



*DRAFT*  
**ENVIRONMENTAL ASSESSMENT**  
**for DIESEL GENERATOR INSTALLATION**  
Kekaha, Kauai, Hawaii

February 2010

Prepared for:  
Agribusiness Development Corporation  
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## **COVER SHEET**

**Proposed Action**      Installation of Emergency Generators for Agribusiness Development Corporation, Kekaha, Kauai, Hawaii

**Type of Document**              Draft Environmental Assessment

### **Summary**

This Draft Environmental Assessment (EA) was prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS).

TEC Inc. (TEC) has completed a National Historic Preservation Act Section 106 review by consulting with the State Historic Preservation Officer and the Office of Hawaiian Affairs. It was determined that the Proposed Action would have no adverse effect on historic properties.

The Proposed Action would not result in significant impacts on the following resource areas: air quality, noise, infrastructure, climate, visual resources, recreational resources, biological resources, cultural resources, land use, and socioeconomic resources. With implementation of Best Management Practices, the Proposed Action would not result in significant impacts on the following resource areas: geological and soil resources, water resources, and hazardous materials and waste. The Proposed Action would not result in cumulative impacts to any environmental resource. TEC has determined that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any coastal use or resource of the State's coastal zone.

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**DRAFT ENVIRONMENTAL ASSESSMENT  
DIESEL GENERATOR INSTALLATION  
KEKAHA, KAUAI, HAWAII**

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Appendix A. Pre-Assessment Consultation Letter

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## ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
ac	acre(s)
ADC	Agribusiness Development Corporation
BMPs	Best Management Practices
CAA	Clean Air Act
CFR	Code of Federal Regulations
CZM	Coastal Zone Management Program
DLNR	State of Hawaii Department of Land and Natural Resources
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft	feet/foot
ft <sup>2</sup>	square feet/foot
ha	hectare(s)
HAR	Hawaii Administrative Rules
HDOH	State of Hawaii Department of Health
HRS	Hawaii Revised Statutes
KIUC	Kauai Island Utility Cooperative
KSC	Kauai Sugar Company
m	meter(s)
m <sup>2</sup>	square meter(s)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OEQC	Office of Environmental Quality Control
PAH	Polycyclic Aromatic Hydrocarbons
PMRF	Pacific Missile Range Facility
SHPD	State Historic Preservation Division
SMA	Special Management Area
SPCP	Spill Prevention and Control Plan
SSA	Shoreline Setback Area
U.S.	United States
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service

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## EXECUTIVE SUMMARY

<b>Project Name:</b>	Draft Environmental Assessment for Installation of Diesel Generators, Kekaha, Kauai, Hawaii
<b>Proposed Action:</b>	Installation of Three Diesel Generators for Emergency Power Generation
<b>Applicant:</b>	Agribusiness Development Corporation
<b>Contact Information:</b>	Matthew Rose State of Hawaii Agribusiness Development Corporation 235 S. Beretania Street, Room 205 Honolulu, Hawaii 96813 Telephone: (808) 586-0186
<b>Action Required:</b>	Compliance with Chapter 343, Hawaii Revised Statutes (HRS)
<b>Chapter 343, HRS Trigger:</b>	Use of land for power generation facilities.
<b>Alternatives Considered:</b>	(1) Alternate location, and (2) No Action
<b>Location:</b>	Kekaha, Kauai, Hawaii
<b>Project Schedule</b>	Installation of generators by November 2010
<b>Project Area:</b>	Approximately 3.2 acres (1.3 hectares)
<b>Tax Map Key Parcels:</b>	4-1-2-02:001
<b>Kauai County Zoning:</b>	Agriculture
<b>Special Designations:</b>	None
<b>Anticipated Determination:</b>	Finding of No Significant Impact and Negative Declaration (Chapter 343, HRS)

This Environmental Assessment (EA) was prepared in accordance with Chapter 343, HRS.

This EA analyzes and documents potential environmental consequences associated with the Proposed Action and alternatives. If the analyses presented in this EA indicate that implementation of the Proposed Action would not result in significant environmental impacts, a Finding of No Significant Impact would then be prepared. If significant environmental issues result that cannot be mitigated to insignificance, an Environmental Impact Statement would then be prepared.

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**Proposed Action.** Agribusiness Development Corporation (ADC) proposes to install three emergency diesel generators for back-up power production in Kekaha, Kauai, Hawaii.

**Purpose and Need.** ADC, an instrument of the State of Hawaii Department of Agriculture, proposes to install three containerized diesel-powered generator units to provide back-up power to operate the existing drainage and irrigation system of the Kekaha Agricultural Lands. Current power needs are met by existing hydropower generation at Waiawa and Mauka Waimea. Additional power from portable power generation units is needed due to the potential downtime of the hydropower generators from mechanical failure and intake debris blockage, in addition to the threat of heavy rain storms and hurricanes. Greater than five inches of rain in the span of a day can cause flooding in Kekaha and currently pumps at Nohili and Kawaiele Pumping Stations are run 24 hours a day to keep the ground water table down. Loss of power to the drainage system would result in damage to both agricultural and residential property in Kekaha.

**Alternatives.** Alternatives considered include an alternate location on the same parcel and the No-Action Alternative. The alternate location is west of the Proposed Action, and closer to existing fuel tanks and power transmission lines, as well as closer to businesses and a school. The No-Action Alternative was carried forward in the analysis as a benchmark to compare the magnitude of environmental effects of the Proposed Action and Alternative 1.

**Environmental Consequences.** The Proposed Action would not result in significant impacts to the following resources: air quality, noise, infrastructure, climate, visual resources, recreational resources, biological resources, cultural resources, land use, and socioeconomic resources. With implementation of Best Management Practices, the Proposed Action would not result in significant impacts on the following resource areas: geological and soil resources, water resources, and hazardous waste and materials. The Proposed Action would not result in cumulative impacts to any environmental resource. TEC Inc. has determined that the Proposed Action would not have reasonably foreseeable direct or indirect effects on any coastal use or resource of the State's coastal zone.

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## **1.0 PURPOSE OF AND NEED FOR ACTION**

### **1.1 SUMMARY OF THE PROPOSED ACTION**

ADC proposes to install three diesel generators for emergency power production on TMK Parcel 4-1-2-02 in Kekaha, Kauai, Hawaii. An associated transformer and fuse box would be installed adjacent to the generators.

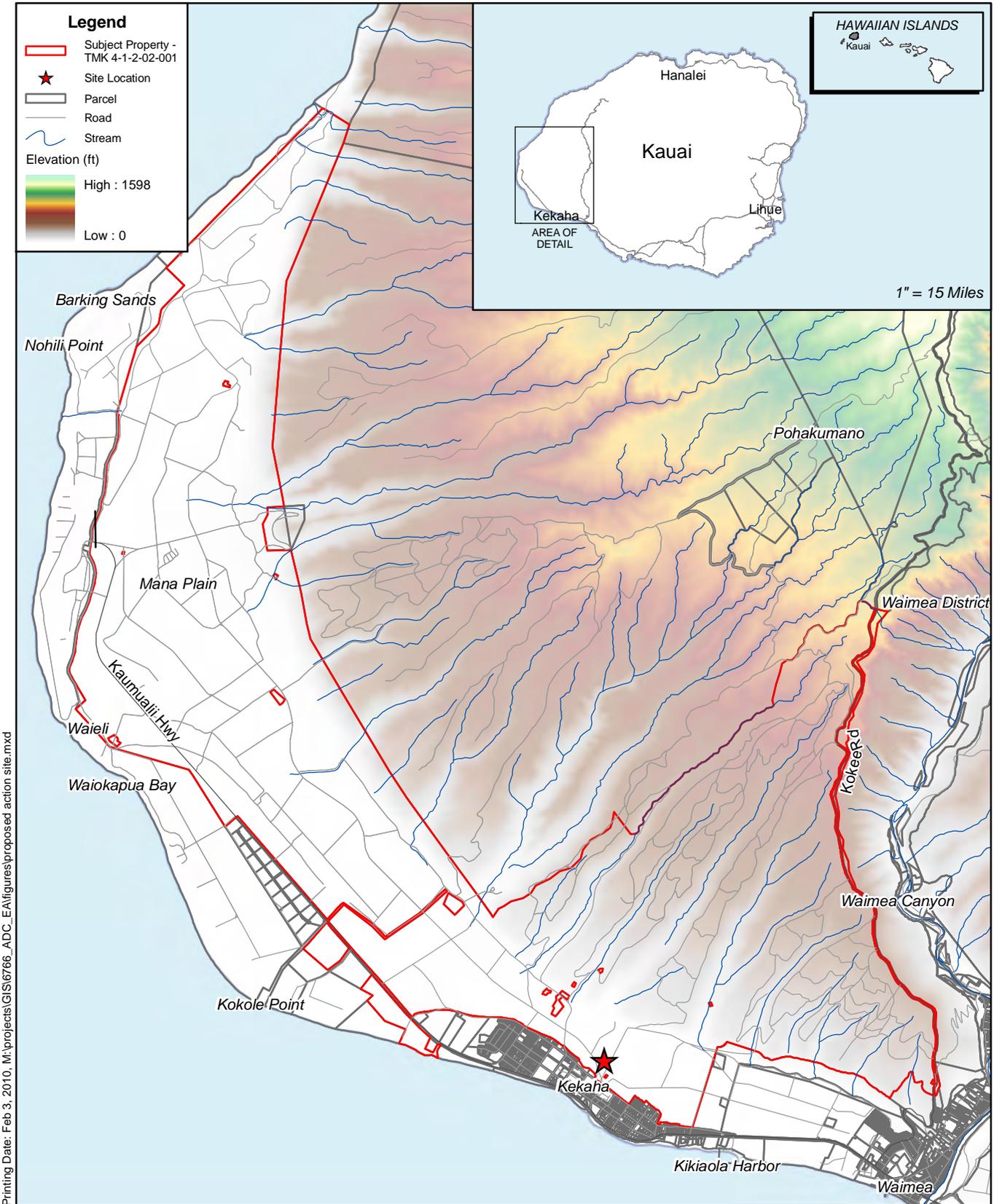
### **1.2 PURPOSE AND NEED**

ADC, an instrument of the State of Hawaii Department of Agriculture, proposes to install three containerized diesel-powered generator units to provide back-up power to operate the existing drainage and irrigation system of the Kekaha Agricultural Lands. Current power needs are met by existing hydropower generation at Waiawa and Mauka Waimea. Additional power from portable power generation units is needed due to the potential downtime of the hydropower generators from mechanical failure and intake debris blockage, in addition to the threat of heavy rain storms and hurricanes. Greater than five inches of rain in the span of a day can cause flooding in Kekaha and currently pumps at Nohili and Kawaiiele Pumping Stations are run 24 hours a day to keep the ground water table down. Loss of power to the drainage system would result in damage to both agricultural and residential property in Kekaha.

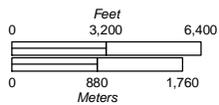
Because the project site is located on property in the possession of the State of Hawaii, Hawaii Revised Statutes (HRS) (State Environmental Impact Statement [EIS] Law) is applicable. Therefore, this Environmental Assessment (EA) was prepared in accordance with Chapter 343, HRS. ADC is the approving agency for this document.

### **1.3 PROJECT LOCATION**

The project site is located in the western Kauai town of Kekaha. The TMK parcel associated with the property is large, measuring over 13,000 acres (ac) (5,261 hectares [ha]). The Proposed Action would use only a small portion of the parcel, measuring approximately 3.2 ac (1.3 ha), as seen in Figure 1-1. The project site consists of a flat, sparsely vegetated parcel triangular in shape, bordered by roads on two sides and an irrigation canal to the north.



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**Figure 1-1**  
Proposed Action Site



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## 1.4 REGULATORY OVERVIEW

The following is a discussion of the Federal and State of Hawaii laws and consultations that are relevant to implementing the Proposed Action. Chapters 4 and 5 provide a discussion of how the Proposed Action complies with these relevant laws and consultations.

### 1.4.1 Chapter 343, Hawaii Revised Statutes

Because the project site occurs on State lands and on lands classified as conservation district by State law, the requirements of Chapter 343, HRS, State EIS Law; and Title 11, Chapter 200 (Chapter 11-200), Hawaii Administrative Rules (HAR) are applicable to the Proposed Action and alternatives. The purpose of Chapter 343, HRS is to establish a system of environmental review to ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations. Chapter 343, HRS was patterned after the Federal National Environmental Policy Act (NEPA). Environmental review under Chapter 343, HRS is required for any program or project that contains specified land uses or administrative acts, including use of State or County lands or funds other than for feasibility studies, the use of any land classified as conservation district by State law, or the purchase of raw land. The Proposed Action is subject to review under Chapter 343, HRS with approval by ADC (i.e., the approving agency). This EA was prepared in accordance with Chapter 343, HRS and Chapter 11-200, HAR to provide sufficient evidence and analysis for determining whether to prepare an EIS or to issue a Negative Declaration/Finding of No Significant Impact (FONSI) under Chapter 343, HRS.

### 1.4.2 Historic Sites Act of 1935

The Historic Sites Act of 1935 (16 USC §461-467) (The Act) established a national policy for the preservation of historic resources, including sites and buildings. The Act led to the establishment of the National Historic Landmarks program. The Act also forms a basis for the Historic American Building Survey/Historic American Engineering Record, a National Park Service program that establishes standards for, and conducts architectural and engineering documentation.

### 1.4.3 National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966 as amended (16 USC §470) recognized the nation's historic heritage and established a national policy for the preservation of historic properties as well as the National Register of Historic Places (NRHP). Section 106 of the NHPA requires agencies to take into account the effects of undertakings on historic properties, and affords the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings.

### 1.4.4 Hawaii Coastal Zone Management Program

The Federal Coastal Zone Management Program was created through passage of the Coastal Zone Management Act of 1972. In 1977 the Hawaii Coastal Zone Management Program was approved (Chapter 205A, HRS). The purpose of the Hawaii Coastal Zone Management Program (CZM) is to provide a common focus for state and county actions dealing with land and water uses and activities. As the State's resource management policy umbrella, it is the guiding perspective for the design and implementation of allowable land and water uses and activities

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throughout the state. The entire State of Hawaii is designated a coastal zone under the Hawaii CZM because no land lies further than 30 miles from the ocean. The Hawaii CZM is a cooperative effort between federal, state, and local agencies that employs a wide variety of regulatory and non-regulatory techniques to address coastal issues and uphold environmental law. Among them are stewardship, planning, permitting, education and outreach, technical assistance to local governments and permit applicants, policy development and implementation, and identification of emerging issues and exploration of solutions.

The Hawaii CZM establishes Special Management Areas (SMAs) and Shoreline Setback Areas (SSAs). SMAs give counties the authority to issue permits for development within an SMA, with the intent to preserve shorelines for recreation, encourage agencies to preserve natural resources, protect shorelines, and encourage public involvement in the planning process. SSAs extend not less than 20 feet (ft) (6meters [m]) and not more than 40 ft (12 m) from the shoreline. SSAs serve to protect nearshore areas and preserve natural sand transport systems. SSAs prevent mining of sand or removal of coral or rubble from the shoreline and within 1,000 ft (305 m) seaward from the shoreline or within waters up to 30 ft (9 m) deep.

#### 1.4.5 Endangered Species Act & Hawaii Endangered Species Law

The Endangered Species Act (ESA) as amended (16 USC §1531 *et seq.*) establishes a process for identifying and listing plant and wildlife species determined to be in danger of extinction and providing specific legal protections to conserve them. Under HI ST § 195D-1 – 32, Hawaii endangered species law, any species of aquatic life, wildlife, or land plant that has been determined to be an endangered species pursuant to the ESA shall be deemed to be an endangered species in the State of Hawaii and any indigenous species of aquatic life, wildlife, or land plant that has been determined to be a threatened species shall be deemed to be a threatened species in the State of Hawaii. In addition to species that have been determined to be endangered or threatened pursuant to the ESA, the State of Hawaii may determine any indigenous species of aquatic life, wildlife, or land plant to be an endangered species or a threatened species in order to further protect Hawaii's unique ecosystem. Hawaii endangered species law prevents removal, possession, or sale of endangered or threatened species. The State of Hawaii Department of Land and Natural Resources is responsible for enforcement of endangered species law.

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#### 1.4.6 Clean Air Act

The Clean Air Act (CAA) sets National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) and 2.5 microns (PM<sub>2.5</sub>), nitrogen dioxide (NO<sub>2</sub>), lead (Pb), and ozone (O<sub>3</sub>). The CAA regulates construction and operation of new stationary sources and modifications of existing stationary sources in its New Source Review program. This program is divided further into non-attainment and attainment area permitting requirements. Non-attainment areas require permitting of all major pollution sources. Attainment areas require the installation of the best available control technology for all major sources and must fall within the next increment of degradation. Major pollution sources require an air quality permit before construction.

#### 1.4.7 Clean Water Act

The Clean Water Act (CWA) of 1972 is the primary federal law that protects the nation's waters, including lakes, rivers, wetlands and coastal areas. The primary objective of the CWA is to restore and maintain the integrity of the nation's waters. In Hawaii, oversight responsibilities lie with the Hawaii State Department of Health (HDOH). The HDOH reviews and certifies National Pollutant Discharge Elimination System (NPDES) permit applications and the USEPA coordinates, drafts, and issues NPDES permits for storm water and point source pollution discharges.

#### 1.4.8 Environmental Permits and Required Approvals

Table 1-1 lists potential Federal and State environmental permits, approvals, and consultations that are associated with the Proposed Action.

**Table 1-1. Potential Permits, Approvals, and Consultations Associated with the Proposed Action**

<i>Permit/Approval/Consultation</i>	<i>Lead Agency(ies)/Groups</i>
<b>FEDERAL</b>	
NHPA, Section 106 consultation	State Historic Preservation Officer Office of Hawaiian Affairs
<b>STATE OF HAWAII</b>	
Chapter 343, HRS Environmental Review and Determination	Agribusiness Development Corporation
NPDES Permit	Hawaii State Department of Health (HDOH)

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## **2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **2.1 INTRODUCTION**

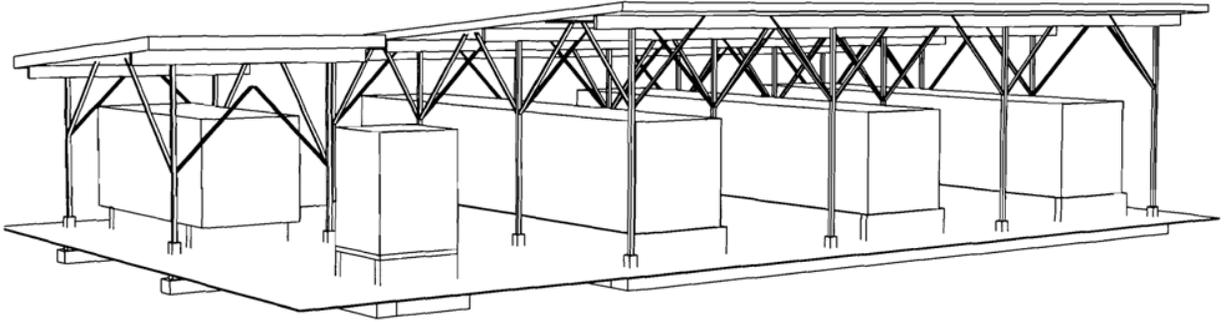
This chapter presents a discussion of the Proposed Action and alternatives. The alternatives described below represent a range of reasonable alternatives. The Proposed Action and the alternatives are analyzed in terms of how well they meet the project's purpose and need, as described in Section 1.2.

### **2.2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

#### **2.2.1 Proposed Action**

ADC proposes to install three containerized diesel-powered generator units to provide back-up power to operate the existing drainage and irrigation system of the Kekaha Agricultural Lands. Current power needs are met by existing hydropower generation at Waiawa and Mauka Waimea. Additional power from portable power generation units is needed due to the potential downtime of the hydropower generators from mechanical failure and intake debris blockage, in addition to the threat of heavy rain storms and hurricanes. Greater than five inches of rain in the span of a day can cause flooding in Kekaha and currently pumps at Nohili and Kawaiete Pumping Stations are run 24 hours a day to keep the ground water table down. Loss of power to the drainage system would result in damage to both agricultural and residential property in Kekaha. The generators would be connected to the existing power grid and would remain containerized and situated on concrete pads with a roof structure. The generators would be connected together by a skid-mounted transformer. A fuse box would also be installed. The pad for the generators would measure 58 by 44 ft, for a total of 2,552 square feet (ft<sup>2</sup>) (237 square meters [m<sup>2</sup>]) (Figure 2-1). The generators are intended to be standby units, operated only in the event that the existing hydropower units fail or are otherwise temporarily unavailable. The generators would not operate more than 500 hours in any 12-month period.

Figure 2-1. Generator Set and Structure



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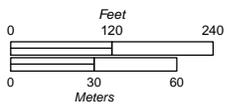


Figure 2-2  
Aerial Overview of Site



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## 2.2.2 Project Location

The project site is located in the western Kauai town of Kekaha. The TMK parcel associated with the property measures over 13,000 ac (5,261 ha). The generators would be installed in Field 104, near the entrance to the Kekaha Agricultural Lands off of Kekaha Road (Figure 2-2).

### 2.2.2.1 Project Site

The TMK parcel associated with the property is large, measuring over 13,000 ac (5,261 ha). The Proposed Action would use only a small portion of the parcel, Field 104, which measures approximately 3.2 ac (1.3 ha), as seen in Figure 2-2. The project site consists of a flat, sparsely vegetated parcel triangular in shape, bordered by roads on two sides and an irrigation canal to the north. The location of the generator set was sited to minimize impacts to and maximize the use of level terrain where available.

### 2.2.2.2 Project Site Access

The project site is easily accessed via Hukipo Road, and is directly across the street from a storage shed area regularly accessed by ADC management and employees. The site is approximately 500 ft (150 m) from Kekaha Road, the nearest main route. Kaunualii Highway is located approximately 1,500 ft (500 m) south of the site.

## 2.2.3 Alternatives

Alternatives to the Proposed Action must be considered in accordance with Chapter 343, HRS. However, only those alternatives determined to be reasonable relative to their ability to fulfill the purpose and need for the Proposed Action require detailed analysis. The only alternative identified that satisfies the purpose of and need for the Proposed Action is the Alternate Location Alternative (Alternative 1). The No-Action Alternative was carried forward in the analysis as a benchmark to compare the magnitude of environmental effects of the Proposed Action and Alternative 1.

### 2.2.3.1 Alternative 1

Under Alternative 1 the generators would be installed 500 ft (150 m) west of the proposed site (see Figure 2-2), next to the fuel tanks currently used by ADC. Construction plans would be altered as minimally necessary to change the location. The layout of the generator pads would not be different from that of the Proposed Action. The physical characteristics of the Alternative 1 site are very similar to those of the Proposed Action site.

### 2.2.3.2 No-Action Alternative

Under the No-Action Alternative, the generator set would not be installed. The area drained by the system is a flood plain. In the event that Kauai Island Utilities Cooperative (KIUC) could not supply power due to a catastrophic event, loss of power to the drainage system would result in damage to both agricultural and residential properties in Kekaha.

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### **2.3 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES**

Table 2-1 summarizes the environmental effects of the Proposed Action, Alternative 1, and the No-Action Alternative. This information is a summary of Chapter 4, Environmental Consequences.

**Table 2-1. Summary of Environmental Effects of the Proposed Action and Alternatives**

<i>Environmental Resources</i>	<i>Proposed Action</i>	<i>Alternate Location Alternative</i>	<i>No-Action Alternative</i>
Hazardous Materials and Waste	No Significant Impact Best Management Practices (BMPs): Spill Prevention and Control Plan	No Significant Impact BMPs: Spill Prevention and Control Plan	No Impact
Geology and Soils Water Resources	No Significant Impact BMPs: Erosion and Dust control measures.	No Significant Impact BMPs: Erosion and dust control measures.	No Impact
Air Quality Noise Infrastructure Climate Public Facilities, Services, and Recreation Visual Resources Biological Resources Socioeconomic Resources Land Use Cultural Resources	No Significant Impact	No Significant Impact	No Impact

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## **3.0 AFFECTED ENVIRONMENT**

This chapter describes the environmental setting and baseline conditions of the environmental resources within the project site associated with the Proposed Action. In order to analyze how the Proposed Action would potentially impact resources within the Proposed Action area, the existing conditions of the area must be described.

### **3.1 AIR QUALITY**

#### **3.1.1 Definition of Resource**

Air quality is defined by ambient air concentrations of specific pollutants of concern with respect to the health and welfare of the general public. Air quality can be affected by air pollutants produced by mobile sources, such as vehicular traffic, aircraft, or non-road equipment used for construction activities; and by fixed or immobile facilities, referred to as “stationary sources.” Stationary sources can include combustion and industrial stacks and exhaust vents.

The United States (U.S.) Environmental Protection Agency (USEPA), under the requirements of the CAA, as amended in 1977 and 1990 (CAA Amendments) has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 Code of Federal Regulations [CFR] 50): carbon monoxide (CO), nitrogen dioxides (NO<sub>2</sub>), ozone (O<sub>3</sub>) (with nitrogen oxides [NO<sub>x</sub>] and volatile organic compounds [VOCs] as precursors), particulate matter (PM) (PM<sub>10</sub>—less than 10 microns in particle diameter; PM<sub>2.5</sub>—less than 2.5 microns in particle diameter), lead (Pb), and sulfur dioxide (SO<sub>2</sub>).

Areas where concentration levels are below the NAAQS for a criteria pollutant are designated as being in “attainment.” Areas where a criteria pollutant level equals or exceeds the NAAQS are designated as being in “nonattainment.”

In addition to NAAQS, the HDOH established ambient air quality standards (AAQS) to further protect human health. AAQS exist for the following pollutants: carbon monoxide (CO), nitrogen dioxides (NO<sub>2</sub>), ozone (O<sub>3</sub>), PM<sub>10</sub> and PM<sub>2.5</sub>, lead (Pb), hydrogen sulfide (H<sub>2</sub>S), and sulfur dioxide (SO<sub>2</sub>).

#### **3.1.2 Affected Environment**

Based on air quality data collected and published by the HDOH, the State of Hawaii complies with the standards of the CAA, including the NAAQS and State Ambient Air Quality Standards. The air in Kekaha, and all of Hawaii is clean and low in pollutants, and Kauai is in attainment of all air quality standards (USEPA 2008). Consistent trade winds and no sources of large industrial pollutants also contribute to the clean air in Kekaha.

### **3.2 NOISE**

#### **3.2.1 Definition of Resource**

Noise is unwanted or annoying sound that is generated by both natural and manmade sources. Noise can have negative effects on physical and psychological health, affect workplace productivity, and degrade quality of life. Loudness is the relative measure of the magnitude of a sound and is typically measured in decibels (dB). Decibels are the ratio of the intensity of the sound to a reference intensity based on atmospheric pressure. The dB is a logarithmic unit of measurement that expresses the magnitude of a physical quantity, like sound, relative to a

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specified or implied reference level. Since it expresses a ratio of two quantities with the same unit, it is a dimensionless unit.

Construction noise is generated by the use of heavy equipment on job sites and is short-term in duration. Commonly, use of heavy equipment occurs sporadically throughout daytime hours. Construction noise varies greatly depending on the construction process, type and condition of equipment used, and layout of the construction site. Overall, construction noise levels are governed primarily by the noisiest pieces of equipment, impact devices (e.g., jackhammers, pile drivers).

### 3.2.2 Affected Environment

Kekaha is a small, quiet town made up primarily of residences and small businesses, thus noise levels are low and consistent with residential and agricultural use. The greatest source of noise is generated by regular vehicular traffic on Kaumualii Highway. The State of Hawaii sets the maximum acceptable sound level for construction at 78 decibels (dB). Construction noise may be generated Monday through Friday between 7:00 am and 6:00 pm and Saturday between 9:00 am and 5:00 pm. Construction generating more than 78 dB or occurring outside the designated hours requires a Community Noise Variance from the State of Hawaii.

## 3.3 INFRASTRUCTURE

### 3.3.1 Definition of Resource

Infrastructure is the basic structure of the affected environment, which includes utilities, traffic, and water and waste systems in the town of Kekaha.

### 3.3.2 Affected Environment

Kaumualii Highway is the major thoroughfare to Kekaha, starting in Lihue and ending shortly before Polihale Beach. Kekaha Road veers north off of Kaumualii Highway into Kekaha and leads to the proposed site. The parcel is situated at the corner of Hukipo and Mana Roads, unpaved and typical of the cane haul roads that cover the Mana Plain.

The pumps at Nohili and Kawaiete Pumping Stations are run with hydroelectricity generated on site by the ditch irrigation system (Southichack 2005). The pumps are run 24 hours a day to keep the ground water level down, preventing flooding. The Kekaha power plant was shut down and the Sugar Mill ceased production, but the Waiawa Hydro and Mauka Hydro stations continue to provide electricity for the pumping stations and other farm uses (Southichack, 2005). Power to the five businesses at the former Kauai Sugar Company (KSC) Office Building is provided by Kauai Island Utility Cooperative. Power to the fuel pump station and shop located on either side of the Proposed Action site is provided by the hydro stations managed by the Kekaha Agriculture Association. The town of Kekaha's potable water is supplied by the Kauai Department of Water Kekaha-Waimea system, which operates four wells on the Mana Plain.

The nearest solid waste facility is the Kekaha Landfill. There is no sewer system in Kekaha, thus the surrounding residences and businesses have cess pools or septic systems.

## 3.4 CLIMATE

### 3.4.1 Definition of Resource

Climate includes the meteorological conditions, including temperature, precipitation, and wind, that characteristically prevail in a particular region.

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### 3.4.2 Affected Environment

Rainfall on the Mana Plain is less than 20 inches per year at the coast and 40 inches per year at the base of the ridges (Bow 2000). The nearest US Geological Survey rainfall gauge is located in Waimea, near Kokee Lodge. 78.27 inches of rain were measured in 2007 (USGS 2009).

The climate of Hawaii is moderate. The winter months are wetter and cooler, while the summer months are drier and have more consistent trade winds. The average annual temperature at Kekaha varies between 71° F and 79° F (Environmental Planning Services 2008). Average annual rainfall at the project site is approximately 21 inches. Pan evaporation annually averages about 74 inches. The Mana Plain is dry and windswept, and thus subject to sheet flows and flooding during intense rainstorms.

The parcel is located in FEMA flood zone AE, which is an area that is inundated by 100 year flooding, and has a baseline flood elevation of 10 feet (FEMA 2009). The parcel, along with all land north of Kaunualii Highway, is not in a tsunami zone (Earth Tech et al. 2004).

## 3.5 VISUAL RESOURCES

### 3.5.1 Definition of Resource

Visual resources include scenic areas, vistas or thoroughfares and locations that provide natural-appearing or aesthetically-pleasing places or views. This includes natural views such as shorelines, seascapes, cliffs and man-made views such as unique buildings, landscaping, parks, and other types of cultural features. Visual resources are not limited to aesthetically pleasing views; views and vistas that people are accustomed to seeing and often take for granted as a general part of the landscape are also considered important visual resources.

### 3.5.2 Affected Environment

Views from the project site are limited due to its low elevation, location, and the development in the area. The town of Kekaha is situated on a relatively flat plain along the coastline. Ocean views are available from Kaunualii Highway and the homes along the highway, but not from parcels further inland. At the Proposed Action site, buildings are seen to the west, east, and south; facing south, the view is of the Kekaha Sugar Mill; facing north, the view consists of a canal, road, and the ridge line.

## 3.6 HAZARDOUS MATERIALS AND WASTE

### 3.6.1 Definition of Resource

The potential impacts hazardous materials and waste may have on human health and the environment is largely dependent upon their types, quantities, toxicities, and management practices. There is cause for concern if the use of these substances violates applicable federal, state, or local laws and/or regulations. There is also cause for concern if the use of these substances increases risks to human health or the environment.

#### 3.6.1.1 Regulatory Framework

A “hazardous substance” is any item or agent (i.e., biological, chemical, or physical) that has the potential to cause harm to humans, animals, or the environment. “Hazardous materials,” “toxic substances,” and “hazardous wastes,” broadly defined, can all be classified as “hazardous substances” because they may present a threat to human health and/or the environment.

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Hazardous substances are controlled in the United States (U.S.) primarily by laws and regulations administered by the USEPA, the U.S. Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (USDOT). Each agency incorporates hazardous substance safeguards according to its unique Congressional mandate. USEPA regulations focus on the protection of human health and the environment. OSHA regulations primarily protect employee and workplace health and safety. USDOT regulations promote the safe transportation of hazardous substances used in commerce.

### Federal Environmental Laws and Regulations

Relevant hazardous substance federal laws and regulations include, but are not limited to:

- Comprehensive Environmental Response, Compensation, and Liability Act (42 United States Code (USC) §9601–9675; 40 Code of Federal Regulations (CFR) 300-311; 40 CFR 373)
- Resource Conservation and Recovery Act (42 USC §6901-6992k and 40 CFR 260-272 as it relates to hazardous waste management)
- Emergency Planning and Community Right-to-Know Act (42 USC §11001et seq.; 40 CFR 350-372)
- Toxic Substances Control Act (15 USC §2601 et seq.; 40 CFR 700-723; 40 CFR 745-766; 40 CFR 790-799)
- Pollution Prevention Act (42 USC § 13101 – 13109)
- OSHA laws and regulations
- DOT laws and regulations, including the Transportation Safety Act (49 CFR 100 – 185)

### Comprehensive Environmental Response, Compensation, and Liability Act

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act, a hazardous substance is defined as one that poses a potential hazard to human health or the environment by virtue of its quantity, concentration, or physical/chemical characteristics. CERCLA has established a national process to identify, characterize, and clean-up hazardous waste sites.

### Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA), define hazardous waste as:

- A solid waste not specifically excluded from being classified as a hazardous waste under 40 CFR 261.4(b) that exhibits any of the characteristics (i.e., ignitability, corrosivity, reactivity, toxicity) described in 40 CFR 261 or
- Is listed in 40 CFR 261 Subpart D or
- Is a mixture containing one or more listed hazardous wastes from 40 CFR 261 Subpart D.

Hazardous wastes may take the form of a solid, liquid, contained gas, or semi-solid. In general, any combination of wastes that poses a substantial present or potential hazard to human health or the environment that has been discarded or abandoned is a hazardous waste.

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RCRA requires that all hazardous waste be systematically tracked from cradle-to-grave. This hazardous waste tracking system mandates the collection and retention of key information including: the generator of the waste, how the waste is routed to the receiving facility, a description of the waste, the quantity of the waste, identification of the facility that receives the waste, and other relevant data.

RCRA grants USEPA, authorized states and U.S. territories the authority to regulate hazardous waste management facilities that treat, store, or dispose of hazardous waste. Furthermore, the RCRA Corrective Action Program compels responsible parties of active facilities to investigate and clean up hazardous waste releases.

#### Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires businesses and governments to report their use of hazardous and toxic chemicals. EPCRA also requires that workers be trained as to safe chemical handling protocols and specific chemical hazards and controls for substances used in the workplace. In addition, EPCRA requires that state and local communities be prepared to respond to potential chemical accidents through the development of emergency response plans and other measures.

#### Toxic Substances Control Act

The Toxic Substance Control Act (TSCA) addresses concerns regarding chemical substances and mixtures whose manufacturing and use may pose an unreasonable risk of injury, adverse health, or adverse environmental consequences. TSCA is designed to regulate these substances and mixtures used in interstate commerce.

TSCA requires that prior to the manufacturing of a new substance(s), a pre-manufacture notice be filed with USEPA. This notice provides information describing the toxicity of the substance(s). Toxic chemical substances regulated under TSCA include asbestos, lead, polychlorinated biphenyls (PCBs), and radon as well as numerous other substances. The TSCA chemical substances inventory contains information on over 62,000 compounds.

#### Pollution Prevention Act

The Pollution Prevention Act focuses on pollution source(s) reduction and promotes the implementation of new and innovative practices to conserve and protect natural resources. These measures may include, but are not limited to reducing pollution through process modifications and the use of different, less toxic materials and substances.

#### Occupational Safety and Health Administration Regulations

The OSHA requirements are designed to protect workers and prevent workplace accidents, injuries, or illnesses. One such requirement is the Hazard Communication Regulation (29 CFR 1910.1200) which defines a hazardous chemical as one that poses a physical or health hazard and requires that workers are trained and notified of specific hazards associated with hazardous workplace substances. The definition includes:

- Carcinogens, toxins, toxic agents, irritants, corrosives, and sensitizers
- Agents which act on the hematopoietic system
- Agents that damage the lungs, skin, eyes, or mucous membranes

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- Chemicals which are combustible, explosive, flammable, unstable (reactive), or water-reactive
  - Oxidizers
  - Pyrophorics
  - Chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists, or smoke that may have any of the previously mentioned characteristics

Currently, OSHA regulates workplace exposure to approximately 400 substances, including dusts, mixtures, and common materials such as paints, fuels, and solvents.

### DOT Regulations

The DOT Hazardous Materials Regulations (49 CFR 171) define a hazardous material as a substance capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The DOT definition includes hazardous substances, hazardous wastes, and marine pollutants. DOT regulations require the implementation of various protective and preventative measures designed to promote the safe transportation of hazardous materials in commerce.

### HDOH Solid and Hazardous Waste Branch

The HDOH Solid and Hazardous Waste Branch regulates the generation, transportation, treatment, storage, and disposal of hazardous wastes. The Underground Storage Tank (UST) Section regulates underground storage tanks which store petroleum or hazardous substances. The Hazard Evaluation and Emergency Response (HEER) office provides risk assessments, responds to the release of hazardous substances and oversees the cleanup of contaminated sites. HEER was created to protect human health, public welfare, and the environment and provide state leadership, support and partnership in preventing, planning for, responding to, and enforcing environmental laws relating to releases or threats of releases of hazardous substances, pollutants or contaminants. HEER is responsible for implementing the Hawai'i Environmental Response Law (HRS 128D) and the State Contingency Plan (HAR 11-451), as well as the Hawai'i Emergency Planning and Community Right-to-Know Act (HRS 128E), which requires that facilities must report annually on hazardous substances stored on their premises if the amounts stored exceed specified threshold planning quantities. HEER maintains public records on the storage of hazardous substances, releases of hazardous substances to the environment, and site cleanup actions, and reports annually to the State Legislature.

## 3.6.2 Affected Environment

### 3.6.2.1 Hazardous Waste

There are no hazardous wastes stored on the Proposed Action site. There are no current or completed Superfund cleanup actions in at or near the Proposed Action site (USEPA 2009). The KSC Former Wood Treatment and Herbicide Mixing Plant is located approximately 500 ft (150 m) south of the Proposed Action site. No physical evidence of the plant remains, as seen in Figure 3-1) . The site is contaminated with dioxin and polycyclic aromatic hydrocarbons (PAHs) (Calisay 2010). The plant was investigated under the Federal Superfund Program in

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2004 and was given No further Action Under CERCLA because it scored < 28.5 in the Hazard Ranking System. However, the USEPA requires State oversight for the site characterization and clean-up of the plant. The site characterization is currently under review by the HDOH Hazardous Evaluation and Emergency Response (HEER) Office.

**Figure 3-1. Location of Former Wood Treatment and Herbicide Mixing Plant**



### 3.6.2.2 Hazardous Materials

There are four fuel tanks located approximately 500 ft (150 m) west of the Proposed Action site that are accessed on a daily basis (Figure 3-2). Two horizontal 10,000 gallon tanks contain gasoline, and two vertical 15,000 gallon tanks contain diesel fuel. The tanks are owned by the State and are leased to Senter Petroleum as an automated fuel dispensing station for commercial users. Both gas and diesel fuel are stored in the tanks. The primary users are the Kekaha Agriculture Association, Pioneer Hi-Bred International, Syngenta, and BASF Plant Science.

Eleven sealed and permanently out of use (HDOH 2009b) USTs can be found at the former Kekaha Sugar Mill and in the surrounding area. Six of these USTs contained gasoline, four contained diesel fuel, and one contained used oil.

**Figure 3-2. Fuel Tanks Near Proposed Action Site**



### **3.7 RECREATIONAL RESOURCES**

#### **3.7.1 Definition of Resource**

Recreational uses of an area include any type of outdoor activity in which area residents, visitors, or tourists may participate. Typically focused on weekends or vacation periods, such activities may include hiking, fishing, beachcombing, spelunking, and boating. Recreational opportunities and resources can be a very important component of an area's economy and the lifestyle of its residents.

#### **3.7.2 Affected Environment**

Kokee Road, which leads into Waimea Canyon and Kokee State Park, begins approximately 2,500 ft (800 m) west of the Proposed Action site and leads to hiking trails, camp sites, and the Kokee Visitor Center and Lodge. There are no public facilities, services, or officially recognized hiking trails located in the immediate vicinity of the project site, however, H.P. Faye Park and the Kekaha Neighborhood Center are also located 2,500 ft (800 m) west of the Proposed Action site. Kekaha Beach Park is used for recreation seven days per week and runs the length of Kaunualii Highway 1,500 ft (500 m) from the Proposed Action site.

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## **3.8 GEOLOGY AND SOILS**

### **3.8.1 Definition of Resource**

Geology describes the surface and subsurface materials of which a land area is composed, including soils and rocks. The characteristics of soils and underlying rocks include stability, slope, compatibility, shear strength, and productivity. Discussions of this resource area typically identify existing geological conditions and determine how action alternatives would likely affect geological and soil resources.

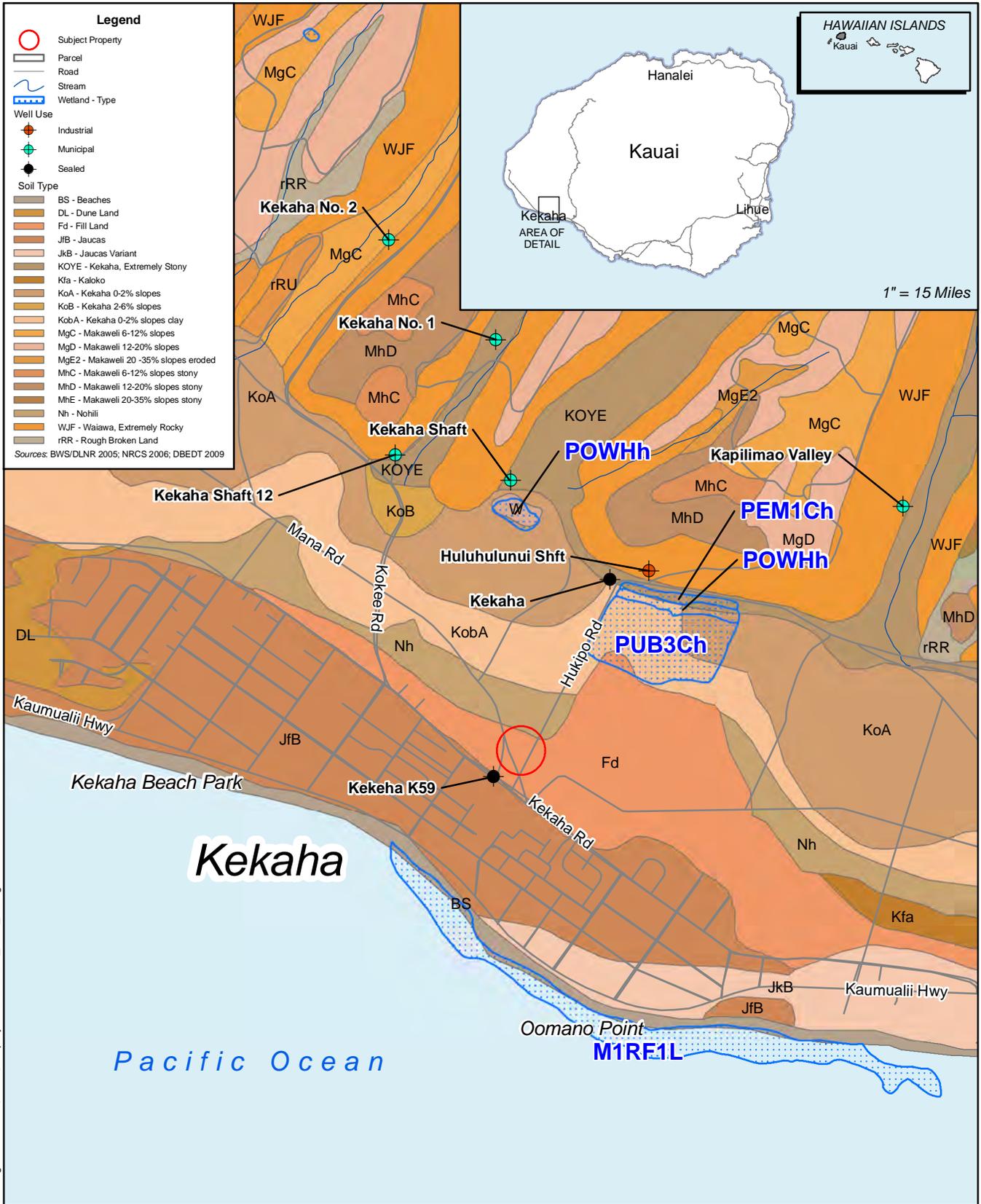
### **3.8.2 Affected Environment**

The underlying geology of Kekaha is composed of lavas in the Waimea Canyon Volcanic Series which originally created the island of Kauai over three million years ago (Blay and Siemers 1997). More recent alluvium overlies this parent material in the Waimea valley bottom (Macdonald et al. 1970), while slope wash from the surrounding terraces covers the remnants of a coral reef ledge to the west in Kekaha dating to approximately 2,000-4,000 years before present. Dune sands generally overlie this ledge south of Kaumualii Highway and north to the base of the lowest terrace.

The highland area overlooking the Mana Plain ranges in elevation from 1,000 to 3,500 ft (305 m to 1,067 m) (Bow 2000). The sediment overlying the basalt ranges in thickness from zero at the base of the ridges to 400 ft (122 m) near the shoreline (Bow 2000).

Generally, the characteristics of soil on the Mana Plain include high rates of percolation and fast evaporation that leads to very little ponding and little need for drainage systems. The Proposed Action site's soil is classified as Fill Land, the characteristics of which include a slope of 0 to 3% and generally overlying 20 to 40 inches to lithic bedrock (Figure 3-3) (USDA 2009). Fill land is well drained, 80 inches or greater above the water table, unlikely to pond and subject to occasional flooding (USDA 2009). The typical profile of Fill Land is silty clay from 0 to 30 inches deep, and bedrock below to 40 inches. Fill Land is not classified by the US Department of Agriculture as prime or unique.

Erosion studies of the nearest shoreline, which is approximately 0.4 miles from the Proposed Action site, show that the shoreline is eroding at a rate of -1.7 ft/year (0.5 m/yr) (UH SOEST 2009).



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0 840 1,680  
0 230 460  
Feet  
Meters

**Figure 3-3**  
Soil & Water Resources

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## **3.9 WATER RESOURCES**

### **3.9.1 Definition of Resource**

Water resources are sources of water available for use by humans, flora, or fauna, including surface water, groundwater, nearshore waters, and wetlands. Surface water resources, include but are not limited to stormwater, lakes, streams and rivers. Groundwater is classified as any source of water beneath the ground surface, and is the primary source of potable water used to support human consumption. Nearshore waters can be directly affected by human activity, and are important for human recreation and subsistence. Wetlands are habitats that are subject to permanent or periodic inundation or prolonged soil saturation, and include marshes, swamps, and similar areas. Areas described and mapped as wetland communities may also contain small streams or shallow ponds, or pond or lake edges.

### **3.9.2 Affected Environment**

#### **3.9.2.1 Surface Water**

KSC dug the Waimea Ditch in 1903 to bring irrigation water from the Waimea River to the Mana Plain (Bow 2000). The Kekaha Ditch was completed in 1907, also diverting water from the Waimea River. The Kokee Ditch was completed in 1926, bringing in additional water from Mohihi Stream and Alakai Swamp to the Mana Plain (Bow 2000). Nohili and Kawaiiele Marshes were drained in 1922 to create more land for sugar cane production. There are no naturally occurring streams, ponds, or other surface waters at or near the Proposed Action site. The Waimea Stream is the largest perennially flowing stream draining the southern slopes of the island in the Waimea district, while far fewer and smaller streams drain the Kekaha uplands.

#### **3.9.2.2 Ground Water**

The Mana Plain is underlain by a basaltic aquifer from which wells yield as much as 22 million gallons per day (Burt 1979). The aquifer is recharged by rainfall in the highland area above the plain. The town of Kekaha's potable water is supplied by the Kauai Department of Water Kekaha-Waimea system, which operates four wells on the Mana Plain. Water for KSC was supplied by the Kekaha Shaft (State Well No. 5842-02), which lies on KSC property (Bow 2000). The 60-foot well was developed in 1932, supplied by two 75,000 gallon storage tanks (Bow 2000) and was abandoned when KSC shut down. The transmission pipelines from the storage tanks is approximately 4,000 ft (1,219 m) long and runs under the corner of the KSC office building (Bow 2000). Pacific Missile Range Facility (PMRF) had a purchase contract signed in 1956 to purchase water from KSC, and did so through the close of the facility in 2000. Eight wells that were drilled between 1930 and 1957 are still usable for potable water and irrigation purposes on the Mana Plain (Bow 2000). An additional 59 other wells were developed between 1880 and 1957 for agricultural irrigation. As of 2000, 28 of those wells are abandoned and lost (Bow 2000).

#### **3.9.2.3 Wetlands**

The Mana Plain was once dominated by wetlands. The Nohili and Kawaiiele Marshes were drained in 1922 (Bow 2000). The pumps at Nohili and Kawaiiele Pumping Stations keep the ground water table down, keeping the Mana Plain from returning to a marsh. Because of the wetland nature of the area, greater than 5 inches of rain in the span of a day can cause floods on the Mana Plain. Directly inland from the Proposed Action site, up Hukipo Road, there is a piggery operated by former Amfac Hawaii employees (Ignacio, 2009). The area of the piggery is

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a designated wetland and can be seen in Figure 3-3. The largest portion of the wetland is classified PUB3Ch: palustrine (non-tidal, lacking flowing water), with an unconsolidated bottom, seasonally flooded, and diked or impounded. The north borders of the piggery wetland are POWHh: palustrine, with an unknown bottom, permanently flooded and diked or impounded; and PEM1Ch: palustrine, emergent persistent, seasonally flooded and diked or impounded. Further west from the Proposed Action site is another small wetland classified as POWHh: palustrine, with an unknown bottom, permanently flooded and diked or impounded. The coastline directly south of the Proposed Action site, approximately 500 m (1,640 ft) away, is also classified as a wetland, and is designated as a sub-tidal marine mollusk reef.

#### 3.9.2.4 Nearshore Water

Nearshore waters closest to the Proposed Action site are classified as Class A, Open Coastal Waters. Class A waters are protected for recreational purpose and aesthetic enjoyment, and should not receive discharge that has not received the best degree of treatment or control (Chapter 11-54-3, HAR). The coastline directly south of the Proposed Action site is designated as a sub-tidal marine mollusk reef. The shoreline adjacent to Kekaha town tends to be highly turbid, often appearing red as a result of soil run off. The Proposed Action is located 1,500 ft (500 m) from the shoreline.

### 3.10 BIOLOGICAL RESOURCES

#### 3.10.1 Definition of Resource

Biological resources include native or naturalized plant and animal species and the vegetation communities within which they occur. Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socio-economic values to society. This analysis focuses on species or vegetation communities that are important to the functions of biological systems, are of special public importance, or are protected under Federal or State law or statute. For purposes of this EA, these resources are divided into three categories: vegetation types, wildlife, and special-status species. Special-status species include those species listed by the United States Fish and Wildlife Services (USFWS) under the ESA.

#### 3.10.2 Affected Environment

##### 3.10.2.1 Vegetation

Vegetation types include all existing terrestrial plant communities as well as their individual component species. The area of potential effect for vegetation includes only those areas potentially subject to ground disturbance.

Abandoned sugar cane and dense mats of California Grass (*Brachiaria mutica*) are abundant at the TMK parcel (Char 2001). On the Proposed Action site there are scattered clumps of koa hoale (*Pluchea leucocephala*), Indian Pluchea (*Pluchea indica*) and Christmas Berry (*Schinus terebinthifolius*) shrubs measuring 3-7 ft (1-2 m) tall (Char 2001). Also found are young papaya trees (*Carica papaya*) and Ilima (*Sida fallax* Walp.) measuring 2-3 ft (0.6 – 1 m) tall. Vegetation is sparse on the Proposed Action site, as seen in Figure 3-4.

**Figure 3-4. Vegetation on Proposed Action Site**



#### 3.10.2.2 Wildlife

Wildlife includes all animals with the exception of those identified as special-status species. Wildlife includes amphibians, reptiles, birds, and mammals. Wildlife also includes those bird species that are not special-status species but are protected under the Federal Migratory Bird Treaty Act.

Only one species of bird was documented during the biological survey of the Proposed Action site and surrounding area. Four Hawaiian Coots (*Fulica alai*) were observed swimming in the canal north of the Proposed Action site. The Hawaiian Coot is further discussed in the Special-Status Species section. Hawaiian Coots are seen frequently on the Mana Plain, where they construct floating nests in brackish or freshwater ponds, ditches, and taro fields.

Other bird species present in the area include the Hawaiian Stilt (*Himantopus mexicanus knudseni*), the Hawaiian Common Moorhen (*Gallinula chloropus*), the Hawaiian Common Moorhen (*Gallinula chloropus sadvicensis*) the Hawaiian Duck (*Anas wyvilliana*), and the Hawaiian Goose (*Branta sandvicensis*), all of which are discussed in greater detail in the following section: Special-Status Species. Mammal species likely to be present on the Mana Plain include rats (*Rattus rattus*, *R. exulans*) and feral pigs (*Sus scrofa*), although neither were documented during the biological survey of the Proposed Action site and surrounding area.

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### 3.10.2.3 Special-Status Species

Special-status species are defined as those plant and animal species listed as threatened, endangered, or proposed as such, including their associated critical habitat, by the USFWS under the ESA or by the State of Hawaii under the Hawaii ESA.

The biological survey of the project site did not find any plants classified as threatened, endangered, or specially designated by any regulatory agency on the Proposed Action project site. The greater TMK includes four areas designated critical habitat for *Peucedanum niihauens*, a federally-listed endangered plant species. The critical habitat for *Peucedanum niihauens* was designated in June 2003 in four units totaling 432 ac (175 ha) on the island of Kauai (USFWS, 2003). This designation includes habitat on state lands. The Proposed Action site is not in or near any designated critical habitat.

#### Endangered Species:

The Hawaiian Stilt (*Himantopus mexicanus knudseni*) is found in nearby canals and wetland areas. Hawaiian Stilts nest adjacent to water bodies and are often found in mudflats, sparsely vegetated pickleweed mats, and open pasture lands (USFWS 2009a). No Stilts were seen on the Proposed Action site during the biological survey, but it is likely that they sometimes use the site or adjacent canal.

The Hawaiian Coot (*Fulica americana alai*) was seen near the Proposed Action site during the biological survey conducted on November 25, 2009. On Kauai, the endemic Coot is usually found in lowland valleys, in or near ponds, ditches, or taro fields. The estimated population of the Coot is between 2,000 and 4,000 birds, with 80% being found on Kauai, Oahu, and Maui (USFWS 2009b). The Coot builds floating nests from aquatic vegetation, and feeds both on land and in water on seeds and leaves, snails, insects, tadpoles, and small fish (USFWS 2009b).

The Hawaiian Common Moorhen (*Gallinula chloropus sandvicensis*) is occasionally seen in nearby canals and wetlands. The majority of the Kauai population of 'Alae 'ula is found in lowland wetlands and valleys and while nearby, are unlikely to be found on the proposed site (USFWS 2009c).

The Hawaiian Goose (*Branta sandvicensis*), commonly referred to as Nene in Hawaii, is found on scrubland, grassland, golf courses, sparsely vegetated slopes, and in the open lowland country in the vicinity of the proposed action site (USFWS 2009d). There are an estimated 800-860 Nene on Kauai and a total estimated population of over 1,700 in the state as of 2006 (USFWS 2009d). The number of Nene on Kauai is increasing steadily, and Kauai is the only island in which Nene are breeding in the wild (USFWS 2009d). As late as 1949, Nene inhabited rocky, sparsely vegetated, high volcanic slopes. As a result of habitat loss and increase in agricultural land use in Hawaii, the Nene now prefers grassland and scrubland for nesting purposes (USFWS 2009d).

The Hawaiian duck (*Anas wyvilliana*), is one of two native duck species found in Hawai'i and is closely related to the non-native mallard duck (USFWS 2009e). The Hawaiian Duck can be found foraging in a wide variety of freshwater habitats, including artificial wetlands. Movements between feeding and breeding habitats and between Kaua'i and Ni'i'hau occur. The species typically forages in shallow water. Although some pairs nest in lowland habitats, on Kaua'i, Hawaiian ducks are found nesting in the upper Alaka'i swamp area, north of the Proposed Action site (USFWS 2009e).

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### 3.11 CULTURAL RESOURCES

#### 3.11.1 Definition of Resource

The NHPA defines historic property as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register...” (16 USC 470w). No historic properties are located on the proposed generator site.

Cultural Resources, as used in Chapter 343, HRS, refer to the “practices and beliefs of a particular cultural group or ethnic group or groups” (Office of Environmental Quality Control [OEQC], 2004). The types of cultural practices and beliefs to be assessed may include “subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs” (OEQC, 2004), and may also include traditional cultural properties, or other historic sites that may support such beliefs and practices.

#### 3.11.2 Traditional Settlement Patterns in the Affected Environment

Pre-Contact native Hawaiian settlement patterns in the Waimea District likely reflect the history of the development of agriculture in the valley and surrounding foothills. The name Waimea, meaning “reddish water (as from the erosion of reddish soil)” (Pukui, Elbert, and Mookini 1974), suggests not only the natural erosion from Waimea Canyon, but perhaps also the effects of native forest clearing for upland sweet potato planting and lowland terracing for taro irrigation. The following description of the Waimea valley epitomizes the impact of this general land use history:

“The taro lands of Waimea, on the southwest coast, were developed on the broad delta below the mouth of the canyon... This was feasible only after means were devised for bringing irrigation water at a sufficiently high level around the cliff on the west side of the canyon base. For the rest, interior valley planting in Waimea... was a matter of terracing small flats on the canyon floors, near the streams and high enough not to be washed away by heavy floods which sweep down these canyons at times of heavy rain” (Handy and Handy 1972).

Nakikia’ola, the irrigation canal today known as “Menehune Ditch” which tunnels through the cliff line, was constructed by pre-contact native Hawaiians to accomplish this monumental task, at the orders of high chief ‘Ola of Waimea. Besides the lowland taro patches watered from this unique irrigation system, Captain Cook in 1778 noted “... potato fields, and spots of sugarcane, or plantains, on higher ground,” (in Handy and Handy 1977), attesting to the farming of slopes above the Waimea delta to feed the inhabitants of what were then seen to be about 60 thatched houses in the village.

Prior to post-Contact clearing for settlement and agriculture, the coastal plain and lower terrace slopes probably supported a mixed forest of endemic species and those introduced by Polynesian settlers, including kukui (*Aleurites moluccana*), hau (*Hibiscus tiliaceus*), naupaka (*Scaevola* sp.), noni (*Morinda citrifolia*), ulu or breadfruit (*Artocarpus altilis*), and niu or coconut (*Cocos nucifera*). The coastal sands mixed with colluvial soil from the terraces made the project area vicinity ideal for the planting of uala or sweet potato (*Ipomoea batatas*) and other Polynesian domesticates (Handy and Handy 1972), probably including wauke or paper mulberry (*Broussonetia papyrifera*), maia or bananas (*Musa* sp.), ko or sugarcane (*Saccharum officinarum*), and ipu awaawa or bitter melon (*Lagenaria siceraria*).

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Kekaha literally means “the place” (Pukui, Elbert, and Mookini 1974). Captain Cook’s first visit to Kauai in 1778 makes no mention of Kekaha, but on Captain George Dixon’s visit in 1789, he walked west of Waimea to what he called “A Tappa”:

“...a pretty large village, situated behind a long row of coca-nut trees, which affords the inhabitants a most excellent shelter from the scorching heat of the noon-day sun. Amongst these coca-nut trees is a good deal of swampy ground, which is well laid out in plantations of taro and sugarcane.” (Handy and Handy 1972).

Dixon also noted that Kekaha was known for the “manufacture of cloth” which would have been a reference to either *wauke* grown in the lowlands or the *mamaki* tree in the nearby forests, both being used to prepare beaten *tapa* cloth fabric (Handy and Handy 1972). Kekaha remained known for its *tapa* cloth into the 1850s (Lydgate 1991) and even tobacco for cigars was grown there, but with little success. After the lowland swamps were drained for sugarcane during the same period, considerable profit was made in the exportation of sugar refined at the mill in Kekaha, with hundreds of acres of upland slopes and terraces put under plowed field systems until Kekaha Plantation closed in 2000 (Cozad 2008).

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### 3.11.3 Prior Archaeological Research in Affected Environment

Given the apparent density of pre-contact agricultural remains in the Waimea valley and the presence of several *heiau* and habitation features on the adjacent slopes, it should be expected that the coastal plain of Kekaha nearby would also have been the locus of long-term habitation and interment, perhaps since the earliest settlement of this part of Kauai. In the Hanalei valley on the north coast of Kauai, the earliest phase of wetland agricultural development has been tentatively dated to the seventh century AD (Schilt 1980), while more dates suggest population expansion by the thirteenth to fifteenth centuries (Athens 1983). Further west in the Halelea district, dated malacological remains indicate that coastal plain forest clearing began well after approximately AD 550 (Dixon, Soldo, and Christensen 1997), although pond field agricultural sites nearby (Earle 1978, 1980) appear to date much later from the thirteenth to fifteenth centuries. Habitation remains and an associated household garden in Anahola on the northeast coast have also been dated to AD 1455-1675 (Dixon et al. 2005), so this latter timeframe may therefore bracket the maximum development of the Waimea terrace system described above, with possible habitation remains and burials in the vicinity probably dating from this time period until after EuroAmerican Contact.

Very little archaeology research has been done in the immediate vicinity of the project area, as the Kekaha coastal plain has mostly been the locus of small-scale residential development encroaching from the more developed Waimea Town, while the higher terraces to the north have been under sugarcane cultivation for decades. Early archaeological reconnaissance of the Waimea and Kekaha coastal plain (Bennett 1931) recorded the remains of six sites in the area:

- Polihale Heiau near the base of Polihale cliff (Site 50-30-01-1);
- house foundations in Haele`ele Valley and Lapa Ridge (Site 50-30-01-2 thru 5); and
- a burial cave at the base of Haele`ele Ridge (Site 50-30-01-6).

More recent archaeological research in the coastal plain has rarely encountered evidence of sustained pre-contact habitation (Bordner 1977; Kennedy 1991; Kikuchi 1979; Leidemann and Kishinami 1990; McMahon 1988a and 1988b; Walker and Rosendahl 1990; and Yent 1982), although aquacultural pond fields were identified in the Mana plain to the west (Kikuchi 1987), cultural horizons with marine food remains were identified in similar settings (Welch 1990a and 1990b), and ephemeral remains were noted in several small valleys above (Sinoto 1978).

Given the ethnohistoric documentation of native Hawaiian settlement of the Kekaha coastal plain and utilization of nearby slopes and terraces in the late 1700s to early 1800s, it appears that the archaeological record has suffered greatly from the past century and a half of agricultural development on an industrial scale. Nevertheless, McMahon (1993) postulates a settlement pattern for the general project area vicinity which may contain residual elements of permanent habitations along the back of the coastal plains and around now-filled wetlands, with religious sites, smaller habitations, and agricultural remains in the foothills and terraces above.

## 3.12 LAND USE

### 3.12.1 Definition of Resource

Land use discussions include land use history, as well as existing and planned land uses, and land use planning guidance that directs future development.

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### 3.12.2 Affected Environment

Kekaha has a long history of agricultural use, beginning with the cultivation of rice on the Mana Plain around the Nohili and Kawaiete Marshes as early as the mid-1800s (Bow 2000). Sugar cane production began in Kekaha in 1878 (Bow 2000). KSC developed a sugar plantation on State-owned land in Kekaha in 1898, and sugar cane cultivation was the primary use of land for over 100 years. The land was managed by the State of Hawaii Department of Land and Natural Resources (DLNR) until 2001, when the Board of Land and Natural Resources gave ADC a management right of entry. In 2003, ADC subsequently received an Executive Order set aside for the land. The parcel is classified by the State of Hawaii as Agricultural.

Adjacent land is also used for corn cultivation, which has been grown on the Mana Plain successfully since the 1960s (Soutichack, 2005). Attempts at aquaculture on surrounding properties have been unsuccessful due to viruses (Southichack, 2005). 14,500 ac (5,868 ha) of land on the highland area above the parcel is part of the Hawaiian Homelands (Bow 2000). Within this area, 26 ac (11 ha) are leased to the Navy and 500 ac (202 ha) are leased for grazing.

PMRF is located west of the town of Kekaha, between Kekaha and the end of Kaunualii Highway at Polihale Beach, where the Na Pali Coastline begins. PMRF is the world's largest missile range facility, with 42,000 mi<sup>2</sup> of controlled airspace. PMRF is 2,385 ac (965 ha) in area and is the western-most development on the island of Kauai.

## 3.13 SOCIOECONOMIC RESOURCES

### 3.13.1 Definition of Resource

Socioeconomics is defined as the basic attributes and resources associated with the human environment. Socioeconomic resources include population size and demographics, employment and income' economic activity, government-funded health and human services, and social cohesion.

### 3.13.2 Affected Environment

The island of Kauai has 63,689 residents (US Census 2008). Kekaha has a total population of 3,175, of which 25% are under the age of 18 (US Census 2000). The average household size in Kekaha is 3, and there are 1,162 homes in the town of Kekaha. The racial background of Kekaha residents, according to the 2000 US Census, is as follows:

- Caucasian: 15.9%
- African American: 0.2%
- American Indian/Alaskan Native: 0.5%
- Asian: 43.6%
- Native Hawaiian/Pacific Islander: 12.4%
- Hispanic or Latino: 8.7%
- Two or more races: 26.4%
- Other: 1%

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Twenty-eight percent of Kekaha residents speak a language other than English at home (US Census 2000).

The median household income in 1999 was \$41,103 and the median family income was \$48,629. Eleven percent of Kekaha's population is at or below the poverty level (US Census 2000). Seventy-four percent of Kekaha residents 25 and over have a high school degree, and 12.4% have a bachelor's degree or higher (US Census 2000).

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## 4.0 ENVIRONMENTAL CONSEQUENCES

This chapter evaluates the probable consequences on environmental resources of the Proposed Action and two alternatives: Alternative 1 and the No-Action Alternative.

Cumulative impacts on environmental resources can result from the incremental effects of development and other actions when evaluated in conjunction with other past, present, and reasonably foreseeable future actions. No cumulative impacts have been identified for the Proposed Action.

An analysis of a wide range of resources indicated that the Proposed Action and alternatives are unlikely to affect or be affected by the environmental resources as described in Sections 3.1.1 through 3.1.15.

### 4.1 AIR QUALITY

#### 4.1.1 Proposed Action

The Proposed Action construction would temporarily impact air quality in the immediate area of the installation site by increasing vehicular and machinery emissions. These increased emissions would be short-term in nature. Emissions from operation of the generator set would be minimal and temporary due to the limited use of the generators. Air emissions would be limited to periodic generator start-up to ensure generators are functioning properly, and any emissions would short-term in nature. The Proposed Action would not exceed the HDOH Clean Air Branch minimum emissions calculation of 500 hours per year of operation for emergency-use generators. The Clean Air Branch has determined that the ADC Generators will not require an air pollution source permit. The emissions for each generator are found in Table 4-1.

**Table 4-1. Generator Set Emissions and USEPA and Hawaii Standards**

Air Pollutant	Emissions (g/bhp-hr)	Tier 2 USEPA Emission Limit (g/bhp-hr)	Hawaii AAQS
Hydrocarbons + NOx	5.93	6.4	0.4 ppm annual average
Carbon Monoxide	0.34	3.5	9 ppm 1-hr average 4.4 ppm 8-hr average
Particulate Matter	0.044	0.20	150 micrograms/m <sup>3</sup> (24 hr ave) 50 micrograms/m <sup>3</sup> (annual ave)

Source: USEPA 2007, Caterpillar 2001

The emissions are compliant with the USEPA Tier 2 nonroad regulations (Caterpillar 2001). The emissions for these generators are required to conform to Tier 2 USEPA emissions limits because they were manufactured from 2001-2006. The Proposed Action would not exceed USEPA or HDOH air quality emissions limitations.

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In addition, the strong winds at the project site and in the routes to and from the project site would quickly dissipate the exhaust generated during routine testing. Therefore, the Proposed Action would have no significant impacts on air quality.

#### 4.1.2 Alternative 1

Due to the proximity of Alternative 1, air quality at the site is the same as at the Proposed Action site. Impacts to air quality would be the same as those previously described under the Proposed Action. There would be no significant impacts to air quality.

#### 4.1.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to air quality would occur.

### 4.2 NOISE

#### 4.2.1 Proposed Action

Sources of noise near the Proposed Action site include vehicular traffic on Kekaha Road and infrequent vehicular traffic on Hukipo Road, and commercial and school activity at the former KSC office building located west of the parcel. Construction noise would be short-term, and limited to normal construction hours. The Proposed Action site is located approximately 330 ft (100 m) from the former KSC office building, which contains five businesses and a school. The businesses and school are the nearest sensitive noise receptors. During the construction process, noise levels would be temporarily increased, but would not exceed the State of Hawaii construction noise limit of 78 dB. The Proposed Action operations would not represent a significant increase in noise to the area due to the infrequent use of the generators, therefore, the Proposed Action would not result in significant noise impacts to the project site or vicinity.

#### 4.2.2 Alternative 1

The Alternate Location Alternative would situate the generator set approximately 150 ft (50 m) from the businesses and schools at the former KSC Office Building. Construction and operation noise generated would be short in duration, and the same as described under the Proposed Action. There would be no significant impact from noise under Alternative 1.

#### 4.2.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts from noise would occur.

### 4.3 INFRASTRUCTURE

#### 4.3.1 Proposed Action

Installation of the generators would generate a temporary and very slight increase in traffic on Kekaha Road from workers traveling to and from the Proposed Action site. The generators would be connected to the existing power grid, but would not affect daily power generation levels. Solid waste generated during construction and installation of generators would be removed and taken to the Kekaha Landfill. Temporary facilities would be put in place for wastewater created by construction workers, and no permanent wastewater treatment, such as a septic tank, would be required to support the generator set. Pumping of water at Nohili and Kawaiele would continue to occur 24 hours a day to prevent flooding. There would be no impact

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to utilities or other infrastructure from installation or operation of the generators. Therefore, the Proposed Action would have no significant impacts on infrastructure.

#### 4.3.2 Alternative 1

Due to the identical soil type and topography of Alternative 1, impacts to infrastructure would be the same as those previously described under the Proposed Action. There would be no significant impacts to geological or soil resources under Alternative 1.

#### 4.3.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to infrastructure would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding, which would in turn wash away soil and impact topography on much of the Mana Plain.

### 4.4 CLIMATE

#### 4.4.1 Proposed Action

The Proposed Action would not impact the climate of Kekaha during construction and installation. Periodic testing of the generator set would not exceed 500 hours of operation annually and emissions would not impact climate. The Proposed Action would have no significant impact to climate.

#### 4.4.2 Alternative 1

Impacts to climate under Alternative 1 would be the same as those previously described under the Proposed Action. There would be no significant impacts to climate.

#### 4.4.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to climate would occur.

### 4.5 VISUAL RESOURCES

#### 4.5.1 Proposed Action

Short-term and localized negative visual impacts would occur from the presence of construction equipment and crews during diesel generator installation. However, once installed, the generator set would be consistent with existing views. The generator set would remain containerized, and would be installed on a concrete foundation and covered with a protective roof structure made of corrugated metal. The Proposed Action would not permanently change existing viewsheds as no important public views are located in the project site. Figure 2-1 depicts the generators and surrounding structure. Therefore, the Proposed Action would have no significant impacts on visual resources.

#### 4.5.2 Alternative 1

Due to the close proximity of the site of Alternative 1, impacts to visual resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to visual resources under Alternative 1.

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#### 4.5.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to visual resources would occur.

### **4.6 HAZARDOUS MATERIALS AND WASTE**

#### 4.6.1 Proposed Action

The Proposed Action would not disturb the site of the Former Wood Treatment and Herbicide Mixing Plant located near the site. While not expected, should regulated or hazardous materials be found, they would be removed, handled, and disposed of in accordance with applicable State and Federal regulations. In the unlikely event of a diesel fuel spill, the 4" concrete pads upon which the generators are mounted would prevent contamination of soil, vegetation, or ground water. Ordnance is not expected to exist at the site. However, should any ordnance be discovered, it would be removed in accordance with applicable Department of Defense instructions and procedures as well as applicable State and Federal regulations.

A Spill Prevention and Control Plan (SPCP) is a BMP implemented to prevent the spill of hazardous materials. Implementation of an SPCP is not required during the construction process, however, an SPCP to prevent spill of any diesel fuel at the site would mitigate and potential impacts from Hazardous Materials and Waste. The Proposed Action would create no significant impact from hazardous and regulated materials.

#### 4.6.2 Alternative 1

Hazardous materials and wastes are not expected be found or created under Alternative 1, as previously described under the Proposed Action. There would be no significant impact associated with hazardous and regulated materials.

#### 4.6.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no significant impact associated with hazardous and regulated materials would occur.

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## **4.7 RECREATIONAL RESOURCES**

### **4.7.1 Proposed Action**

There are no public facilities or services located near the project site, and the project site is not generally used for recreation. Traffic on Kekaha Road and Kokee Road would not be impacted from installation or operation of the generator set, thus access to recreational resources at H.P. Faye Park, the Kekaha Neighborhood Center, Waimea Canyon and Kokee State Park via Kokee Road would not be impeded by the Proposed Action. Kekaha Beach, located 500 m (1,640 ft) from the Proposed Action site, would not be impacted by installation or operation of the generator set. Run off to the shoreline would not occur due to the implementation of BMPs as described in Section 4.1.6 Geology and Soils. Therefore, the Proposed Action would have no significant impacts on public facilities, services, or recreation.

### **4.7.2 Alternative 1**

Due to the close proximity of the site of Alternative 1, impacts to public facilities, services, and recreation would be the same as those previously described under the Proposed Action. There would be no significant impacts to these resources under Alternative 1.

### **4.7.3 No-Action Alternative**

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to public facilities, services, and recreation would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding on the Mana Plain, which would potentially impact beaches found along the coast of the Mana Plain.

## **4.8 GEOLOGY AND SOILS**

### **4.8.1 Proposed Action**

The existing soil at the Proposed Action site is Fill Land. The flat topography of the site is ideal for installation of the diesel generator. The generator set would be placed on a concrete pad measuring 4 inches thick, overlying a compacted base. The pad would measure 58 ft by 40 ft (2,320 sq ft) and the fuel tank and transformer would be placed on a pad measuring 12.8 ft by 20 ft (256 sq ft). The total footprint of the Proposed Action would be approximately 2,576 sq ft. Vegetation in this area would be removed, which would result in a change in topography and could lead to increased run off. The site is located at an elevation of 10 ft and is not likely to flood during periodic annual floods experienced on the Mana Plain.

Soil to be disturbed is not classified as prime. Installation plans require that any additional required fill would require 95% compaction. All soil shall have a minimum 2,000 pound per square foot bearing capacity. It is not expected that clay would be found during excavation, but if it is, it will be stabilized using gravel to fill 8 inch wide trenches or 8 ft deep trenches, whichever is required to get around the clay level, dug around the perimeter of the slab.

Standard construction best management practices (BMPs) would be implemented during the installation process to control erosion and dust and prevent soil and storm water runoff from reaching the nearby canal, roads, or nearshore water. A list of BMPs and their description can be found in Table 4- 2.

**Table 4-2. Best Management Practices**

Best Management Practice	Purpose	Description
Silt Fencing	Erosion Control	A silt fence consists of a length of filter fabric stretched between anchoring posts spaced at regular intervals along the site. Silt fences apply to construction sites with relatively small drainage area.
Wind Breaks	Dust Control	Wind breaks are barriers (either natural or constructed) that reduce wind velocity through a site and, therefore, reduce the possibility of suspended particles.
Sprinkling/Irrigation	Dust Control	Sprinkling the ground surface with water until it is moist controls dust on dirt roads and open spaces.

Source: USEPA 2010

The Proposed Action would have no significant impact on geological and soil resources.

#### 4.8.2 Alternative 1

Due to the identical soil type and topography of Alternative 1, impacts to geological and soil resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to geological or soil resources under Alternative 1.

#### 4.8.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to geological and soil resources would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding, which would in turn wash away soil and impact topography and soil on much of the Mana Plain.

### 4.9 WATER RESOURCES

#### 4.9.1 Proposed Action

The Proposed Action would implement standard construction BMPs described in Table 4-2 during construction and installation of the generator set. These BMPs would ensure that runoff from construction does not reach the canal located north of the Proposed Action site, which is the only surface water in the vicinity of the Proposed Action. With implementation of construction BMPs, surface water would not be impacted by the Proposed Action. Construction disturbing greater than an acre requires a National Pollutant Discharge Elimination System (NPDES) Permit to monitor runoff and protect water resources during the construction process. If greater than an acre is disturbed, an NPDES permit would be obtained for installation of the generator set.

Construction activities are not expected to reach the underlying aquifer and the lined, concrete foundation beneath the fuel tank and generators would prevent any potential fuel spills from reaching the ground; therefore groundwater would not be impacted by the Proposed Action.

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The nearest wetlands are located approximately 800 m (2,625 ft) inland from the Proposed Action site, at the base of the ridge line above Kekaha. There is a slight upward slope from the site to the base of the ridge line, making it impossible for run off to reach the wetlands. The sub-tidal marine wetland located at the shoreline directly south of the Proposed Action site is 500 m (1,640 ft) away. With the implementation of BMPs, this wetland and nearshore waters would not be impacted by the Proposed Action.

The Proposed Action is not located within an SMA or SSA under the Hawaii CZM Program.

#### 4.9.2 Alternative 1

Impacts to water resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to surface water, ground water, or wetland resources under Alternative 1.

#### 4.9.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to surface water, groundwater, wetlands, or nearshore waters would occur due to construction and installation of the generator set. However, the lack of emergency power generation could impact surface water, wetlands, and nearshore waters in the event of flooding on the Mana Plain that can't be prevented through pumping.

### **4.10 BIOLOGICAL RESOURCES**

#### 4.10.1 Proposed Action

Installation of the generator set under the Proposed Action would potentially displace rats and feral pigs that are likely to be found on site. The special-status water birds found on the Mana Plain would not lose any significant habitat due to installation and operation of the generator set.

Vegetation would be removed during construction and installation, but due to the small footprint of the site (2,576 sq ft) there would not be significant loss of plant life under the Proposed Action. The plants removed are not special-status species and are common in the surrounding area. There would be no significant impact to biological resources under the Proposed Action.

#### 4.10.2 Alternative 1

Due to the identical vegetation and close proximity of the site of Alternative 1, impacts to biological resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to vegetation, wildlife, or special-status species under Alternative 1.

#### 4.10.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to biological resources would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding, which would eliminate plants and reduce habitat for wildlife, including special-status species, on much of the Mana Plain.

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## **4.11 CULTURAL RESOURCES**

### **4.11.1 Proposed Action**

Cultural resources have not been identified on the Proposed Action site, thus it is unlikely that installation of the generator set would impact any cultural resources. In the unlikely instance that cultural resources are unearthed, notification of the proper authorities would occur immediately according to applicable law. The Proposed Action would have no significant impact on cultural resources.

### **4.11.2 Alternative 1**

Due to the close proximity of the site of Alternative 1, impacts to cultural resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to cultural resources under Alternative 1.

### **4.11.3 No-Action Alternative**

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to cultural resources would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding on the Mana Plain, which would potentially impact cultural resources found out of the immediate vicinity of the Proposed Action.

## **4.12 LAND USE**

### **4.12.1 Proposed Action**

The Proposed Action would not change existing land use designations and would continue to be compatible with surrounding land use. The installation of the generator set would support agriculture in the area and thus would be consistent with the designation of "Agricultural" for the project site. The Proposed Action is not located within a Hawaii CZM SMA or SSA. Therefore, the Proposed Action would have no significant impacts on land use.

### **4.12.2 Alternative 1**

Impacts to Land Use under Alternative 1 would be the same as those previously described under the Proposed Action. There would be no significant impacts to land use.

### **4.12.3 No-Action Alternative**

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to land use would occur due to construction and installation of the generator set.

## **4.13 SOCIOECONOMIC RESOURCES**

### **4.13.1 Proposed Action**

The installation of the generator set and associated construction would be of short duration and would not impact the overall population or employment levels in Kekaha. Operation of generators would not create or eliminate jobs in the area, nor would operation create environmental health and safety risks that may disproportionately affect children or minority or disadvantaged populations. There would be no significant impacts to socioeconomic resources under the Proposed Action.

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#### 4.13.2 Alternative 1

Due to the close proximity of the site of Alternative 1, impacts to socioeconomic resources would be the same as those previously described under the Proposed Action. There would be no significant impacts to socioeconomic resources under Alternative 1.

#### 4.13.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to socioeconomic resources would occur due to construction and installation of the generator set. However, the lack of emergency power generation could lead to increased flooding on the Mana Plain, which would potentially impact socioeconomic resources by damaging businesses and residences.

### **4.14 CUMULATIVE IMPACTS**

#### 4.14.1 Proposed Action

No cumulative impacts have been identified for the area in and around the project site. The Proposed Action would not result in a net increase in utility demand or traffic in the area. There would be no associated increase in risk from hazardous materials and waste, and no impact to long-term population and employment levels in Kekaha or the State of Hawaii. The Proposed Action would not disproportionately affect children or minority or disadvantaged populations.

As the Proposed Action does not represent a change in scope or intensity from the current land use at the project site, the Proposed Action would not have a cumulative effect on land use compatibility. Therefore, as the Proposed Action would not significantly impact these resources, and no cumulative impacts have been identified.

#### 4.14.2 Alternative 1

Due to the close proximity of the site of Alternative 1, cumulative impacts would be the same as those previously described under the Proposed Action. There would be no significant impacts to cumulative impacts under Alternative 1.

#### 4.14.3 No-Action Alternative

Under the No-Action Alternative, existing environmental conditions would not change. Therefore, no impacts to cumulative impacts would occur due to construction and installation of the generator set.

### **4.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Resources that are irreversibly or irretrievably committed to a project are those that cannot be recovered if the project is implemented. Human labor is considered an irretrievable resource. In addition, the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment is also considered an irreversible commitment of resources.

The Proposed Action or the Alternative 1 would require the consumption of materials associated with construction, such as fuel, oil, and lubricants. Human energy to construct the project would also be expended and irreversibly lost. However, the Proposed Action or the Alternative 1 would not result in significant irreversible or irretrievable commitment of resources.

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#### **4.16 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY**

Under the Proposed Action and Alternative 1, short-term effects would be primarily related to air emissions and noise from equipment used for construction purposes. In the long term, installation of the generator set would allow ADC to ensure back up power to prevent flooding under emergency circumstances. The Proposed Action and Alternative 1 would result in potential short-term impacts only to vegetation, air quality, and noise (discussed in Section 4.1). No long-term impacts to any resource area have been identified. Therefore, implementation of the Proposed Action or Alternative 1 would not result in any impacts that would reduce environmental productivity or narrow the range of beneficial uses of the environment. The No-Action alternative would not alter the existing environment and therefore would not result in any impacts that would reduce environmental productivity or narrow the range of beneficial uses of the environment.

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## 5.0 COMPLIANCE WITH CHAPTER 343, HAWAII REVISED STATUTES

### 5.1 ANTICIPATED DETERMINATION

This EA complies with the requirements identified in Section 1.4.2. This Chapter of the EA is included to meet the requirements of Chapter 343, HRS. Based on the information and analysis presented in this document, a FONSI is anticipated for the Proposed Action. The Proposed Action would have no significant short-term, long-term, or cumulative adverse impacts on the environment; therefore, preparation of an EIS would not be required.

### 5.2 FINDINGS AND REASONS SUPPORTING THE ANTICIPATED DETERMINATION

The anticipated negative determination was based on review and analysis of the significance criteria specified in Section 11-200-12, HAR, which states, "In determining whether an action may have a significant effect on the environment, the agency shall consider every phase of a proposed action, the expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action. In most instances, an action shall be determined to have a significant effect on the environment if it..." meets any of the following criteria:

**1. Involves an irrevocable commitment or loss of or destruction of natural or cultural resources.** Biological surveys found no Federally-listed or State-listed endangered, threatened or candidate species within the project site. Formal consultation with the USFWS regarding nearby designated critical habitat and use of the area by endangered bird species was not required for the Proposed Action. No significant historical, archaeological, or cultural resources are anticipated to occur within the project site, and the project would not impact historic properties and traditional cultural properties or practices.

**2. Curtails the range of beneficial uses of the environment.** The Proposed Action would not reduce the beneficial uses of the environment. The Proposed Action construction is of limited duration, and BMPs would be implemented to minimize erosion. Proposed operation activities would occur infrequently, thereby minimizing potential impacts to the environment.

**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 Action is consistent with the State's long-term environmental policies, and the policies and guidelines specified in Chapter 344, HRS, as demonstrated by the discussion in this chapter.

**4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.** The Proposed Action would result not result in a noticeable direct or indirect economic benefit. Construction workers would conduct the majority of work, with only limited assistance from a few specialized contractors and the project would be of limited duration.

The Proposed Action would not adversely affect the social welfare or cultural practices of the community or State, or create environmental health and safety risks that may disproportionately affect children and minority or disadvantaged populations. The Proposed Action would not impact cultural resources or practices.

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**5. Substantially affects public health.** The Proposed Action would not substantially affect public health. Activities associated with the Proposed Action are limited to short-term construction that would not pose any public health hazards. The Proposed Action would not significantly affect water, noise or air quality. All work would be accomplished in accordance with site-specific Accident Prevention Plans prepared prior to implementation of the Proposed Action. Therefore, the Proposed Action would have no significant impacts on health and safety.

**6. Involves substantial secondary impacts, such as population changes or effects on public facilities.** The Proposed Action would not result in population changes or impact public facilities. Construction activities would be conducted by on-island workers; no short- or long-term increases in population would occur. The nature of the Proposed Action and Alternative would not necessitate additional use of public facilities to implement the Proposed Action.

**7. Involves a substantial degradation of environmental quality.** The Proposed Action would not substantially degrade environmental quality. Short-term impacts to air and water quality, noise levels, and natural resources would be minimal and transitory, and the use of erosion control measures would minimize anticipated short-term impacts to geology and soils and water resources. There would be no long-term impacts to any resource area. Implementation of the Proposed Action and the associated BMPs would not substantially change existing conditions.

**8. Is individually limited and cumulatively has considerable effect upon the environment or involves a commitment for larger actions.** An analysis of possible cumulative impacts resulting from the Proposed Action determined that no cumulative impacts are expected. No cumulative projects have been identified in the project site.

**9. Substantially affects a rare, threatened, or endangered species, or its habitat.** No threatened, endangered, or candidate listed animal or plant species protected by Federal or State regulations would be impacted by the Proposed Action. However, the project site is within the range of Federally-listed endangered bird species. Formal consultation with the USFWS regarding endangered bird species was not required under the Proposed Action. It was determined that the Proposed Action would not have a significant impact on endangered species.

**10. Detrimentially affects air or water quality or ambient noise levels.** The Proposed Action would not detrimentally affect air or water quality or ambient noise levels. The use of BMPs would minimize potential impacts to water quality, and the Proposed Action would comply with applicable Federal, State, and local regulations and standards. Ground or surface water quality, aquifer recharge potential, and air quality would not be significantly impacted. Ambient noise resulting from construction would be short-term and occur during approved construction hours.

**11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a floodplain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.** The project site is located in an 100 year floodplain at an elevation of 10 ft. The Proposed Action is designed to be above the flood level and would not be impacted by the 100 year flood. The project site is not in a tsunami warning area, and would not affect wetlands, coastal waters, or beaches.

**12. Substantially affects scenic vistas and viewplanes identified in county or State plans or studies.** The Proposed Action would not obstruct or affect scenic vistas and viewplanes

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identified in County or State plans or studies. Due to the nature of the Proposed Action, there would be minimal long-term change to the visual environment.

**13. Requires substantial energy consumption.** The Proposed Action would not require substantial energy consumption, because the generator set would be turned on a maximum of 500 hours per year for emergency power generation and testing purposes only.

## 6.0 LIST OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS CONSULTED

### 6.1 CHAPTER 343, HRS PRE-ASSESSMENT CONSULTATION

The agencies and organizations listed in Table 6-1 were contacted for pre-assessment consultation during preparation of this Draft EA in accordance with Chapter 343, HRS requirements. A copy of the Pre-Assessment Consultation Letter can be found in Appendix A. An asterisk (\*) identifies parties who responded to the request for pre-assessment consultation.

**Table 6-1. List of Agencies and Organizations Receiving Pre-Assessment Consultation**

<b>FEDERAL PARTIES</b>		
Director of Water Programs US Geological Survey 677 Ala Moana Blvd. #415 Honolulu, HI 96813	Region IX U.S. Environmental Protection Agency P.O. Box 50003 Honolulu, HI 96850	Commander and Division Engineer US Army Corps of Engineers Pacific Ocean Division, Building 230 Fort Shafter, HI 96858-5440
U.S. Fish and Wildlife Service Pacific Islands Office 300 Ala Moana Blvd. Honolulu, HI 96813	US Department of Agriculture Office of the Chairperson 1428 S. King Street Honolulu, HI 96814	
<b>STATE PARTIES</b>		
Department of Land and Natural Resources Land Division 1151 Punchbowl St, Room 220 Honolulu, HI 96813	State of Hawaii Department of Transportation 869 Punchbowl Street Honolulu, HI 96813	State Historic Preservation Division Department of Land & Natural Resources 601 Kamokila Boulevard Kapolei, HI 96707
State of Hawaii Dept. of Business, Economic, Development & Tourism Land Use Commission PO Box 2359 Honolulu, HI 96804	Hawaii Coastal Zone Management Program Office of Planning P.O. Box 2359 Honolulu, HI 96804	State of Hawaii Department of Health Hazard Evaluation and Emergency Response Office (HEER) 919 Ala Moana Blvd, Room 206 Honolulu, HI 96814
State of Hawaii Department of Planning 235 S. Beretania Street, #600 Honolulu, HI 96813	Director UH Manoa Environmental Center 2500 Dole, Krauss Annex 19 Honolulu, HI 96822	State of Hawaii Department of Health Environmental Planning Office PO Box 3378 Honolulu, HI 96801
<b>KAUAI COUNTY PARTIES</b>		
Kauai County Parks and Recreation Department 4444 Rice Street Lihue, HI 96766	Kauai County Planning Department 4444 Rice Street Lihue, HI 96766	
<b>UTILITIES AND SERVICES</b>		
Kauai Island Utility Service 4463 Pahee Street Lihue, HI 96766	Kauai County Water Department 4398 Pua Loke Street Lihue, HI 96766	

<b>LOCAL AND NATIVE HAWAIIAN ORGANIZATIONS</b>		
Historic Hawaii Foundation Dole Cannery Dole Office Building Tower, Suite 690 680 Iwilei Rd Honolulu, HI 96817	Kauai-Niihau Island Burial Council 601 Kamokila Blvd. Suite 555 Kapolei, HI 96707	Hawaiian Homes Commission Department of Hawaiian Home Lands PO Box 1879 Honolulu, HI 96801
Office of Hawaiian Affairs 711 Kapiolani Blvd., Ste. 500 Honolulu, HI 96813		
<b>ADJACENT PROPERTIES</b>		
Kula Aupune Niihau A Kahelelani School 8315 Kekaha Road Kekaha, HI 96752	Environmental Coordinator Pacific Missile Range Facility Kauai, Barking Sands Kekaha, HI 96752	

## 6.2 CHAPTER 343, HRS DRAFT EA DISTRIBUTION

The agencies and organizations listed in Table 6-2 will receive copies of the Draft EA as part of the Chapter 343, HRS review process.

**Table 6-2. List of Agencies and Organizations Receiving the Draft Environmental Assessment**

<b>FEDERAL PARTIES</b>		
Director of Water Programs US Geological Survey 677 Ala Moana Blvd. #415 Honolulu, HI 96813	Region IX U.S. Environmental Protection Agency P.O. Box 50003 Honolulu, HI 96850	Commander and Division Engineer US Army Corps of Engineers Pacific Ocean Division, Building 230 Fort Shafter, HI 96858-5440
U.S. Fish and Wildlife Service Pacific Islands Office 300 Ala Moana Blvd. Honolulu, HI 96813		
<b>STATE PARTIES</b>		
Governor Linda Lingle Office of the Governor State Capitol Honolulu, HI 96813	Hawaii Community Development Authority 677 Ala Moana Boulevard, Suite 1001 Honolulu, Hawaii 96813	Hawaii State Department of Health Office of Environmental Quality Control 235 S. Beretania St., Suite 702 Honolulu, HI 96813
Department of Land and Natural Resources Land Division 1151 Punchbowl St, Room 220 Honolulu, HI 96813	State of Hawaii Department of Transportation 869 Punchbowl Street Honolulu, HI 96813	State Historic Preservation Division Department of Land & Natural Resources 601 Kamokila Boulevard Kapolei, HI 96707
State of Hawaii Dept. of Business, Economic, Development & Tourism Land Use Commission PO Box 2359 Honolulu, HI 96804	Hawaii Coastal Zone Management Program Office of Planning P.O. Box 2359 Honolulu, HI 96804	State of Hawaii Department of Health Hazard Evaluation and Emergency Response Office 919 Ala Moana Blvd, Room 206 Honolulu, HI 96814
State of Hawaii Office of Planning 235 S. Beretania Street, #600 Honolulu, HI 96813	Director UH Manoa Environmental Center 2500 Dole, Krauss Annex 19 Honolulu, HI 96822	State of Hawaii Department of Health Environmental Planning Office PO Box 3378 Honolulu, HI 96801

<b>KAUAI COUNTY PARTIES</b>		
Mayor Bernard Carvalho, Jr. 4444 Rice Street Lihue, HI 96766	Police Chief Kauai County Police Department 3990 Kaana Street Suite 200 Lihue, HI 96766	Kauai County Planning Department 4444 Rice Street Lihue, HI 96766
Kauai County Parks and Recreation Department 4444 Rice Street Lihue, HI 96766		
<b>UTILITIES AND SERVICES</b>		
Kauai Island Utility Cooperative 4463 Pahee Street Lihue, HI 96766	Kauai County Water Department 4398 Pua Loke Street Lihue, HI 96766	
<b>LOCAL AND NATIVE HAWAIIAN ORGANIZATIONS</b>		
Historic Hawaii Foundation Dole Cannery Dole Office Building Tower, Suite 690 680 Iwilei Rd Honolulu, HI 96817	Kauai-Niihau Island Burial Council 601 Kamokila Blvd. Suite 555 Kapolei, HI 96707	Hawaiian Homes Commission Department of Hawaiian Home Lands PO Box 1879 Honolulu, HI 96801
Office of Hawaiian Affairs 711 Kapiolani Blvd., Ste. 500 Honolulu, HI 96813		
<b>ADJACENT PROPERTIES</b>		
Kula Aupune Niihau A Kahelelani School 8315 Kekaha Road Kekaha, HI 96752	Environmental Coordinator Pacific Missile Range Facility Kauai, Barking Sands Kekaha, HI 96752	
<b>STATE LIBRARIES</b>		
Hawaii State Library 478 South King Street Honolulu, HI 96813-2901	Lihue Public Library 4344 Hardy Street Lihue, HI 96766	Hanapepe Public Library P.O. Box B Hanapepe, HI 96716
<b>NEWSPAPERS</b>		
Editor Garden Island Newspaper 3137 Kuhio Highway Lihue, HI 96766	Editor Honolulu Advertiser P.O. Box 31000 Honolulu, HI 96849	Editor Honolulu Star Bulletin 500 Alai Moana Blvd. Suite 7-500 Honolulu, HI 96813

### 6.3 NATIONAL HISTORIC PRESERVATION ACT, SECTION 106 CONSULTATION

The following agencies were consulted in compliance with Section 106 of the NHPA:

- State Historic Preservation Division
- Kauai Council of Hawaiian Civic Clubs
- Office of Hawaiian Affairs

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## 8.0 LIST OF PREPARERS

This report was prepared for ADC by TEC Inc. Members of the TEC Inc. professional staff are listed below.

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- Kerry Wells, *B.S., Physics*

### Technical Analysts

- Boyd Dixon, PhD, Anthropology

### Graphic Design

- Kerry Wells, *B.S., Physics*

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## Appendix A

Pre-Assessment Consultation Letter

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January 20, 2010

**Subject: Pre-Assessment Consultation and Notice of Preparation of an Environmental Assessment for the Installation of Emergency Generators, Kekaha, Kauai, Hawaii**

To Whom It May Concern:

Agribusiness Development Corporation (ADC), an instrument of the State of Hawaii Department of Agriculture, is proposing to install three containerized diesel-powered generator units to provide back-up power to operate the existing drainage and irrigation system of the Kekaha Agricultural Lands. Current power needs are met by existing hydropower generation at Waiawa and Mauka Waimea. Additional power from portable power generation units is needed due to the potential downtime of the hydropower generators from mechanical failure and intake debris blockage, in addition to the threat of heavy rain storms and hurricanes. Greater than five inches of rain in the span of a day can cause flooding in Kekaha and currently pumps at Nohili and Kawaele Pumping Stations are run 24 hours a day to keep the ground water table down. Loss of power to the drainage system would result in damage to both agricultural and residential property in Kekaha. The parcel associated with the property is large, measuring over 13,000 acres (ac) (5,261 hectares [ha]). The Proposed Action would use only a small portion of the parcel, measuring approximately 3.2 ac (1.3 ha), as seen in the enclosed site map.

In accordance with Chapter 343 of the Hawaii Revised Statutes, ADC is preparing an environmental assessment (EA) for the proposed action. We request your assistance by responding with any written comments on the above description and enclosed map within 14 days of receiving this letter. At a later date there will be an additional opportunity for review and comment on the Draft EA for all parties on the distribution list and the public. A notice of availability of the Draft EA will be published in the Office of Environmental Quality Control's "Environmental Notice".

Responses should be directed to our consultant, TEC Inc. The point of contact for this issue is Rachel Ross; for any clarifications she can be reached at [rsross@tecinc.com](mailto:rsross@tecinc.com) or by phone at (808) 528-1445. Please forward written comments to Ms. Ross at TEC Inc., 1003 Bishop St., Suite 1550, Pauahi Tower, Honolulu, 96813. Thank you for your assistance.

Sincerely,

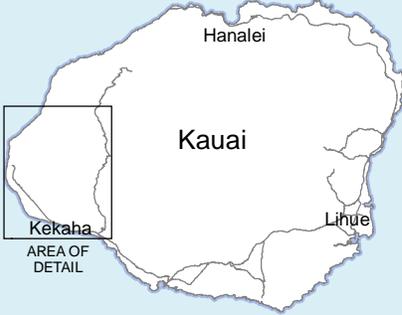
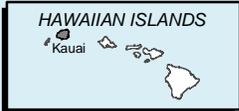


Matthew Rose  
Project Coordinator  
State of Hawaii Agribusiness Development Corporation

Enclosure: Site Map

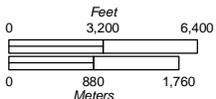
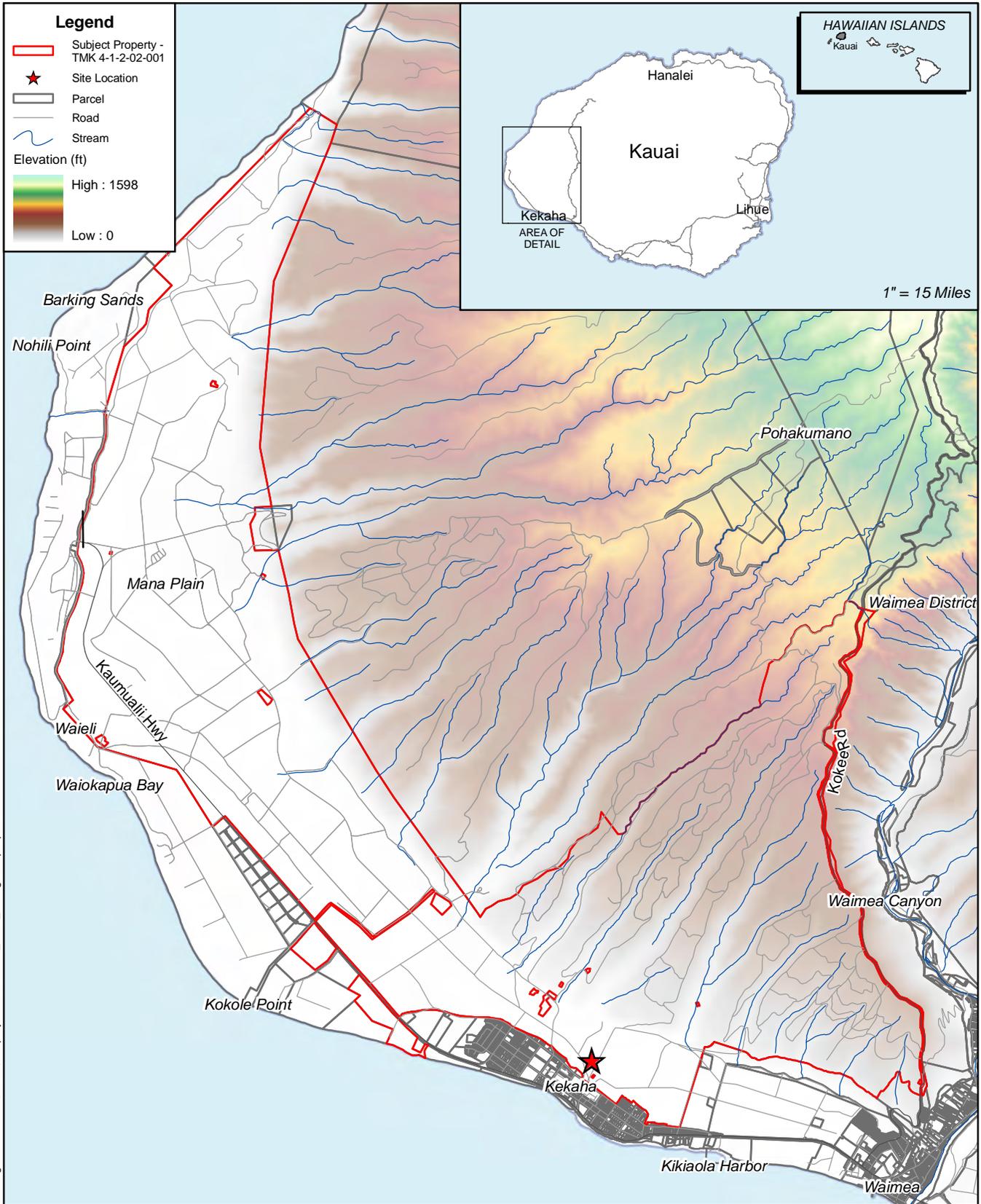
**Legend**

-  Subject Property - TMK 4-1-2-02-001
-  Site Location
-  Parcel
-  Road
-  Stream
- Elevation (ft)  
 High : 1598  
Low : 0



1" = 15 Miles

Printing Date: Jan 13, 2010, M:\projects\GIS\6766\_ADC\_EA\figures\proposed action site.mxd



**Proposed Action Site**

