- ☒ An accepted archaeological inventory survey (AIS) found no historic properties
- ☒ SHPD previously reviewed this project and mitigation has not been completed
- ☒ Other: *Archaeological testing was conducted the area of the proposed wetland*

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

Aloha,

Nancy McMahon, Acting Archaeology Branch Chief
State Historic Preservation Division

NM:

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& ASSOCIATES, INC.

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December 1, 2009

Nancy McMahon
State of Hawai'i DLNR
State Historic Preservation Division
601 Kamokila Blvd., Suite 555
Kapolei, HI 96707

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Ms. McMahon,

Thank you for your letter dated March 24, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge that your department deems that based on previous archaeological testing, no historic properties will be affected by this proposal.

To ensure that no archaeological impacts occur during construction, an archaeological monitoring plan will be prepared and an archaeologist will be on site during construction. If any significant cultural deposits or human remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division will be contacted.

The participation of the Historic Preservation Division in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

April 15, 2008

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PBR HAWAII

Mr. Vincent Shigekuni
PBR Hawaii & Associates
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, HI 96813-3484

Dear Mr. Shigekuni:

Subject: Pre-Consultation for the Department of Land and Natural Resources Haena State Park Comfort Station Constructed Wetlands Draft Environmental Assessment, TMK: 5-9-08: por. 1, Kuhio Highway, Haena, Kaua'i

This is in regard to your letter dated March 14, 2008. The following are the Department of Water (DOW) comments to the proposed comfort station constructed wetlands project. It is basically identical to the DOW's comments for SMA(U)-2007-2 permit to replace the existing comfort station with a new comfort station.

The Department of Water has concerns regarding the possible backflow of water into our system and the increase in water demand associated with the proposed comfort station constructed wetlands project. Prior to the DOW recommending building permit approval for the proposed project the applicant shall be required to:

1. Prepare and receive DOW's approval of construction drawings for the necessary water system facilities and construct said facilities. These facilities shall include but not be limited to:
   a) The interior plumbing plans with the appropriate backflow prevention device.
2. Be made aware that water service will be limited to the existing water meter serving the parcel. Any requests for additional water meters or increase in water meter size will be dependent on the adequacy of the source, storage, and transmission facilities existing at that time.

If you have any questions, please contact Mr. Edward Doi at (808) 245-5417.

Sincerely,

Gregg Fujikawa
Chief of Water Resource and Planning Division

ED:mll
28-018 Haena, Shigekuni

4398 Pua Loke St., P.O. Box 1706, Lihue, HI 96766 Phone: 808-245-5400
Engineering and Fiscal Fax: 808-245-5813, Operations Fax: 808-245-5402, Administration Fax: 808-246-8628

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December 1, 2009

Gregg Fujikawa
County of Kaua'i, Department of Water
PO Box 1706
Lihue, HI 96766

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Fujikawa

Thank you for your letter dated April 15, 2008, regarding the proposed individual wastewater system improvements (constructed wetland). As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge the Department of Water's concerns over possible backflow and increased water demand. The proposed constructed wetlands will not require any new water systems facilities nor will it require additional water meters or increases to water meter size. The backflow prevention device previously installed with the construction of the comfort station will continue to serve to prevent backflow into the water supply system.

The participation of the Department of Water in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

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

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

HRD08/3590

May 2, 2008

Vincent Shigekuni, Vice President
PBR Hawaii & Associates, Inc.
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813-3484

RE: Pre-Consultation for the Department of Land and Natural Resources, Hā'ena State Park Comfort Station Constructed Wetlands Draft Environmental Assessment, TMK (4) 5-9-008: por 001, Hā'ena, Halele'a, Kaua'i.

Aloha e Vincent Shigekuni,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated March 14, 2008. A request for pre-consultation concerning the Hā'ena State Park Comfort Station Constructed Wetlands Draft Environmental Assessment (DEA) has been submitted to our office. OHA has reviewed the project and offers the following comments.

OHA has substantive obligations to protect the cultural and natural resources of Hawai'i for its beneficiaries, the people of this land. The Hawaii Revised Statutes mandate that OHA "[s]erve as the principal public agency in the State of Hawaii responsible for the performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians; . . . and [t]o assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conducting advocacy efforts for native Hawaiians and Hawaiians." (HRS § 10-3)

The DEA, in accordance with Chapter 343 of the Hawaii Revised Statues (HRS), should include a Cultural Impact Assessment (CIA). In accordance with the requirement of Act 50, Session Laws of Hawaii 2000, a CIA shall include information relating to the practices and beliefs of the Native Hawaiians who once inhabited this area, and it is recommended that the community be involved in this assessment.

A review of our records indicates that no known historic properties are located within the project area depicted on the map that was included in your submission. However, there is a well-known, documented historic and cultural site located adjacent to the project area. Lohiau's House Site or Heiau is located in the near vicinity. This site is a very significant site in the cultural landscape of Hā'ena. Our office looks forward to the continued protection of this site and the cultural landscape that it is located in.

OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) shall be contacted.

OHA looks forward to receiving the forthcoming DEA and will offer further comments based upon the information disclosed in that document.

Thank you for the opportunity to comment. If you have further questions, please contact Jason Jeremiah (808) 594-1816 or e-mail him at jasonj@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: OHA Kaua'i CRC Office

PBR HAWAII
& ASSOCIATES, INC.

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December 1, 2009

Clyde Nāmu'o
State of Hawai'i
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711 Kapiolani Blvd, Suite 500
Honolulu, HI 96813

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Nāmu'o,

Thank you for your letter dated May 2, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge and respond to your comments below:

A Cultural Impact Assessment (CIA) will be prepared in conjunction with this Environmental Assessment. In consideration of the Park's cultural significance, State Parks has committed to involving the community in all aspects of this project.

To ensure that no archaeological impacts occur during construction, an archaeological monitoring plan will be prepared and an archaeologist will be on site during construction. If any significant cultural deposits or human remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division will be contacted.

The participation of the Office of Hawaiian Affairs in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

O:\Job26\2647.01 Haena State Comfort Station\Pre-Consultation\PBR Responses\OHA.doc

BRYAN J. BAPTISTE
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

DONALD M. FUJIMOTO
COUNTY ENGINEER
TELEPHONE 241-6600

EDMOND P.K. RENAUD
DEPUTY COUNTY ENGINEER
TELEPHONE 241-6600

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 96766-1340

May 13, 2008

Mr. Vincent Shigekuni
Vice President
PBR Hawai'i & Associates, Inc.
1001 Bishop Street, ASB Tower Suite 650
Honolulu, Hawaii 96813

Subject: Heana State Park Comfort Station Constructed Wetlands, Pre-Consultation for Draft Environmental Assessment

Dear Mr. Shigekuni:

The County of Kauai, Department of Public Works, Wastewater Management Division has no objections to the proposed Project. Based on the information provided with your March 14, 2008 Pre-Consultation letter, it is our understanding that a constructed wetlands system is proposed for wastewater treatment from the Park's comfort station. The Park is outside of any County wastewater service areas, and therefore the requirements for wastewater management are established by the State of Hawai'i, Department of Health.

If you have any questions please feel free to call Edward Tschupp at (808) 241-6610

Very truly yours,

EDWARD TSCHUPP, Chief
Wastewater Management Division

CONCUR:

DONALD M. FUJIMOTO
County Engineer

DLNR 1453

COUNTY OF KAUAI
PLANNING DEPARTMENT
4444 RICE STREET, SUITE 473, LIHUE, HI 96766

FROM: Ian K. Costa, Director (BRYAN) August 31, 2006

SUBJECT: Special Management Area Use Permit Application SMA(U)-2007-2, STATE OF HAWAII - DLNR

(X) PW - Engineering Div.
( ) PW – Waste Water
( ) PW – Parks & Recreation
( ) PW – Solid Waste
(X) Water Department
(X) State Health Dept.
(X) State Historic Preservation Div. – DLNR
(X) Fire Department
( ) Kauai Housing Agency
(X) State Highways Div. – DOT (Kauai Office – FYI only)
( ) State Airports Div. – DOT (Kauai Office – FYI only)
( ) State Land Use Commission - DBEDT
( ) State Office of Planning - DBEDT
( ) State Dept. of Agriculture
( ) U.S. Fish & Wildlife Service – Ecological Services (Oahu)
( ) Kilauea Neighborhood Association
( ) Kauai Historic Preservation Review Commission

FOR YOUR COMMENTS (pertaining to your department:)

Please return comments by September 15, 2006. MAHALO!

COUNTY OF KAUAI
PLANNING DEPARTMENT

( ) ZONING PERMIT APPLICATION
( ) USE PERMIT APPLICATION
( ) PROJECT DEVELOPMENT USE PERMIT APPLICATION
( ) VARIANCE PERMIT APPLICATION
( ) SPECIAL PERMIT APPLICATION
(x) SMA PERMIT APPLICATION

For Planning Department Use Only
Zoning Permit No. _____
Use Permit No. _____
Variance Permit No. _____
Special Permit No. _____
SMA Permit No. SMA(U)-2007-2
Zoning Permit Class _____
Date Received _____ By _____
Date Approved _____ By _____
Plans By Geral Park Urban Planner
Permit Fee $150.00 Date 8/31/2006

APPLICANT Gerald Park Urban Planner
ADDRESS 1221 Kapiolani Boulevard, Suite 211
Honolulu, HI 96814
PHONE NO. (work) 596-7484 (home) _____

Tax Map Key 5-9-008: 001 Lot No. _____ Lot Size 50.38 ac. Zoning None Existing Land Use State Park

APPLICANT IS: (check one)

A. Owner of Property x (Holder of at least 75% of the equitable and legal title.)
B. Lessee of Property ___ *Number of Years Leased _____ From _____ to _____
C. Authorized Agent X Attach Letter of Authorization.

NOTE: *Lessee must have an unexpired and recorded lease of five (5) years or more from date of filing this application. Owner(s) must sign below if lease is less than five (5) years remaining and/or unrecorded.

DESCRIPTION OF PROPOSED USE, IMPROVEMENT, ALTERATION, AND/OR CONSTRUCTION: (specify exact use, number of units, etc.) See attached SMA Assessment Application

FOR VARIANCE OR USE PERMITS ONLY

Conditions justifying Variance or Use Permit application: (use additional sheets as required) _____

The owner and/or his authorized representative for the purposes of said permit shall, prior to commencing erection, construction, installation or placement of the foundations and/or footings of the improvements allowed hereunder, and after compliance with the foregoing condition, notify the Planning Department no later than 5 working days to commencement of such work, in order that the Planning Department might inspect and certify the applicable and imposed setbacks and other zoning requirements.

The construction, work, use, or activity approved in this permit shall be subject to inspection by the Planning Inspector or authorized personnel of the Planning Department, County of Kauai. The applicant is advised that inspection will occur prior to or during construction and use to ascertain compliance with the provisions of Ordinance No. 164, as amended, (Comprehensive Zoning Ordinance, County of Kauai, and/or other laws which are enforced by the Planning Department.

Signature _____
Owner/Applicant

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street
ASB Tower, Suite 650
Honolulu, Hawai'i 96813-3384
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

HILO OFFICE
101 Aupuni Street
Hilo Lagoon Center, Suite 310
Hilo, Hawai'i 96720-4262
Tel: (808) 961-3333
Fax: (808) 961-4989

WAILUKU OFFICE
1787 Wili Pā Loop, Suite 4
Wailuku, Hawai'i 96793-1271
Tel: (808) 242-2878

December 1, 2009

Edward Tschupp
County of Kaua'i, Department of Public Works
4444 Rice Street
Suite 275
Lihue, HI 96766-1340

SUBJECT: PRE-CONSULTATION FOR HĀ'ENA STATE PARK COMFORT STATION CONSTRUCTED WETLANDS, HĀ'ENA, KAUA'I, HAWAI'I, TMK: 5-9-08: por. 1

Dear Mr. Tschupp,

Thank you for your letter dated May 13, 2008, regarding the proposed individual wastewater system improvements (constructed wetland) at Hā'ena State Park. As the planning consultant for the applicant, DLNR State Parks, and their project manager, DLNR Engineering, we acknowledge that the Wastewater Management Division has no objections to the project at this time. We acknowledge that the requirements for wastewater management are established by the State of Hawai'i, Department of Health. To that end the project engineers are working with Department of Health to ensure that all public health and safety requirements are met.

The participation of the Department of Public Works, Wastewater Management Division in the Environmental Assessment process is appreciated. A copy of the Draft Environmental Assessment will be provided to your agency for review.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Office of Environmental Quality Control
DLNR, Engineering Division

O:\Job26\2647.01 Haena State Comfort Station\Pre-Consultation\PBR Responses\Wastewater Management.doc

APPENDIX F

Comments to the Draft Environmental Assessment

Department of Water
County of Kaua'i

Water has no substitute.....Conserve it

December 31, 2009

UID #5583

Ms. Catie Fernandez, Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813

RECEIVED
PBR HAWAII

Dear Ms. Fernandez:

Subject: Haena State Park IWS Improvements (Constructed Wetlands), TMK: 5-9-08:001, Haena, Kauai, Hawaii

This letter is in response to your December 2, 2009 letter and attached Draft EA for the proposed constructed wetlands project. The project located on TMK: 5-9-08:001 consists of:

- New piping from the existing comfort station
- Two 1,500 gallon septic tanks
- Approximately 1,000 square foot constructed wetland
- Approximately 900 square feet of absorption bed for subsurface disposal
- Protective fencing

The following are the Department of Water (DOW) comments to the proposed constructed wetlands project:

The DOW has concerns regarding the possible backflow of water into our system associated with the proposed constructed wetlands project. Prior to completion of the proposed constructed wetlands project, the applicant shall:

1. Prepare and receive DOW approval of construction drawings for the necessary water system facilities and construct said facilities. These facilities shall include but not be limited to:
   a) The interior plumbing plans with the appropriate backflow prevention device.
2. Be made aware that water service will be limited to the existing water meter serving the parcel. Any request for additional water meters or increase in water meter size will be dependent on the adequacy of the source, storage, and transmission facilities existing at that time.

If you have any questions, please contact Mr. Keith Aoki at (808) 245-5418.

Sincerely,

Gregg Fujikawa
Chief of Water Resources and Planning

WS-9-08-001 PBR Hawaii T-11738/ KA:loo

c: OEQC
State of Hawaii, BLNR

4398 Pua Loke St., P.O. Box 1706, Lihue, HI 96766 Phone: 808-245-5400
Engineering and Fiscal Fax: 808-245-5813, Operations Fax: 808-245-5402, Administration Fax: 808-246-8628

PBR HAWAII
& ASSOCIATES, INC.

February 23, 2010

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3388
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

KAPOLEI OFFICE
1001 Kamokila Boulevard
Kapolei Building, Suite 313
Kapolei, Hawai'i 96707-2005
Tel: (808) 521-5631
Fax: (808) 535-3163

Gregg Fujikawa
Department of Water, County of Kaua'i
PO Box 1706
Lihu'e, HI 96766

SUBJECT: HĀ'ENA STATE PARK INDIVIDUAL WASTEWATER SYSTEM IMPROVEMENTS (CONSTRUCTED WETLAND) 5-9-08: por. 001

Dear Mr. Fujikawa,

Thank you for your letter dated December 31, 2009 regarding the above referenced Draft Environmental Assessment. As the planning consultant for the applicant, Hawai'i Department of Land and Natural Resources (DLNR), Engineering Division, we respond to your comments.

DLNR State Parks is preparing a 2010 status report for the Kaua'i Planning Commission which documents compliance with SMA conditions of approval, including the requirement by DOW for the installation of a backflow prevention device. A backflow prevention device was installed with construction of the comfort station in 2009.

Additionally, no additional water system facilities are planned with this proposal and no new services or connections to existing services are requested.

Thank you for reviewing the Draft EA. Your comments will be included in the Final EA.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Valerie S. Suzuki, P.E., DLNR Engineering Division

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The DOT will provide additional comments upon receipt of the Master Plan and DEIS. DOT requests four (4) copies of these documents.

Very truly yours,

BRENNON T. MORIOKA, PH.D., P.E.
Director of Transportation

PBR HAWAII
& ASSOCIATES, INC.

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

KAPOLEI OFFICE
1001 Kamokila Boulevard
Kapolei Building, Suite 313
Kapolei, Hawai'i 96707-2005
Tel: (808) 521-5631
Fax: (808) 535-3163

February 23, 2010

Brennon T. Morioka, PH.D, P.E.,
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813-5097

SUBJECT: HĀ'ENA STATE PARK INDIVIDUAL WASTEWATER SYSTEM IMPROVEMENTS (CONSTRUCTED WETLAND) 5-9-08: por. 001

Dear Mr. Morioka,

Thank you for your letter dated December 21, 2009 regarding the above referenced Draft Environmental Assessment. As the planning consultant for the applicant, Hawai'i Department of Land and Natural Resources, Engineering Division, we acknowledge your comments that the proposed facility will have no adverse impact on Kūhiō Highway.

Additionally, no impact is expected to the parking area adjacent to Kūhiō Highway, as it is not proposed for use as a construction staging area and is intended to remain available to the public during and after construction. Last, oversize and overweight loads are not expected for the construction of this facility. However, if the need arises, the appropriate permits will be secured from the DOT Highways Division Kaua'i District Office.

Thank you for reviewing the Draft EA. Your comments will be included in the Final EA.

Sincerely,

PBR HAWAII

Catie Fernandez
Planner

cc: Valerie S. Suzuki, P.E., DLNR Engineering Division

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LINDA LINGLE
GOVERNOR OF HAWAII

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

RECEIVED
Jan 07 2010
HER HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

January 5, 2010

PBR Hawaii
1001 Bishop Street Suite 650
Honolulu, Hawaii 96813

Attention: Ms. Catie Fernandez, Planner

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Haena State Park Individual Wastewater System Improvements (Constructed Wetlands)

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Office of Conservation & Coastal Lands, Engineering Division, Division of State Parks, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

Morris M. Atta
Administrator

Cc: OEQC

LINDA LINGLE
GOVERNOR OF HAWAII

KA-10-127

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

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2009 DEC -7 A 9:52
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 5, 2009

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__ Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
x Div. of State Parks
x Commission on Water Resource Management
x Office of Conservation & Coastal Lands
x Land Division – Kauai District
x Historic Preservation

RECEIVED
LAND DIVISION
2009 DEC 10 P 3:14
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Morris M. Atta
SUBJECT: Draft Environmental Assessment for Haena State Park Individual Wastewater System Improvements (Constructed Wetlands)
LOCATION: Island of Kauai
APPLICANT: PBR Hawaii on behalf of BLNR

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 5, 2010.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: Dawn Heagler
Date: 12/9/09

* Please see Correspondence # KA-09-275 attached.

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 5, 2009

RECEIVED
LAND DIVISION
2009 JAN -4 A 7:45
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
x Div. of State Parks
x Commission on Water Resource Management
xOffice of Conservation & Coastal Lands
x Land Division – Kauai District
x Historic Preservation

FROM: Morris M. Atta
SUBJECT: Draft Environmental Assessment for Haena State Park Individual Wastewater System Improvements (Constructed Wetlands)
LOCATION: Island of Kauai
APPLICANT: PBR Hawaii on behalf of BLNR

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 5, 2010.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

'09 DEC 07 AM 11:24 ENGINEERING

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed:
Date: 12-29-09

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Morris Atta
REF: DEA for HaenaStateParkIndividualWastewaterSystemImprovements–Constructed Wetlands Kauai.001

COMMENTS

(X) **We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.**

( ) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone ___.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed:
CARTY CHANG, ACTING CHIEF ENGINEER

Date: 12-29-09

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

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

RECEIVED
JAN 20 2010
PBR HAWAII

HRD09/38590B

December 29, 2009

Catie Fernandez
PBR Hawaii & Associates, Inc.
1001 Bishop Street,
ABS Tower, Suite 650
Honolulu, Hawai'i 96813-3484

RE: Request for comments on Hā'ena State Park wastewater system improvements draft environmental assessment (DEA), Hā'ena, Kaua'i, TMK: 5-9-008:001.

Aloha e Catie Fernandez,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated December 2, 2009. OHA has reviewed the project and offers the following comments.

OHA understands that, "The purpose of this project is to mitigate the existing (on-going) perception that the leach field is desecrating a known archaeological site." (DEA, page 5-3) This document does little to achieve that goal. We point out that the DEA itself opens on page vii in the *Project Description* by saying, "However, the comfort station, septic system and leachfield were in a known archaeological and cultural site."

We see that this same individual wastewater system is now unblushingly proposed to be left in place as a back up system. OHA points out that this is the same septic system that previously disturbed a single prehistoric human burial, located approximately 40 feet northeast of the restroom. As such, we fairly ask how leaving a functioning wastewater system over admittedly known culturally resources including burials can lead to less than a perception of an ongoing desecration.

We do recognize that what is being put forth now is mitigation. It not mitigation for perceptions, however, as this DEA states. Rather this proposal seeks to address a remedy for harmful past actions that the community highlighted. The difference is important.

In terms of the mitigation, OHA sees that the alternate system will utilize a new septic tank for primary treatment and incorporate a constructed wetland for secondary treatment. The 'wetland' hopes to avoid disturbing other cultural resources in the area. We do note that "native soil" and "culturally

relevant" plants will be used to create this 'wetland'. OHA urges that care be taken in that some of our beneficiaries may have cultural significance attached to the use of these plants in what amounts to secondary sewage treatment over potential cultural deposits. We think that a true wetland is a great idea. However, we are unconvinced that the discharge from this wastewater system into an artificial 'wetland' will be treatment enough to pass cultural and community muster.

The proposal recognizes the inherent foulness of this unconventional 'wetland' by requiring a six foot fence and restricting public access for "health and safety reasons." (DEA, pages 2-3 and 3-3.) OHA recognizes that disposing of sewage in a culturally sensitive area is a difficult prospect. We do wonder if it could be done better. We ask if the discharge being sent into the constructed 'wetland' could be treated to a higher standard before release. OHA also urges that the plants to be used in the 'wetland' be chosen primarily for their functional capacity to filter human waste.

We also note that using native soils and plants as an unconventional secondary treatment for human waste could take the applicant farther down a road the very nature of which this proposal seeks to avoid repeating. This proposal specifies the use of native elements as a cultural offset, yet using natives to filter human waste could be controversial. In addition to the mitigations proposed to address past harms, OHA suggests proposing an off-set that will create a net benefit for the area and community.

OHA sees on page 4-5 of the DEA that lo'i are actively being restored within Hā'ena State Park, and a lo'i restoration plan has been prepared by State Parks. We also see in the cultural impact assessment that there is community interest in restoring the fishpond and growing kalo in the area. Therefore, OHA suggests that an area of the park be set aside to create a true functional wetland with native plants such as kalo as a specific off-set and mitigation for this comfort station.

Further, OHA looks forward to commenting on the archaeological monitoring plan and we note that an archaeologist will be on site during all ground alteration and excavation work.

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

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA Kaua'i CRC

We suggest that the java plum, iron-wood and false kamani trees adjacent to the proposed constructed wetland be cut back to at least fifty to sixty feet to encourage the growth of wetland plants which require full sunlight to thrive. We also recommend that the adjacent wetland area be fully protected from runoff, erosion, fill, etc associated with the proposed development.

We note that the draft EA addressed seabirds and states that "No exterior lighting that could cause confusion for night-flying seabirds will be installed with this project". We concur with this measure; however we also recommend that no nighttime construction activities related to this project occur during the seabird-fledging season (Sept 15 – Dec. 15).

We support the inclusion of native plants in the proposed project so as to enhance habitat for insects and birds and mammals such as the Hawaiian Hoary Bat. We recommend coordination of the outplanting of any threatened and endangered plant species with the State Botanist, and that wetland plant species be chosen for both water quality and wildlife habitat function. For successful plant establishment we advise that an uppermost layer of media that is conducive to root growth be utilized and that the top surface of the media be level or nearly level for easier planting and routine maintenance. We also recommend avoiding soil sources that contain seed banks of unwanted species and that project plans include mechanisms to control or eliminate undesirable non-native, invasive, and weedy species.

In light of the presence of trash and debris mentioned within the draft EA as being left behind at the Haena State Park by visitors, we highly recommend that animal proof garbage containers be installed at the Park to prevent the attraction and establishment of known predators in an area visited by native and endangered species. We also advise that water quality, sediments, and wetland vegetation tissues be monitored to ensure that the proposed wastewater system is functioning properly and not becoming an attractive nuisance problem to wildlife.

Lastly, we are concerned that the draft EA does not adequately address the potential effects of the constructed wetland. Migratory shorebirds, endangered waterbirds and the native endangered Hawaiian goose, or Nene, are attracted to native wetland vegetation and this constructed wetland will more than likely attract some of these species. Future use and maintenance of this wastewater system may adversely impact these species particularly if some of the birds nest in the vicinity of the constructed wetland. We recommend coordination of this action with our office so that both listed and non-listed species are not adversely impacted by the operation of the wastewater system and offer the following recommendations to minimize impacts to listed waterbirds and Nene:

- Since waterbirds and Nene may be attracted to the constructed wetland, we recommend the development and implementation of a predator control program for rats, cats, and dogs.
- Avian botulism outbreaks are common in Hawaii and can be a significant localized cause of waterbird mortality. There is a possibility that the proposed project may increase the risk of an outbreak of avian botulism. Botulism can occur in any area with standing fresh or brackish water frequented by waterbirds. Estimates of the elevation of the water surface thought the constructed wetland should be done to ensure that surfacing of the wastewater does not occur. In addition, an avian botulism surveillance and response plan should be included as part of the project.

- The site should be designed so that maintenance vehicles and personnel can safely and easily access the area with minimal disturbance.

Thank you for the opportunity to review and comment on the proposed project. If you have questions regarding this letter or need further assistance, please contact myself or Norma Bustos at 808-587-0163.

Sincerely,

Paul J. Conry
Administrator

cc: Mr. Loyal Mehrhoff, U.S. Fish and Wildlife Service

An additional minimization measure the State will employ is to continue to implement on-going management actions to control feral cats. The State Parks Resource Ranger reports that she works with the Kaua'i Humane Society, using their traps and Humane Society officers to pick up cats from the park as the need arises.

With regard to threat of avian botulism, the primary minimization measure that the State proposes to employ is to ensure that no protein source is found in the wetland so that the bacterium *clostridium botulinum* can not produce the botulism toxin. The subsurface nature of the wetland will ensure that protein in the form of fish or aquatic invertebrates that filter feed will not be present. Secondarily, as the wetland is not expected to exhibit high habitat values for waterbirds, and it will be fenced, it is unlikely that a dead bird or goose would serve as a protein source for the bacterium. Finally, the constructed wetland system is designed such that it is not an anaerobic system, thus, is not the ideal environment for bacteria to survive.

In addition to the above measures, the State will employ management techniques to control avian botulism. Foremost, we will ensure that State Parks staff is familiar with the signs of avian botulism. In the event that a dead bird is discovered within the constructed wetland or elsewhere in the park, it will be removed by State Parks staff and disposed of in an appropriate manner.

The subsurface nature of the constructed wetland will also serve as a self-managing tool to control the disease, as the system will drain after a rain event, reducing the success of the bacterium's survival. Last, as an emergency measure in the event of standing water during a period of heavy rains and a known outbreak, the wastewater from the comfort station can be diverted to the existing septic tank and leach field. This action would facilitate draining of the wetland more rapidly to ensure that an outbreak is effectively managed.

With regard to seabirds, in the Draft EA we acknowledged that the Hawaiian petrel (*Pterdrodroma phaeopygia sandwichensis*) and federally threatened Newell's shearwater (*Puffinus auricularis newelli*) are known to occur in the project area. The Draft EA indicated that the proposed wetland system will not include any night lighting. We further confirm that no nighttime construction will occur with this project.

We acknowledge your letter's support of the inclusion of native plants. So as to minimize attraction of threatened and endangered waterbirds, plants will be selected based on their ability to best thrive in Kaua'i's north shore environment while providing water quality functions, with less emphasis on their habitat qualities. Such plants will include makaloa (*cyperus laevigatus L.*). Although very little maintenance will be required of the plants once established, the gravel surface will be even for ease of maintenance. Plants proposed for the exterior of the wetland (outside the fence) include neke (*cyclosorus interruptus*) and hala (*pandanus tectorius*). It is hoped that the

inclusion of hala will provide additional opportunities for roosting for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*).

We also acknowledge DOFAW's suggestion to cut back the java plum, iron wood and false kamani trees adjacent to the constructed wetland. Surrounding trees will be cut back as appropriate to accommodate the construction of the wetland. Additional tree cutting or trimming will occur as appropriate.

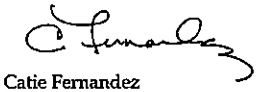
Your letter also raised a concerns about the potential to spread invasive plants and concerns about construction soil runoff into the adjacent wetland. No soil is proposed to be imported with this project, thus, importation of invasive plant seeds will be avoided. Soil used to create the berm will be those excavated for the absorption bed. During construction, best management practices for erosion control will be implemented so as to avoid sediment run-off from the construction site into the adjacent existing wetland. All disturbed areas will be planted upon construction so as to avoid the spread of non-native, invasive species that already exist within the park.

Thank you for reviewing the Draft EA and providing comment. Your comments and the above information will be included in the Final EA and the Special Management Area (SMA) permit application to the County of Kaua'i.

Thank you for reviewing the Draft EA. Your comments will be included in the Final EA.

Sincerely,

PBR HAWAII



Catie Fernandez
Planner

cc: Valerie S. Suzuki, P.E., DLNR Engineering Division
Morris M. Atta, DLNR Land Division

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Ms. Catie Fernandez 3

CC: ADDRESSES FOR ADMINISTRATIVE USE ONLY - DO NOT MAIL

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235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

State of Hawaii, Board of Land and Natural Resources
Ms. Laura Thielen, Chairperson
P.O. Box 621
Honolulu, Hawaii 96809

Mr. Scott Fretz
Division of Forestry and Wildlife
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February 23, 2010

Mr. Loyal Mehrhoff, Field Supervisor
USFWS, Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd. Rm 3-122, Box 50088
Honolulu, HI 96850

SUBJECT: HĀ'ENA STATE PARK INDIVIDUAL WASTEWATER SYSTEM IMPROVEMENTS (CONSTRUCTED WETLAND) 5-9-08: por. 001

Dear Mr. Mehrhoff,

Thank you for your letter dated January 7, 2010 regarding the above referenced Draft Environmental Assessment. As the planning consultant for the applicant, Hawai'i Department of Land and Natural Resources, Engineering Division, we acknowledge your comments and request informal consultation with the Service pursuant to section 7(a)(2) of the Endangered Species Act to address the potential effect of the wetland to Hawaiian waterbirds and Hawaiian goose.

We acknowledge that the following species are known to occur within the proposed project area: the endangered Hawaiian coot (*Fulica alai*), Hawaiian duck (*Anas wyvilliana*), Hawaiian moorhen (*Gallinula chloropus sandvicensis*), Hawaiian stilt (*Himantopus mexicanus knudseni*) and Hawaiian goose (*Branta sandvicensis*). We acknowledge that the constructed wetland has the potential to attract these waterbirds and the Hawaiian goose. We would like to emphasize that the proposed wetland is a subsurface system, where during normal operations, water will be two (2) to four (4) inches below the surface area. The surface area of the wetland will be comprised of gravel. By design, the constructed wetland is not intended to serve as waterbird habitat. Nonetheless, we recognize that during heavy rain events (i.e. rain events with two (2) or more inches of precipitation per hour), surface water may be present in the wetland and therefore, may attract waterbirds.

APPENDIX G

County Shoreline Setback Acceptance

BERNARD K. CARVALHO, JR.
MAYOR

GARY K. HEU
ADMINISTRATIVE ASSISTANT

IAN K. COSTA
DIRECTOR OF PLANNING

IMAIKALANI P. AIU
DEPUTY DIRECTOR OF PLANNING

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KAPULE BUILDING, SUITE A473
LIHU'E, KAUA'I, HAWAI'I 96766-1326

TEL (808) 241-6677 **FAX** (808) 241-6699

December 11, 2009

State of Hawaii,
DLNR Engineering
Attn: Valerie Suzuki
P. O. Box 373
Honolulu, HI 96813

Subject: SSCR-2010-4
Shoreline Determination
Tax Map Key (4) 5-9-008:001, Ha'ena, Kaua'i
State of Hawai'i, Applicant

In response to your Shoreline Setback Determination application accepted November 24, 2009 and in accordance with County of Kauai County Code, Section 8-27 this is to inform you that the Planning Director has made a determination relative to the above referenced Tax Map Key. The assessment was made based on the application for a setback determination with respect to the proposed landscaping activity within the setback area. The requirement for a Shoreline Setback Determination was triggered by Applicant's request for a determination.

The Planning Commission, at its meeting held on December 8, 2009, accepted the subject determination with respect to the following departmental staff findings:

1. The proposed activity involves installation of constructed wetlands outside of the setback area.

2. The application included a certified shoreline survey that was approved by the Department of Land and Natural Resources on June 1 2009. The DNLR certification ensures that there are no encroachments at the site, delineates the extent of the county and /or state's jurisdiction and provides a baseline from which to measure the shoreline setback.

Please be advised that further evaluation, requirements, and approvals from pertinent agencies may also be required prior to development of this property, including the final design review by the Planning Commission. Should there be any questions relative to the above, please contact Planner Lisa Ellen Smith at 241-4050.

IAN K. COSTA
Planning Director

cc: Water Department
State of Hawaii State Historic Preservation Division
State Department of Health
County of Kauai Fire Department
County of Kauai Building Division
County of Kauai Engineering Division
County of Kauai Real Property Division