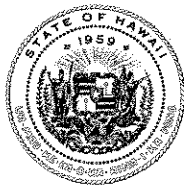


LINDA LINGLE
GOVERNOR



JUN 11 8 2007

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
79 SO. NIMITZ HWY., HONOLULU, HAWAII 96813-4898

IN REPLY REFER TO:

HAR-PM
4433.07

JUNE 22, 2007

TO: GENEVIEVE SALMONSON, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH

FROM: GLENN M. OKIMOTO
HARBORS ADMINISTRATOR 

SUBJECT: FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR IMPERIUM
RENEWABLES HAWAII LLC PROPOSED BIODIESEL FACILITY
TAX MAP KEY NO.: 1ST DIVISION, 9-1-14: PORTION OF 24 AND 36
KALAELOA BARBERS POINT HARBOR, HONOULIULI, EWA,
OAHU, HAWAII

The State of Hawaii, Department of Transportation, Harbors Division, has reviewed the comments received during the 30-day public comment period that began on April 8, 2007. The agency has determined that this project will not have significant environmental impacts and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed: (1) a completed OEQC Bulletin Publication Form and FEA-FONSI Notice; (2) four copies of the Final Environmental Assessment; and (3) one compact disc containing the OEQC Bulletin Publication Form and FEA-FONSI Notice in both Microsoft Word and Adobe Acrobat pdf formats, and the FEA in Adobe Acrobat pdf format.

Should you or your staff have questions with regard to this matter, please call Mr. Glenn Abe, Supervising Property Manager, at 587-1944.

Encs.

c: Mr. Lee W. Sichter, Principal Planner, Belt Collins Hawaii, Ltd.
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii LLC

FINAL

**ENVIRONMENTAL ASSESSMENT
for
PROPOSED BIODIESEL FACILITY
KALAELOA BARBERS POINT HARBOR,
OAHU, HAWAII**

Prepared for:

Imperium Renewables Hawaii LLC

Prepared by



June 2007

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Appendix A Imperium Sustainable Palm Oil Corporate Policy
Appendix B1 Archaeological Assessment
Appendix B2 Cultural Impact Assessment
Appendix C Botanical, Avian, and Mammalian Survey

ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
API	American Petroleum Institute
ASTM	American Society for Testing and Materials
B100	100 percent biodiesel fuel
BACT	Best Available Control Technology
BMPs	Best Management Practices
BWS	Board of Water Supply (Honolulu)
City	City and County of Honolulu
CAB	Clean Air Branch
CESQG	Conditionally Exempt Small Quantity Generator
CIA	Cultural Impact Assessment
CIP	Campbell Industrial Park
CO	carbon monoxide
CO ₂	carbon dioxide
dBA	decibels on an A-weighted scale
DOT	Department of Transportation (State of Hawaii)
DOH	Department of Health (State of Hawaii)
DPP	Department of Planning and Permitting (City)
EA	Environmental Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpm	gallons per minute
H-POWER	Honolulu Resource Recovery Venture
H ₂ S	Hydrogen sulfide
HAR	Hawaii Administrative Rules
HECO	Hawaiian Electric Company
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HRS	Hawaii Revised Statutes
IFC	International Fire Code
Imperium	Imperium Renewables Hawaii, LLC
kV	kilovolt
LUO	Land Use Ordinance (City and County of Honolulu)
MACT	Maximum Achievable Control Technology
mg/l Cl ⁻	milligrams per liter chloride
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutant
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards (Federal)
O ₃	ozone

OSHA	Occupational Safety and Health Administration
Pb	lead
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
SHPD	State Historic Preservation Division
SHPO	State Historic Preservation Office
SMA	Special Management Area
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
UBC	Uniform Building Code
UIC	Underground Injection Control
USC	U.S. Code
USDOE	U.S. Department of Energy
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
VOC	volatile organic compounds
VRS	vapor recovery system

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1 PROJECT SUMMARY

Project Name:	Imperium Renewables Hawaii LLC Biodiesel Production Facility
Project Description:	Construction and operation of a facility to process up to 100 million gallons of biodiesel fuel per year
Applicant:	Imperium Renewables Hawaii LLC (Imperium)
Tax Map Key:	9-1-014: 024 (portion) and 36, and easements
Property Owner:	State of Hawaii Department of Transportation (DOT), Harbors Division
Lessee:	Imperium Renewables Hawaii LLC
Approving Agency:	State of Hawaii DOT Harbors Division
Agencies, Community Groups, and Individuals Consulted:	See Table 6-1
State Land Use:	Urban District
Zoning District:	I-3 Industrial Waterfront
Community/Development Plan:	Ewa Development Plan
Special Designations:	The project is located within the Special Management Area (SMA) and will require SMA Use Permit, building permit, zoning height variance, new covered source permit for air emissions
Agency Determination:	Finding of No Significant Impact (FONSI)

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2 GENERAL PROJECT DESCRIPTION

2.1 Objective

The objective of the proposed action is to provide a competitive alternative to petroleum diesel fuel for Hawaii users by constructing and operating a biodiesel facility on Oahu.

2.2 Description of Proposed Action

Imperium proposes to construct and operate a biodiesel production facility capable of producing 100 million gallons of biodiesel fuel per year from vegetable oil at Kalaeloa Barbers Point Harbor, Kapolei, Oahu, Hawaii (Figure 1). In order to provide a clear description of the construction and operation of the proposed facility, it is important first to describe biodiesel, explain how it is produced, and identify how it may be used.

As described by the National Biodiesel Board, biodiesel is a clean-burning, alternative fuel derived from vegetable oil or animal fats.¹ It contains no petroleum, but can be blended with petroleum diesel. Biodiesel is registered as a fuel and fuel additive with the U.S. Environmental Protection Agency (USEPA). B100, which is 100 percent biodiesel, has been designated as an alternative fuel by the Department of Energy (USDOE) and the U.S. Department of Transportation (USDOT). Biodiesel is biodegradable and non-toxic.

Biodiesel is primarily produced through a chemical process called base catalyzed transesterification, in which a base catalyst (high pH material used to accelerate a chemical reaction) is combined with a mixture of alcohol (typically methanol) and fat or vegetable oil, and the ensuing reaction separates glycerin out from the fat or vegetable oil. The end products of the completed reaction are glycerin and biodiesel (methyl esters), which can be gravity separated due to the higher density of the glycerin. After separation, excess alcohol is removed from the biodiesel and glycerin, and the alcohol is re-used in the production process. The glycerin by-product may be used in other markets. The biodiesel, which must meet standards set by the American Society for Testing and Materials (ASTM) for various chemical properties,² can be used in traditional compression-ignition (diesel) engines with no major modifications required of the engines.

The proposed biodiesel production facility would comprise approximately 11 acres of a rectangular property leased from DOT Harbors Division near Kalaeloa Barbers Point Harbor and Kenai Industrial Area. The project location, as shown on Figure 1, is at the intersection of Malakole Road and DOT Harbors' Internal Access Road (known informally as John Wayne Avenue), which would serve as the access road to the facility. Siting of the proposed facility was determined taking into account factors such as direct access to a deep water port to ensure efficient delivery of bulk vegetable oil shipments, accessibility of potential industrial end users, availability of utilities, and availability of at least ten acres of developable land.

¹ National Biodiesel Board. <http://www.biodiesel.org/> (accessed January 23, 2007).

² National Biodiesel Board. Specification for Biodiesel (B100) – ASTM D6751-06. http://www.biodiesel.org/pdf_files/fuelfactsheets/BDSpec.PDF (accessed January 23, 2007).

2.2.1 Construction of Biodiesel Facility

The site is currently undeveloped. Construction of the facility would include site development such as grading, excavating, and backfilling in preparation for constructing the following:

- a processing plant to convert vegetable oil into biodiesel;
- a tank farm for storage of vegetable oils, biodiesel, methanol, sodium methylate (base catalyst), and petroleum diesel for heater operation and blending with biodiesel;
- pipelines to transport the vegetable oil from the harbor to the facility, and biodiesel or petroleum diesel from the facility to the harbor and end users in or around Campbell Industrial Park;
- appurtenant office facilities;
- truck loading and unloading areas;
- utility bridges;
- underground utilities; and
- a paved parking area.

Figure 2 shows the proposed site layout. The process area and tank farm, which comprise the main areas of the facility, are described below in further detail.

Process Area

The main process area would include:

- reactors, condensers, and flash/surge tanks;
- a distillation column approximately 12 feet in diameter and 80 feet high;
- hot oil heaters with exhaust stack approximately four feet in diameter and 75 feet high;
- a one-story enclosed control room approximately 30 feet long, 40 feet wide, and less than 20 feet high, constructed of either steel framing with metal siding or concrete masonry units;
- a one-story enclosed electrical room approximately 50 feet long, 30 feet wide and less than 20 feet high, constructed of either steel framing with metal siding or concrete masonry units;
- a steel-framed, metal-sided building, approximately 50 feet by 70 feet, housing the maintenance area (shop); and
- a multi-cell, induced-draft, counter-flow cooling tower approximately 20 feet wide, 60 feet long, and 20 feet high.

Tank Farm

Eight tanks approximately 65 feet high and 80 feet in diameter, each with capacity to store two million gallons of vegetable oil or biodiesel, would be constructed on concrete foundations. Two tanks, called swing tanks, approximately 56 feet high and 40 feet in diameter and each with capacity to store 500,000 gallons of vegetable oil or biodiesel would be constructed on concrete foundations. Tanks to store glycerin (300,000 gallons),

bottoms material (100,000 gallons), petroleum diesel (100,000 gallons), and sodium methylate (100,000 gallons) would be constructed on concrete foundations. Three tanks approximately 60 feet tall and 60 feet in diameter would be constructed with capacity to store three and a half million gallons of methanol. A small catch tank would be constructed to receive material occasionally cleaned out from pipelines in order to leave pipes empty. Space within the tank farm would be available for future construction of up to four additional two-million gallon oil or biodiesel storage tanks. Secondary containment for the tank farm and process equipment would be provided to meet 2003 International Fire Code (IFC) and USEPA Spill Prevention, Control, and Countermeasures (SPCC) requirements.

IFC 2003, Section 3404.2.9.6.4 Secondary Containment reads, "Protected above-ground tanks shall be provided with secondary containment, drainage control or diking in accordance with Section 2704.2. A means shall be provided to establish the integrity of the secondary containment in accordance with NFPA 30." Containment areas are designed per NFPA 30, 4.3.2.3, and meet the requirements of IFC 2003 Section 2704.2. The biodiesel containment area is 128,000 square feet reinforced concrete slab on grade. Containment walls will be reinforced concrete, 4 feet 6 inches high. The area is designed to allow for 3 inches of storm water and 6 inches for safety allowance (14.8 percent of additional volume). The methanol containment area is a 34,600 square foot reinforced concrete slab on grade. Containment walls will be reinforced concrete, 6 feet high. The area is designed to allow for 3 inches of storm water and 6 inches for safety allowance (12.3 percent of additional volume).

40 CFR 112.8 defines the USEPA SPCC requirements for Petroleum Oils and Non Petroleum Oils. Bulk storage tanks will be designed and constructed in accordance with American Petroleum Institute (API) 650 and local building code requirements. Containment for storage tanks, process areas and truck loading/unloading areas will be provided by reinforced concrete slabs on grade and reinforced concrete walls. The containment volume will accommodate the largest single storage tank volume, with sufficient freeboard to contain precipitation. The contained areas will be sloped to direct spills and storm water to collection sumps prior to passing through an oil/water separator and disposal in injection wells.

Support Facilities

Electricity would be provided to the project through Hawaiian Electric Company (HECO) utility lines. Potable water service would be provided by Honolulu Board of Water Supply (BWS). Process water and storm water would be discharged into multiple injection wells at the project location. Sanitary wastewater would be discharged to a septic system at the project location. Also present would be approximately 10,000 square feet of office space and a parking lot. The entire project location would be enclosed within a perimeter safety fence.

Construction of the facility is anticipated to start in the summer of 2007 and is anticipated to be completed by 2009. The construction would be privately funded, and sale of the biodiesel fuel would fund the continued operation of the facility.

2.2.2 Operation of Biodiesel Facility

Upon completion of construction, the facility would have a proposed capacity to produce approximately 100 million gallons of biodiesel fuel annually. Approximately 105 million gallons of source oil per year would be provided to the facility by ship, via pipelines from Kalaeloa Barbers Point Harbor. The facility would also have the capability to accept oil by intermodal container or truck, if available. The proposed primary source of vegetable oil for biodiesel production is palm oil, imported from Malaysia, in accordance with Imperium's Sustainable Palm Oil Corporate Policy³ (Appendix A). The facility would be designed for multiple feed stocks and is capable of accepting soy, canola, and other natural oils. The primary alcohol (methanol), base catalyst (sodium methylate), and acid neutralizers used in the biodiesel production process would be brought to the facility by intermodal transport (transport of freight by two or more modes of transportation, i.e., ship-truck, ship-rail) and stored in the tanks described in Section 2.2.1 above.

Biodiesel would be produced by mixing vegetable oil, base catalyst, and alcohol in a series of reactions which would take place in the first and second stage reactors in the process area. A heater fired with either diesel fuel, biodiesel, or a combination thereof, would provide steam and hot oil for the conversion process. Emissions of volatile organic compounds (VOCs) from the tanks containing methanol and biodiesel would be piped to the hot oil heater where VOCs would be reintroduced to the combustion process, and VOC emissions from the facility would be reduced. Exhaust gas from the heater, which could include emissions of carbon dioxide (CO₂), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and particulate matter (PM), would be emitted through a 50- to 100-foot tall stack after implementation of applicable air pollution control technology. Carbon monoxide (CO) and VOCs are controlled by providing adequate fuel residence time and high temperature in the combustion device to ensure complete combustion, or use of catalytic oxidation, which would remove CO and VOCs from the exhaust gas. The use of fuel with low-ash content would minimize the emission of PM₁₀ to the atmosphere, and drift eliminators would control emissions from the cooling tower. SO₂ is controlled by the use of scrubbers in the stack and low-sulfur fuel.

Approximately ten million gallons per year of glycerin are expected to be generated from the biodiesel production process. The glycerin by-product would be stored in a tank on-site, and could be sold to industrial facilities for use as fuel in power plants or heating applications. The B100 fuel would be stored in tanks on the property, and transported to end users in the Campbell Industrial Park area via pipeline or truck. A pipeline to transport the biodiesel would be constructed in easements. Pipeline routes considered in this analysis include placement within easements along the Malakole Road and Hanua Street rights-of-way, and along an easement adjacent to the existing AES coal conveyor (Figure 1). The pipeline alignment included in the proposed action is sited along the Malakole Road and Hanua Street rights-of-way. Alternative alignments are discussed in Section 2.4.

The proposed facility would operate 24 hours a day, employing approximately 50 to 60 people over three eight-hour shifts. Approximately 30 employees would be present on-

³ Imperium Renewables. Sustainable Palm Oil Corporate Policy. December 2006.

site during the day (7 a.m. to 3 p.m.), and it is expected that 20 employees would be present during the evening and nighttime hours.

2.3 Purpose of and Need for the Project

Energy consumption continues to increase in Hawaii, and nearly 90 percent of Hawaii's total energy is imported petroleum.⁴ Imported diesel is used for electrical generation and transportation. As the population and economy grows, it can be expected that the demand for diesel fuel will stay strong and likely increase. Development of a biodiesel production facility on Oahu would provide an alternative to petroleum-based diesel fuel sources for meeting the energy needs of Hawaii, primarily for industrial end users. Biodiesel from the proposed facility could be used as a renewable source of fuel for electrical generation plants owned by HECO.

2.4 Alternatives to the Proposed Action

As described in Section 2.2 above, construction and operation of a biodiesel production facility in Hawaii must take into account the following criteria:

- direct access to a deep water port to receive bulk shipments of vegetable oil,
- proximity of potential industrial end users,
- availability of utilities, and
- availability of at least ten acres of developable land on which to construct a facility that could process at least 100 million gallons of biodiesel annually.

Based on these criteria, Kalaeloa Barbers Point Harbor was determined to be the most practicable location for the facility. Within the Kalaeloa Barbers Point Harbor area, various alignments for routing the biodiesel pipelines to end users in Campbell Industrial Park, such as the HECO tank farm property, are considered. As described above, the proposed action will include an evaluation of placing a pipeline along Malakole Road and Hanua Street. Alternatively, the pipeline could be placed along an easement adjacent to the AES coal conveyor, as shown on Figure 1 and described in Section 2.4.1. This location will be evaluated as an alternative; however, a combination of the alignments evaluated in this document (i.e., along Malakole Road to the AES conveyor or the AES conveyor to Hanua Street) would also be considered.

2.4.1 AES Conveyor Alignment

An alternative to the proposed location of the project pipeline within the Malakole Road and Hanua Street rights-of-way includes siting the pipeline along the existing AES coal conveyor corridor, as shown on Figure 1. The pipeline could be attached to the conveyor structure, or placed underground along the conveyor easement.

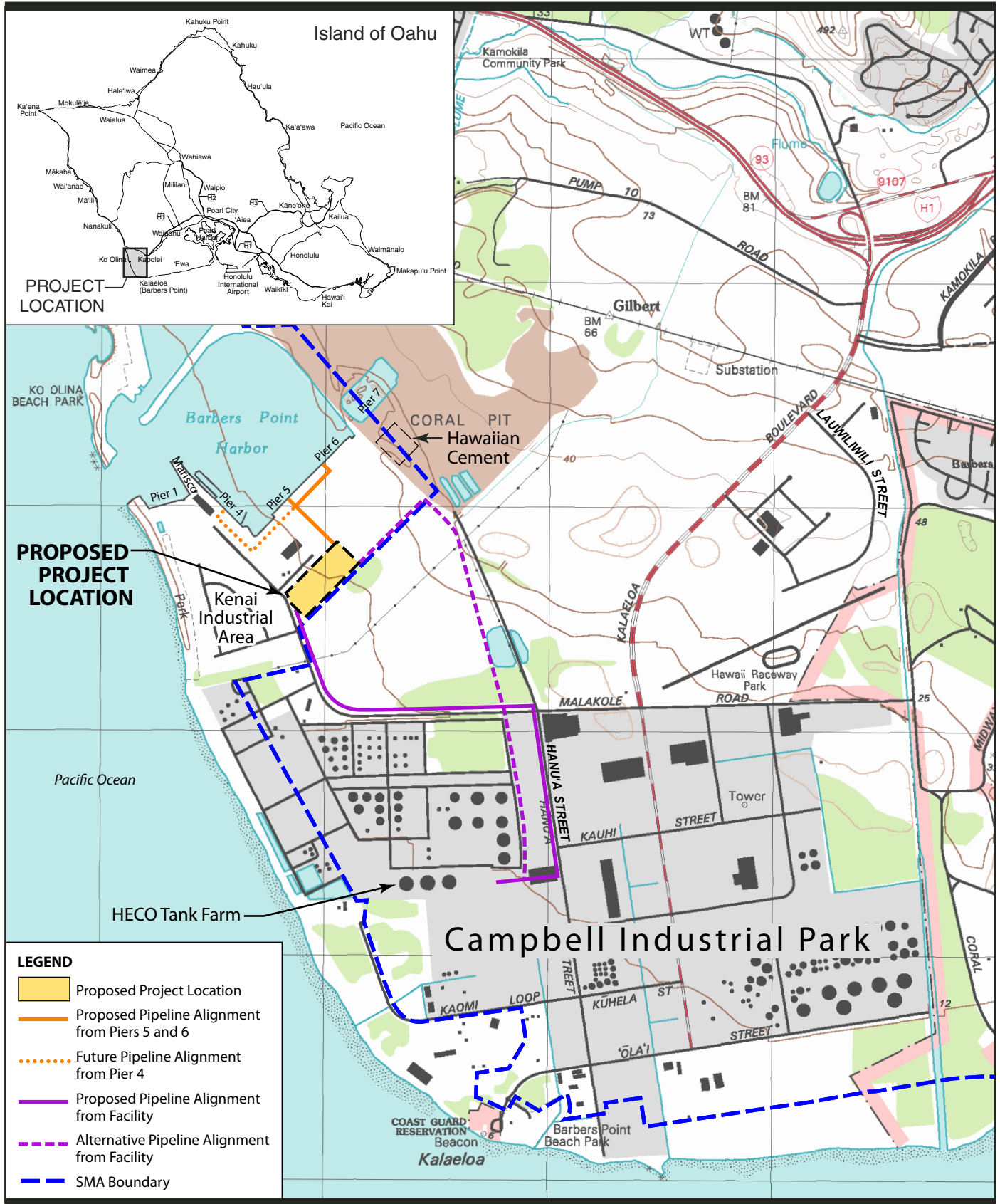
⁴ State of Hawaii Department of Business, Economic Development, and Tourism. 2007. *State of Hawaii Energy Resources Coordinator Annual Report 2006*. <http://www.hawaii.gov/dbedt/info/energy/publications/erc06.pdf> (accessed March 20, 2007).

2.4.2 No Action Alternative

Under the no action alternative, no biodiesel facility is built, and existing petroleum diesel fuel sources continue to be used to meet Hawaii's energy needs.

2.5 Environmental Assessment Trigger

The land proposed to be leased by Imperium for the biodiesel production facility is owned by the State of Hawaii DOT, Harbors Division. This use of state land triggers the need for an Environmental Assessment (EA) under Chapter 343 of the Hawaii Revised Statutes (HRS).



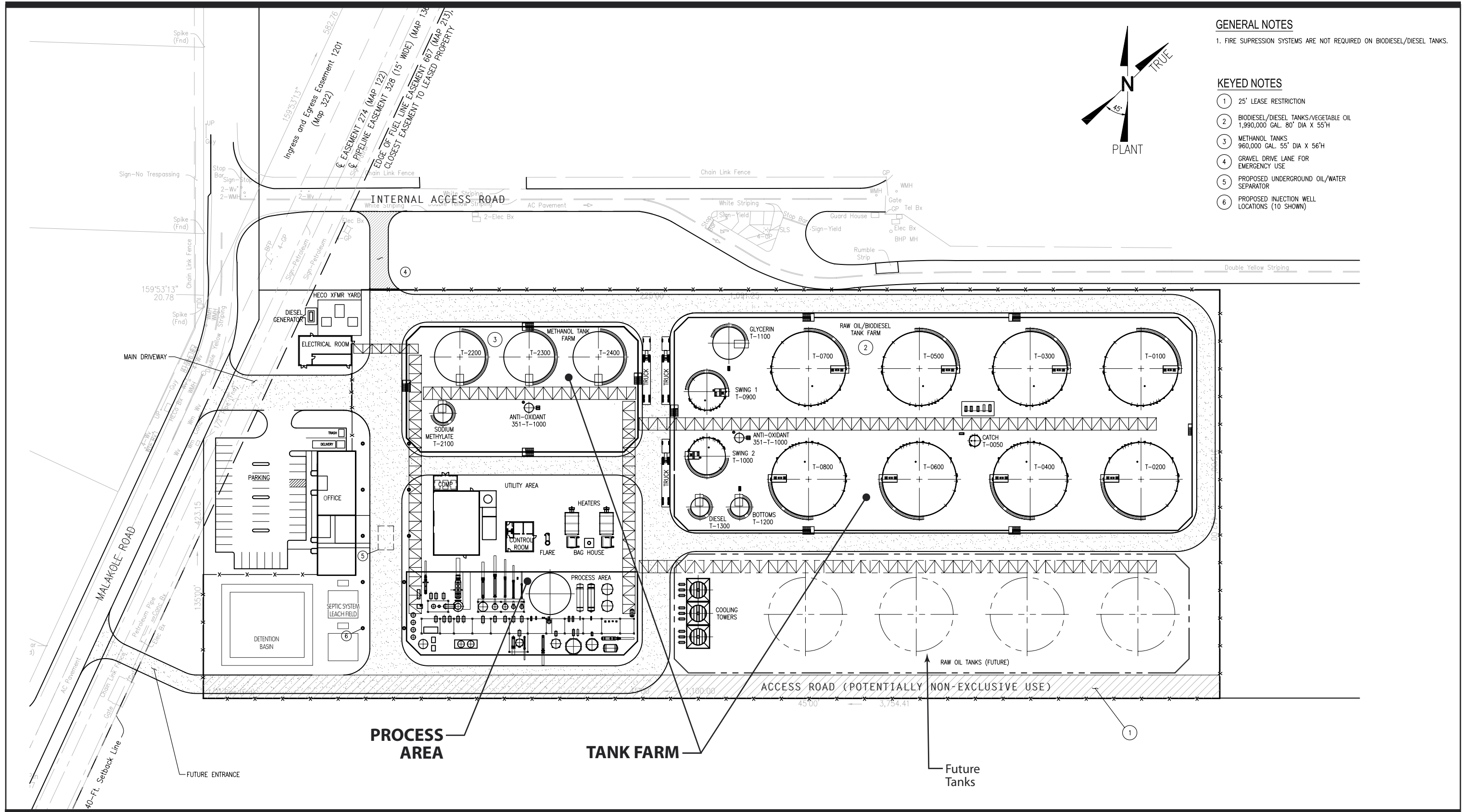
Source: USGS Ewa 7.5-minute Quadrangle, 1998



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SCALE IN FEET

Figure 1
SITE FIGURE

Imperium Hawaii Biodiesel Facility
June 2007

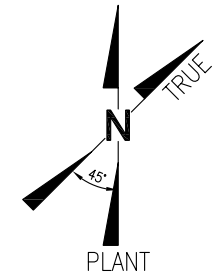


GENERAL NOTES

1. FIRE SUPPRESSION SYSTEMS ARE NOT REQUIRED ON BIODIESEL/DIESEL TANKS.

KEYED NOTES

- 1 25' LEASE RESTRICTION
- 2 BIODIESEL/DIESEL TANKS/VEGETABLE OIL
1,990,000 GAL. 80' DIA X 55'H
- 3 METHANOL TANKS
960,000 GAL. 55' DIA X 56'H
- 4 GRAVEL DRIVE LANE FOR
EMERGENCY USE
- 5 PROPOSED UNDERGROUND OIL/WATER
SEPARATOR
- 6 PROPOSED INJECTION WELL
LOCATIONS (10 SHOWN)



0 50 100
SCALE IN FEET

PRELIMINARY—NOT FOR CONSTRUCTION

Figure 2
PROPOSED FACILITY LAYOUT

Imperium Hawaii Biodiesel Facility
June 2007

3 AFFECTED ENVIRONMENT

This chapter describes the affected environment within the study area for the proposed biodiesel production facility and alternative pipeline alignment. Where the affected environmental conditions for the alternative pipeline alignment differ from the proposed action, they are identified separately. Otherwise, one description of environmental conditions is provided. Possible environmental consequences that could occur from the Proposed Action and alternatives (including the No Action Alternative), and possible management and design measures to minimize or avoid impacts, are described in Chapter 4.

3.1 Land Use

Land use designations for the Proposed Action and alternatives were identified by reviewing the State land use district designations,⁵ the Ewa Development Plan,⁶ and the City and County of Honolulu’s Land Use Ordinance (LUO).⁷ The State land use district designation for the project location is Urban. According to HRS 205-2(b), the State defers the definition of land uses allowed within the Urban District to the City and County of Honolulu as “*activities or uses as provided by ordinances or regulations of the county within which the urban district is situated.*” It is the intent of the Ewa Development Plan to “provide a guide for orderly and coordinated public and private sector development in a manner that is consistent with applicable general plan provisions, including the designation of Ewa as the secondary urban center for Oahu and the Ewa urban fringe areas as one of the principal areas for residential development,” and “all proposed developments would be evaluated against how well they fulfill the vision for Ewa enunciated in the Ewa development plan and how closely they meet the policies, principles, and guidelines selected to implement that vision.”⁸

The LUO Zoning Map for the area identifies the project location as Industrial Waterfront District (I-3).⁹ According to the LUO, industrial uses of the I-3 district can include base yards; centralized mail and package handling facilities; food manufacturing and processing; light and general manufacturing, processing, and packaging; maritime-related vocational training, sales, construction, maintenance, and repair; petroleum processing (requires minor conditional use permit); port facilities; repair establishments; salvage, scrap, and junk storage and processing (requires minor conditional use permit); storage yards; warehousing; waste disposal and processing (requires minor conditional use permit); and bulk wholesale and retail establishments.

⁵ State of Hawaii. Office of Planning. 2006. Hawaii Statewide GIS Program Internet Website, [http://www.state.hi.us/dbedt/gis/maps/oahu_state-lands_urban\(20060525-10\).pdf](http://www.state.hi.us/dbedt/gis/maps/oahu_state-lands_urban(20060525-10).pdf)

⁶ City and County of Honolulu Planning Department. *Ewa Development Plan, incorporated in Revised Ordinances of Honolulu, Chapter 24*. http://www.honolulu.gov/refs/roh/24app_ew.htm (accessed January 26, 2007).

⁷ City and County of Honolulu. Revised Ordinances of Honolulu, *Chapter 21, Land Use Ordinance*. http://www.honolulu.gov/refs/roh/21_990.pdf (accessed January 26, 2007).

⁸ City and County of Honolulu. Revised Ordinances of Honolulu, *Chapter 24, Article 3, Ewa Development Plan*. http://www.honolulu.gov/refs/roh/24app_ew.htm (accessed January 26, 2007).

⁹ City and County of Honolulu, Department of Planning and Permitting. <http://gis.hicentral.com/> (accessed January 26, 2007).

The project location consists of approximately 11.2 acres of undeveloped land owned by DOT Harbors Division on TMK (1) 9-1-14: parcels 24 and 36, located southeast of Kalaehoa Barbers Point Harbor, east of Kenai Industrial Area, and northwest of Campbell Industrial Park (CIP) on Oahu (Figure 1).¹⁰ Part of the project location includes easements along Malakole Road, as shown on Figure 2. Adjoining land uses include coral stockpiles and earthmoving equipment to the northeast, east, and south. An overhead coal conveyor belt crosses along an easement approximately 200 feet northeast of the project location. Harbor facilities to the northwest include a concrete paved area with open storage yards, a covered storage building, harbor agent offices, and Piers 5 and 6. Malakole Road is to the southwest, with Kenai Industrial Area across the street. Property owners of roadways in the project area where proposed pipelines would be located include the State DOT, City, and Estate of James Campbell.

Kalaehoa Barbers Point Harbor is Oahu's second busiest harbor in terms of tonnage, and occupies about 310 acres (125.5 hectares) of fast (above water) and submerged lands, with an entrance channel depth of 42 feet and a basin depth of 38 feet. The harbor is used by cargo ships transporting petroleum, coal, cement, and other liquid and dry bulk materials to and from neighbor islands, mainland U.S., and international ports. The Kenai Industrial Area comprises approximately 60 acres of land used for light industrial businesses. Major uses of the CIP and industrial areas in the project vicinity include petroleum refineries, power generation, cement processing, waste management, and construction industries.

The city of Kapolei is approximately two miles east and north of the project location, and Ko Olina Resort is approximately one mile northwest. Residential communities near the facility include Ko Olina Resort, Honokai Hale, and Nanakai Gardens.

AES Pipeline Alternative. The AES coal conveyor is located on parcels owned by the Estate of James Campbell and Chevron through land zoned as I-3, intensive industrial district (I-2), Restricted Agricultural District (AG-1) and General Agricultural District (AG-2). The AES conveyor was approved under Special Use Permit (SUP) No. 89/SUP-1, as portions of the conveyor alignment are within the agricultural district. Adjoining land uses are primarily industrial or commercial.

3.2 Air Quality

The USEPA has established National Ambient Air Quality Standards (NAAQS), 42 U.S. Code (USC) §7409, 40 CFR Part 50, for the following pollutants: CO, NO₂, SO₂, PM less than 10 microns in diameter (PM-10), PM up to 2.5 microns in diameter (PM-2.5), ozone (O₃), and lead (Pb). Hawaii has an ambient air standard for hydrogen sulfide (H₂S), in addition to the pollutants identified above. NAAQS criteria, based on air monitoring data for the above pollutants, are used to designate all air regions within the U.S. into air quality categories for each pollutant: attainment, nonattainment, and unclassifiable. Regions that do not meet the NAAQS are classified as nonattainment; regions where air monitoring data results are better than the standard are classified as attainment. These standards, along with the State Ambient Air Quality Standards (AAQS), provide the basis

¹⁰ City and County of Honolulu Real Property Assessment and Tax Billing Information. <http://www.honolulupropertytax.com/Home.asp?mnu=Home> (accessed December 7, 2006).

for air pollution control rules and permitting procedures. The island of Oahu and the State of Hawaii are in attainment of Federal and State standards.

The Hawaii DOH Clean Air Branch (CAB) monitors the ambient air concentrations of these regulated pollutants. Air monitoring stations are maintained by the Air Surveillance and Analysis Section of the State Laboratories Division. There are three air monitoring stations in the vicinity of the project location: the West Beach station located approximately 1.1 miles to the northwest within the Ko Olina Golf Course, the Kapolei station located approximately 1.4 miles to the east-northeast on Lauwiliwili Street near the entrance to CIP, and the Makaiwa station located approximately two miles to the north-northwest near the Honokai Hale subdivision. Sampling equipment at these three stations collectively sample all the criteria pollutants excepting O₃ and H₂S.

3.3 Archaeological Resources

An archaeological assessment for the proposed project was prepared by Pacific Legacy, Inc., in January 2007 (Appendix B1). The project is located in the traditional land division, or *ahupua'a*, of Honouliuli in the district of 'Ewa. The limestone plain on which the project is located formed from coral reefs which grew during an interglacial period (approximately 120,000 years ago) called the Waimanalo Sea Stand, when sea levels were higher than present. When sea levels dropped, the exposed coral reefs were eroded by ocean action and rain water, which dissolved portions of the limestone reef due to slightly acidic characteristics. The Kalaeloa Barbers Point area contains many archaeological features, including sinkholes which formed in the soluble limestone of the exposed reef and became important resources to avian populations (prior to human settlement) and later for early Hawaiian populations.

Previous surveys of the area, discussed in the archaeological assessment, have documented archaeological artifacts of extinct Hawaiian birds and evidence of early Hawaiian settlement which include house sites, shelters, cairns, caves, fish hooks, and midden (discarded trash). However, the project location has been used by heavy equipment and contains large coral stockpiles, and the archaeological assessment determined that the proposed location does not contain archaeological or paleontological features. Three sinkholes are present to the east of the project; outside of the proposed project boundary.

3.4 Cultural and Historic Resources

A Cultural Impact Assessment (CIA) was prepared in January 2007 by Pacific Legacy Inc. (Appendix B2). State law requires that EA and environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and the state. State historic properties are identified in Hawaii Administrative Rules (HAR) 13-198 as any building, structure, object, district, or site that is significant in the history, architecture, archaeology, or culture of the State, its communities, or the nation. No historic properties are present at the proposed project location.

The CIA determined that there are no current cultural uses occurring on the project location; however, the study and interviews revealed a rich pre- and post-European contact history. Although the area was marginally productive and did not support a large

population, research shows that it had been settled and developed by Hawaiians previous to the arrival of Europeans. Myths associated with the area typically describe the region as having a spiritual presence. Later in history, the land was altered through cattle grazing and sugar cultivation. Given the varied history and current state of the project location, it is not likely that there are cultural resources associated with the project location.

3.5 Terrestrial Flora and Fauna

Botanical, avian, and mammalian surveys were conducted for the project location in January 2007, to determine if Federal- or State-listed endangered, threatened, proposed, or candidate species are present on or in the immediate vicinity of the proposed project location. The survey results are provided in Appendix C.

Botanical Resources. The project location is characterized by two distinct vegetation areas – recently disturbed land associated with coral stockpiles (identified in the botanical survey as “quarry and dredged material tailings and storage”) and *kiawe* (*Prosopis pallida*) and buffelgrass (*Cenchrus ciliaris*) lowland savannah, which is present on long abandoned agricultural lands. The majority of the project location consists of tumbleweed (*Salsola tragus*), sourbush (*Pluchea carolinensis*), *koa haole* (*Leucaena leucocephala*), and tree tobacco (*Nicotiana glauca*). Lowland areas that flood periodically in the southern part of the site contain California grass (*Uruchloa mutica*) and sprangletop (*Leptochloa uninervia*). There was no evidence of listed endangered, threatened, proposed, or candidate botanical species on the site.

Avian Resources. During the survey, 13 different species of birds were recorded, all of which are considered to be alien to Hawaii except for one, the Ruddy Turnstone (*Arenaria interpres*). The Ruddy Turnstone is an indigenous migratory shorebird species which is present in Hawaii in the fall and winter months. Three Ruddy Turnstones were observed flying north from the shoreline across the project location. The majority of remaining observations were of the Common Waxbill (*Estrilda astrild*), House Finch (*Carpodacus mexicanus*), and Grey Francolin (*Francolinus pondicerianus*). From an avian perspective, the habitat present on the project site is not important for listed avian species.

Mammalian Resources. No mammals were observed during the survey; however, signs of domestic dog (*Canis f. familiaris*) were encountered. Dogs are an introduced species considered deleterious to Hawaiian native avian species. In addition, it is likely that rodents, i.e., roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*), and possibly Polynesian rats (*Rattus exulans hawaiiensis*), use resources at the project location. No listed mammalian species or habitat was observed during the survey.

3.6 Geographic Setting

3.6.1 Topography and Drainage

Regional topography of the area gently slopes down to the southwest, towards the coast. Kalaeloa Barbers Point Harbor is situated 1,100 feet northwest of the project location, and the Pacific Ocean is 1,600 feet to the southwest. Base elevation of the site is

approximately 10 feet above mean sea level.¹¹ Two stockpiles of dredged coral material, which are estimated to be approximately 20 and 30 feet in height, occupy the majority of the site. Drainage from the stockpiles is controlled by concrete pilings and filter fabric surrounding the base of the piles. The southeastern part of the project location exhibits evidence of flooding during heavy rains. Malakole Road and Hanua Street topography is generally flat, with elevations ranging from 10 to 20 feet. Drainage from the roadways generally sheet flows onto adjacent properties. The AES conveyor easement is generally flat, with drainage sheet flowing onto adjacent industrial parcels.

3.6.2 Geology and Soils

The project is located on the Ewa Plain, which is composed of layers of coral reef formations, marine sediments, and alluvium overlying basaltic lava from the Waianae Volcano. The U.S. Department of Agriculture designated soils at the project location as coral outcrop, a soil type identified by coral or cemented calcareous sand typically covering about 80 percent of the surface; the remainder is covered by a thin, friable soil material that has accumulated in cracks and depressions.¹² Material which has been brought onto the project location includes stockpiles of coral dredged during expansion of the harbor, and a few smaller stockpiles from unidentified sources.

3.6.3 Groundwater Resources

Groundwater resources beneath the project location and both pipeline alignments are classified as part of the Ewa aquifer system of the Pearl Harbor aquifer sector. Both the upper and underlying aquifers are characterized as basal (fresh water in contact with seawater).¹³

The upper aquifer is classified as unconfined (where the water table is the upper surface of the saturated aquifer) and occurs in sedimentary (non-volcanic) deposits. This aquifer is listed as having moderate salinity (1,000 to 5,000 milligrams per liter chloride [mg/l Cl⁻]), being replaceable, and being highly vulnerable to contamination. This currently used aquifer has no listed utility.

The deeper aquifer is classified as confined (bounded by impermeable or poorly permeable formations) and occurs in flank deposits (horizontally extensive lavas). This aquifer is listed as having low salinity (250 to 1,000 mg/l Cl⁻), being irreplaceable, and having low vulnerability to contamination. This currently used aquifer has no listed utility.

Groundwater in the area is approximately 1 to 2 feet above mean sea level. The direction of groundwater flow beneath the project location is not definitively known. Characterization would require subsurface exploration, installation of groundwater monitoring wells, and surveys of groundwater elevations. In the Hawaiian Islands, groundwater is generally assumed to flow down gradient and toward the ocean (in this

¹¹ United States Geological Survey. 1998. *Ewa Topographic Quadrangle. 7.5 Minute Series.*

¹² U.S. Department of Agriculture, Soil Conservation Service. 1972. *Soil Survey of Islands of Kauai, Oahu, Molokai, and Lanai, State of Hawaii.*

¹³ Mink and Lau. 1990. *Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawaii Technical Report No. 179.*

case, west to southwest toward the ocean). However, localized flow direction in the vicinity of the project may vary from this pattern as a result of heterogeneous subsurface conditions and tidal influence.

The project is located *mauka* (inland towards the mountains) of the State of Hawaii DOH-established Underground Injection Control (UIC) line. The State of Hawaii UIC program was established to protect the quality of underground sources of drinking water from pollution by subsurface disposal of fluids.¹⁴ The UIC line is the boundary between non-drinking water aquifers (generally seaward of the UIC line) and underground sources of drinking water (generally inland of the UIC line). Review of the UIC map indicates that there are no drinking water wells at the project location or on adjoining properties. The nearest drinking water well is located approximately 2.5 miles to the northeast.¹⁵ Several non-drinking water injection wells are identified within one-half mile of the project location, at up gradient and down gradient locations.

3.6.4 Surface Water

The nearest surface waters include Kalaeloa Barbers Point Harbor to the west and the Pacific Ocean to the southwest, which are classified as Class A marine waters. As defined in HAR 11-54, Class A waters are recommended for recreational purposes and aesthetic enjoyment. Other uses are permitted as long as they are compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. Industrial discharges within embayments such as Kalaeloa Barbers Point Harbor are regulated under HAR 11-54 and 11-55.

3.7 Sensitive Environments

Flood Plains. According to the Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA), the project location is in Zone D, areas in which flood hazards are undetermined, but possible.¹⁶

Tsunami Zones. The majority of the project location is outside the tsunami evacuation zone delineated by the Oahu Civil Defense Agency.¹⁷ According to the Evacuation Zone map for the area, Malakole Road marks the inland extent of the tsunami evacuation zone in the area of the project. A small portion of the project includes the inland side of the Malakole Road right-of-way.

Beaches. The project location is approximately 1,600 feet northeast of the nearest beach. The beaches in the vicinity of the project are used for recreation, including shore fishing. Barbers Point Beach Park, a City-owned beach park, is approximately 1.5 miles southeast of the project location. Beaches at Ko Olina Resort are approximately one-half to one mile away from the project location, northwest of the harbor.

¹⁴ Hawaii Administrative Rules, Title 11, Chapter 23. September 22, 1992.

¹⁵ DOH UIC Program. July 6, 1984. *Underground Injection Control Program Map, Ewa Quadrangle*.

¹⁶ Federal Emergency Management Agency. September 30, 2004. *National Flood Insurance Program Flood Insurance Rate Map, City and County of Honolulu, Map Number 15003C0305F*.

¹⁷ Oahu Civil Defense Agency Evacuation Zone Map 17. <http://www.honolulu.gov/ocda/maps17.htm> (accessed January 2, 2007).

Streams. According to HAR 11-54, streams are identified as “seasonal or continuous water flowing unidirectionally down altitudinal gradients in all or part of natural or modified channels as a result of either surface water runoff or ground water influx, or both. Streams may be either perennial or intermittent and include all natural or modified watercourses.” While drainage channels which convey surface water to the ocean are present in CIP, no streams are present in the vicinity of the project.

Rivers. No rivers are present in the vicinity of the project.

Ocean. The project is located approximately 1,100 feet southeast of Kalaeloa Barbers Point Harbor, and 1,600 feet northeast of the Pacific Ocean shoreline.

Estuaries. HAR 11-54 defines an estuary as “characteristically brackish coastal waters in well-defined basins with a continuous or seasonal surface connection to the ocean that allows entry of marine fauna. Estuaries may be either natural or developed.” There are no estuaries in the vicinity of the project.

Anchialine ponds. HAR 11-54 defines anchialine ponds as “coastal bodies of standing waters that have no surface connections to the ocean but display both tidal fluctuations and salinity ranges characteristic of fresh and brackish waters, indicating the presence of subsurface connections to the water table and ocean. Anchialine pools are located in porous substrata (recent lava or limestone) and often contain a distinctive assemblage of native aquatic life.” No anchialine ponds are present in the vicinity of the project location.

Fresh or coastal waters. HAR 11-54 defines fresh water as “all waters with a dissolved inorganic ion concentration of less than 0.5 parts per thousand.” HRS 342-D defines coastal waters as “all waters surrounding the islands of the State from the coast of any island to a point three miles seaward from the coast, and, in the case of streams, rivers, and drainage ditches, to a point three miles seaward from their point of discharge into the sea and includes those brackish waters, fresh waters and salt waters that are subject to the ebb and flow of the tide.” As described above, the project is approximately 1,600 feet northeast of the shoreline of the Pacific Ocean, which is considered “coastal waters.”

Erosion-prone areas. According to the U.S. Geological Survey (USGS), coastal erosion is a widespread problem in the Hawaiian Islands, and typical erosion rates are in the range of one-half to one foot per year.¹⁸ The project location is less than one-half mile from the southwestern coastline of Oahu. The USGS ranks the coastal erosion hazard for the Barbers Point area as “slight.”

Geologically hazardous land. The Uniform Building Code (UBC) establishes minimum design criteria for structures to address the potential for damages due to seismic disturbances. The UBC ranks areas in six zones (0, 1, 2a, 2b, 3, and 4) ranging in increasing risk from zero as minimum seismic risk to 4 (maximum risk), based on the probability of expected intensity of ground shaking from earthquakes. The entire island of Oahu is designated Seismic Zone 2a. The project is not located on land that is geologically hazardous.

¹⁸ Fletcher, C.H., E.E. Grossman, B.M. Richmond, and A.E. Gibbs. 2002. *USGS Atlas of Natural Hazards in the Hawaiian Coastal Zone. Geologic Investigations Series I-2761*. U.S. Department of the Interior, U.S. Geological Survey.

3.8 Socioeconomic Environment

This section describes the socioeconomic characteristics of the project location, including demographics, employment, and economic activities.

3.8.1 Demographics

The island of Oahu is part of the City and County of Honolulu, which had an estimated population of approximately 905,000 in 2005.¹⁹ The proposed project is located in Oahu Census Tract 85, which comprises the industrial area around CIP and Kalaeloa Barbers Point Harbor. In 2000, the population of this census tract was approximately 1,300, a relatively low percentage of the total population of Oahu, as the region is primarily industrial, not residential.²⁰ Between 1990 and 2005, the population of Oahu grew at a rate of 0.5 percent annually, for a total growth of almost eight percent during the period.²¹ By 2005, Oahu had approximately 71 percent of the population of the state. The city of Kapolei, which is approximately two miles from the project location, has been developed as Oahu's "second city," which has led to a greater increase in population growth in the Ewa region. The city of Honolulu remains the primary center of government and economy; however, Kapolei has become increasingly important as a center of commercial and residential development. Population growth in the area is anticipated to grow more slowly than the rest of the island, as the area remains focused on industrial activities.

3.8.2 Employment and Economics

The major industry sectors for Oahu include tourism, military and government, and agriculture. On average, more than 80,000 visitors are present on Oahu each day. In the proposed project location, the major employers include refineries, power generation facilities, waste management, and construction industry. Currently, the state is experiencing a low unemployment rate of about two percent.

3.9 Traffic

The proposed project is located off of Malakole Road, which is the main access to Kalaeloa Barbers Point Harbor. Malakole Road runs in a northwest-southeast direction between CIP and the harbor. The majority of the traffic on Malakole Road consists of trucks transporting materials to and from the harbor and harbor users' and/or employees' vehicles. The Internal Access Road, which would serve as the access road to the project, extends northeast from Malakole Road between the project location and harbor facilities. Weekday commuter peak traffic typically occurs between 6:00 and 8:00 a.m., and 3:00 and 5:00 p.m. Truck delivery traffic to and from the harbor varies throughout the day.

¹⁹ State of Hawaii Department of Business, Economic Development, and Tourism. http://www.hawaii.gov/dbedt/info/census/popestimate/2005-county-population/County_Population_Facts_2005.pdf (accessed January 28, 2007).

²⁰ State of Hawaii Department of Business, Economic Development, and Tourism. *2005 State of Hawaii Data Book*. <http://www.hawaii.gov/dbedt/info/economic/databook/db2005/section01.pdf> (accessed January 28, 2007).

²¹ State of Hawaii Department of Business, Economic Development, and Tourism. December 2006. *County Social, Business, and Economic Trends in Hawaii: 1990 – 2005*. http://www.hawaii.gov/dbedt/info/economic/data_reports/e-reports/County_Trend_2005_Final.pdf (accessed January 28, 2007).

3.10 Noise

HAR 11-46 defines maximum permissible sound levels and provides for protection, control, and abatement of noise pollution from stationary noise sources and agricultural, construction, and industrial equipment. Noise is defined in HAR 11-46 as “any sound that may produce adverse physiological or psychological effects or interfere with individual or group activities, including but not limited to communication, work, rest, recreation, or sleep.” HAR 11-46 sets maximum permissible sound levels in decibels on an A-weighted scale (dBA) for excessive noise sources within different zoning districts. For industrial areas, identified as Class C zoning, the maximum permissible sound level is 70 dBA for day and night at the property line where the activity occurs. Maximum permissible sound levels are not to be exceeded more than ten percent of the time in a 20-minute period without a permit or variance.

The existing noise environment in the proposed project location is typical of an industrial setting. There are currently no sensitive noise receptors, such as residences, schools, or hospitals in the vicinity of the project, as the nearest residential areas are more than one mile from the project location (Kapolei is approximately two miles east and north, and Ko Olina Resort is approximately one mile northwest).

An Environmental Impact Statement has been completed for Kapolei West, a future 546-acre residential development approximately three-quarters of a mile north of the project location.

The Kapolei Harborside Project is a 332 acre area between the Kapolei Business Park and Kalaeloa Barbers Point Harbor. An EIS Preparation Notice published in November 2006 stated that the project will include light manufacturing and warehousing. No other information is known about the project as its Draft Environmental Impact Statement has not yet been completed and published. However, because it does not appear to contain residential development, it is not considered a sensitive noise receptor. The primary sources of noise in the area are harbor operations, including loading and unloading of cargo, coal transport on the conveyor adjacent to the project, and motor vehicle traffic (primarily trucks). Noise levels associated with these sources vary and are dependent on specific cargo handling activities, traffic volume, and activity of the coal conveyor.

3.11 Utilities and Public Services

The proposed project location is undeveloped and does not contain utility infrastructure. This section discusses utilities and public services available in the region.

3.11.1 Electrical Infrastructure

HECO provides electricity to the majority of Oahu’s electrical users. As of 2001, HECO had the capacity to generate over 1,600 megawatts (MW) of electricity from three oil-based generating stations: Honolulu (located in downtown Honolulu), Waiau (located near Pearl Harbor), and Kahe (located northwest of the proposed project location near Nanakuli). In addition, independent power producers include the Honolulu Resource Recovery Venture (H-POWER) which has the capacity to convert municipal waste to approximately 46 MW of energy; Kalaeloa Partners, L.P., which can produce approximately 180 MW of electricity from oil; and AES-Hawaii, which can produce

approximately 180 MW of electricity from coal. Electricity can also be generated as available from Tesoro and Chevron (both petroleum-based sources), or renewable sources.²² Electricity is distributed from the generating facilities island-wide through 138 kilovolt (kV) transmission lines. Power is stepped down from the 138 kV lines by substations to 46 kV subtransmission lines.

3.11.2 Potable Water System

The BWS is a semi-autonomous agency of the City and County of Honolulu which constructs, operates, and maintains the potable and firefighting water system on Oahu. This system includes supply wells, reservoirs, pumping stations, and pipelines. BWS maintains 130 water sources which deliver an average of 150 million gallons of potable water per day through over 1,900 miles of pipeline to distribute water island-wide.²³ The proposed project location is in the Ewa-Waianae-Waipahu water system. BWS also has developed rules and regulations requiring potable water users to obtain approval for use of their water resources for new development.²⁴

3.11.3 Wastewater and Drainage Infrastructure

The existing City wastewater system consists of a network of buried pipes that convey wastewater to various treatment plants for treatment and disposal. There is currently no wastewater infrastructure at the proposed project location. There is currently no piped drainage infrastructure at the proposed project location.

3.11.4 Communications

Communications infrastructure consists of telephone, low-speed data, broadband data, fiber optic cable lines, and television cables and lines. These services are provided by private commercial companies.

3.11.5 Solid Waste

Oahu processes approximately 1.6 million tons of solid waste per year from residential, commercial, and industrial sources.²⁵ Solid waste is collected by either private contractors or City and County of Honolulu Department of Environmental Services and disposed of at the Waimanalo Gulch municipal sanitary landfill and/or the H-POWER waste-to-energy facility, or recycled when possible. Approximately 37 percent of the solid waste generated is processed at H-POWER, 24 percent disposed of in the landfill, and 39 percent is recycled.²⁶ Appropriate construction waste is disposed of at a private

²² Hawaiian Electric Company. September 2002. *Power Facts*. <http://www.heco.com/vcmcontent/FileScan/PDFConvert/PowerFacts.pdf> (accessed January 30, 2007).

²³ Honolulu Board of Water Supply. 2006. *Annual Water Quality Report*. http://www.boardofwatersupply.com/files/WQR_06.pdf (accessed January 30, 2007).

²⁴ Honolulu Board of Water Supply. Rules and Regulations. <http://www.hbws.org/cssweb/display.cfm?sid=1130> (accessed January 30, 2007).

²⁵ City and County of Honolulu Department of Environmental Services. *How the City Manages our Waste*. http://envhonolulu.org/solid_waste/archive/How_our_City_manages_our_waste.html (accessed January 30, 2007).

²⁶ City and County of Honolulu Department of Environmental Services. *Oahu Waste Composition, Disposal and Recycling, 2005*. http://envhonolulu.org/solid_waste/archive/facts1.html (accessed January 30, 2007).

construction and demolition landfill in Nanakuli. This landfill accepts approximately 262,000 tons of waste per year (718 tons per day), and has an estimated remaining capacity of over ten years.²⁷

3.11.6 Emergency Response

The Honolulu Police Department (HPD) and Honolulu Fire Department (HFD) serve the entire island of Oahu, with stations designated to serve smaller districts. The proposed project location is served by the Kapolei fire station, located approximately two miles from the project. HPD has a station located approximately three miles from the project. The nearest medical facility with emergency services to the project location is the St. Francis Medical Center West, approximately six miles east of the project location in Ewa Beach.

3.12 Visual and Aesthetic Resources

Visual resources include scenic vistas, scenic overlooks, unique topography, or visual landmarks having scenic value. The City and County of Honolulu’s Development Plan defines public views as “views along streets and highways, *mauka-makai* view corridors, panoramic and significant landmark views from public places, views of natural feature, heritage resources, and other landmarks, and view corridors between significant landmarks.”²⁸ The 1987 *Coastal View Study* conducted by the City and County of Honolulu Department of Land Utilization states,

“The Ewa section contains Campbell Industrial Park, Barbers Point Naval Air Station, Ewa Town, the proposed Ewa Marina, and Iroquois Point. The terrain is flat with no significant land forms. While expansive, views from Farrington Highway are very distant and have little visual significance due to an absence of noticeable land forms or other focal points.”

The proposed project location is surrounded by existing industrial and harbor development. According to the LUO and City zoning map, the maximum building height in the I-2 and I-3 districts without a variance is 60 feet. Section 21-4.60(c) of the LUO exempts certain structures, including stacks, from the zoning district height limit of 60 feet. Within CIP, there are several structures with heights greater than 60 feet.

Views of the proposed project location from streets and roadways include coral stockpiles approximately 20 to 30 feet high, with industrial and harbor facilities, including cement processing facilities, warehouses, overhead coal conveyor, refinery stacks, and storage areas. Views across the site are blocked in areas by the coral stockpiles. Figure 3 shows typical views of the areas surrounding the project location.

²⁷ State of Hawaii, Department of Health, Office of Solid Waste Management. July 2000. *Hawaii 2000 Plan for Integrated Solid Waste Management*.

²⁸ City and County of Honolulu. *Revised Ordinances of Honolulu, Chapter 24, Development Plans*.



▲ Views to the north and east from the project site.



▲ Views to the south and west from the project area.



Views to the south and east from the project. ►

4 ANTICIPATED IMPACTS TO AFFECTED ENVIRONMENT

4.1 Land Use

4.1.1 Proposed Action

The Proposed Action would have no significant impact on land use; it would support and be consistent with the State and County plans as described in Section 5.1. The proposed facility is in an industrially-zoned area and would be consistent with surrounding property uses. The construction and operation of the biodiesel production facility is dependent on the proximity of deep draft port facilities, and is appropriate to be located as proposed. It is also protective of port functions, as the process of delivering the feed stock, producing biodiesel, and storing biodiesel are non-toxic. Use of the harbor facilities by 16 additional ships transporting vegetable oil into the state per year would be consistent with the harbor's intended use.

Permissions to construct a pipeline along Malakole Road and Hanua Street easements would be obtained from land owners prior to construction.

4.1.2 AES Conveyor Alignment

Impacts to land use under the AES Conveyor Alignment alternative would be similar to those under the Proposed Action, with the exception that permissions to construct the pipeline would be obtained from the owner of the conveyor structure, in addition to the private landowners of the parcels along which the conveyor alignment passes. As the conveyor belt was approved under SUP No. 89/SUP-1, attaching a pipeline to the conveyor belt structure may require a modification to the SUP.

4.1.3 No Action Alternative

Under the No Action alternative, there would be no impacts to land use as the uses of the project location and alignments would not change.

4.2 Air Quality

4.2.1 Proposed Action

There would be no significant impacts to air quality from the proposed action. Construction-related impacts to air quality would be temporary. Emissions would result from fossil fuel-powered generators and motors of heavy construction equipment and fugitive dust. If required, permits for generators with the potential to affect air quality would be obtained pursuant to HAR 11.60.1. Fugitive dust would be minimized as required by HAR 11.60.1-33.

Atmospheric emissions generated from operation of the facility would include CO, VOCs (including methanol), CO₂, PM₁₀, NO₂, and SO₂. Based on emission estimates, the proposed biodiesel production facility is expected to be a minor source of methanol and a minor source of criteria pollutants. A stationary covered source air permit application

would be submitted to the Hawaii DOH CAB. Federal New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutant (NESHAP) regulations have been reviewed for applicability.

The emissions estimated for Imperium's biodiesel production facility are below the significant amounts, defined in HAR 11-60.1-1, required for Best Available Control Technology (BACT) analysis. However, Imperium has selected emission controls for the biodiesel production facility that are BACT compliant. The heater would be fueled by biodiesel, which contains no sulfur, and the heater is engineered to use a low-NO_x burner. Biodiesel, when burned as a fuel, generates less CO and VOCs than petroleum diesel. The PM content would be maintained under the NSPS limit. The ignition compression engines (backup generator and firewater pump) would use biodiesel or low-sulfur petroleum diesel fuel, be certified tier 3, maintained regularly, and operated for routine maintenance, testing and emergency power outages only. The cooling tower would have drift eliminators that allow less than 0.001 percent drift and the water treatment chemicals used in the tower would not contain chromium or other toxic air pollutants. The plant would have a vapor recovery system with two in-series water-cooled condensers capable of collecting at least 98.3 percent of the VOC vapors. The heater would be engineered to destroy 99.5 percent of the collected vapors from the recovery system. The tanks would have fixed roofs with closed vent systems ducted to the vapor recovery system (VRS). Imperium has planned a leak detection schedule, which complies with all applicable NSPS regulations and reflects NESHAP regulations as well.

Methanol would be used at the facility to produce biodiesel. The NESHAP regulations do not apply because methanol emissions would be less than 10 tons per year, and therefore do not trigger Maximum Achievable Control Technology (MACT) standards. Methanol emissions would be captured by the vapor recovery system. The condensed methanol would be routed back into the system for biodiesel production. The non-condensable methanol vapors would be sent to the hot oil heater for destruction.

4.2.2 AES Conveyor Alignment

Impacts to air quality under the alternative alignment would be the same as those under the Proposed Action.

4.2.3 No Action Alternative

Under the No Action alternative, air quality would not be affected by construction or operation of a biodiesel production facility because it would not be constructed. However, if Oahu's future electrical generation needs increase, and these needs are met through combustion of fossil fuel versus biofuels, increases to atmospheric pollutants could occur.

4.3 Archaeological Resources

4.3.1 Proposed Action

There would be no significant impacts to archaeological resources from the proposed action. Construction or operation of the biodiesel facility would not likely impact potentially significant remains. The archaeological assessment conducted for the proposed action revealed that previous activities at the project location, including stockpiling of coral, have likely altered site conditions; therefore, no archaeological or paleontological features are present within the project location. In the unlikely event that potentially significant remains are uncovered during construction activities, work in the immediate vicinity of the findings would halt and the State Historic Preservation Division (SHPD) would be contacted. The archaeological assessment conducted for this project recommends archaeological monitoring during excavation of trenches for pipeline placement. If sinkholes are encountered during any project excavation, SHPD would be contacted.

4.3.2 AES Conveyor Alignment

Impacts to archaeological resources under the AES Conveyor Alignment alternative would be the same as those under the Proposed Action.

4.3.3 No Action Alternative

There would be no impact to archaeological resources under the No Action alternative as the proposed construction would not occur.

4.4 Cultural and Historic Resources

4.4.1 Proposed Action

As there are no cultural or historic resources associated with the proposed project location, the construction and operation of a biodiesel production facility would not have significant impacts on cultural or historic resources.

4.4.2 AES Conveyor Alignment

As with the Proposed Action, the AES Conveyor Alignment alternative would not have significant impacts on cultural or historic resources.

4.4.3 No Action Alternative

There would be no impact to cultural resources under the No Action alternative as the proposed construction would not occur.

4.5 Terrestrial Flora and Fauna

4.5.1 Proposed Action

As no indication of Federal- or State-listed endangered, threatened, proposed, or candidate botanical, avian, or mammalian species on the site were observed during field

surveys of the site conducted in January 2007, no impacts to terrestrial flora or fauna are expected from the Proposed Action.

4.5.2 AES Conveyor Alignment

As no indication of Federal- or State-listed endangered, threatened, proposed, or candidate botanical, avian, or mammalian species on the site were observed during field surveys of the site conducted in January 2007, no impacts to terrestrial flora or fauna are expected from the AES Conveyor Alignment alternative.

4.5.3 No Action Alternative

Under the No Action alternative, the coral stockpiles at the project location would be used over time for fill material off-site, and the vegetation growing on the site would be removed. However, as no indication of Federal- or State-listed endangered, threatened, proposed, or candidate botanical species were observed, this would not result in significant impacts to the terrestrial flora or fauna.

4.6 Geographic Setting

4.6.1 Topography and Drainage

4.6.1.1 Proposed Action

Under the Proposed Action, no significant impacts to topography or drainage would occur. The site would be graded and filled up to 20 feet above mean sea level. Existing coral stockpiles would be removed and either used as fill on-site or as fill for off-site projects. Injection wells would be constructed at the project location to receive storm water and process water in accordance with DOH permitting requirements. Secondary containment for the tanks would be sized to accommodate a three-inch storm event in addition to sufficient volume to contain the largest tank contents and addition six-inch freeboard allowance. Construction of a pipeline within the existing Malakole Road and Hanua Street easements would not affect the existing topography or drainage, as the road rights-of-way would be returned to existing grade after pipeline installation is complete.

4.6.1.2 AES Conveyor Alignment

No significant impacts to topography or drainage would occur. Impacts to topography and drainage under the AES Conveyor Alignment alternative would be the same as those under the Proposed Action, with the exception that the pipeline construction would not alter the ground, as it would be attached to the existing AES conveyor structure.

4.6.1.3 No Action Alternative

No significant impacts to topography or drainage would occur under the No Action alternative. The coral stockpiles at the project location would be used over time for fill material off-site, and the topography and drainage would change at the project location.

4.6.2 Geology and Soils

4.6.2.1 Proposed Action

No significant impacts to geology or soils would occur. The Proposed Action would involve the disturbance of approximately 11 acres of land at the project location and 1.5 acres of land along the Malakole Road and Hanua Street easements. When possible, existing stockpiles on the site would be used for structural fill during construction of the facility, and would likely be similar in character to the existing soil. This ground disturbance and placement of fill is not considered to be a significant impact because it would not result in the loss of existing soil resources.

4.6.2.2 AES Conveyor Alignment

No significant impacts to geology or soils would occur. Under the AES Conveyor Alignment alternative, impacts would be the same as those under the Proposed Action, with the exception that land along the pipeline easement would not be disturbed if the pipeline is attached to the existing AES conveyor structure.

4.6.2.3 No Action Alternative

Under the No Action alternative, there would be no significant impacts to geology or soils. The coral stockpiles at the project location would be used over time for fill material off-site, and the original coral outcrop soil would remain.

4.6.3 Groundwater Resources

4.6.3.1 Proposed Action

No significant impacts to groundwater resources would occur under the Proposed Action. Construction of the proposed facility and pipeline would involve excavation to approximately three to five feet in order to backfill with structural fill. Groundwater is not anticipated to be encountered during construction activities. In the event that groundwater is encountered during excavation, it would be dewatered on-site in a retention basin and allowed to infiltrate the ground. Along the pipeline alignment, groundwater would be dewatered back into the trench or disposed of on-site, if encountered. Construction of the septic system would conform to HAR 11-62-34, *Wastewater Rules and Regulations*. Septic waste would be disposed of at a maximum of 36 inches below ground surface. A minimum of six inches of granular material and 36 inches of sand, having a percolation rate of approximately one minute per inch, would be placed below the septic leach line for filtration.

Imperium will use non-potable water from the mid-level brackish aquifer for production purposes. This aquifer is essentially brackish water that permeates the island's substrata, below the fresh water aquifer. Therefore, use of this source would have no significant adverse impacts upon the potable water aquifer. During operation of the proposed facility, process water and storm water would be discharged to injection wells on-site. Wells would be up to 400 feet deep. Process water disposal would consist of up to 300 gallons per minute of non-potable water. Storm water falling within the containment areas of the tank farm, process area, and truck loading/unloading stands would be passed

through an oil/water separator as described in Section 2.2.1 and directed to injection wells in accordance with DOH permitting requirements. Storm water falling in other areas of the site would be directed to injection wells in accordance with DOH permitting requirements. The groundwater resources below the site do not have a listed utility. The project is approximately 2.5 miles from, and downgradient of, the nearest drinking water well; therefore, no impacts to drinking water resources would occur.

4.6.3.2 AES Conveyor Alignment

Impacts to groundwater resources under the AES Conveyor Alignment alternative would be the same as those under the Proposed Action.

4.6.3.3 No Action Alternative

Under the No Action alternative, there would be no impacts to groundwater resources because there would be no changes to the site.

4.6.4 Surface Water

4.6.4.1 Proposed Action

No significant impacts to surface water would occur under the proposed action. Storm water from the project would be directed to injection wells, and would not enter the Pacific Ocean, which is the nearest surface water. National Pollutant Discharge Elimination System (NPDES) permit coverage would be obtained for construction and operation of the facility as needed, and Best Management Practices (BMPs) designed as part of the NPDES permit application would be implemented to prevent the release of pollutants from construction and operation.

4.6.4.2 AES Conveyor Alignment

No significant impacts to surface water would occur under the AES Conveyor Alignment alternative, as the activities under this alternative would be the same as those under the proposed action.

4.6.4.3 No Action Alternative

No significant impacts to surface water would occur under the No Action alternative. Removal of the coral stockpiles for use off-site would disturb soils on the site, and could contribute pollutants (such as soil or petroleum from operation of heavy equipment) to storm water runoff into surface water. BMPs to prevent discharge of pollutants to storm water would need to be implemented during stockpile removal operations.

4.7 Sensitive Environments

4.7.1 Proposed Action

No sensitive environments were identified in the proposed project location. Therefore, no impacts to sensitive environments would occur under the proposed action.

4.7.2 AES Conveyor Alignment

Impacts to sensitive environments under the AES Conveyor Alignment alternative would be the same as those under the proposed action.

4.7.3 No Action Alternative

As there are no sensitive environments in the project area, no impacts to sensitive environments would occur under the No Action alternative.

4.8 Socioeconomic Environment

4.8.1 Proposed Action

No significant impacts to the socioeconomic environment would occur under the Proposed Action. The proposed facility would employ approximately 50 to 60 people, the majority of who would be have already been based on-island. Beneficial economic impacts of facility construction would include an output to construction firms, consultants, trade subconsultants, and other business services. Economic impacts of facility operation would include reduced dependence on foreign petroleum diesel markets.

4.8.2 AES Conveyor Alignment

Impacts to the socioeconomic environment from the AES Conveyor Alignment alternative would be the same as those under the proposed action.

4.8.3 No Action Alternative

Socioeconomic impacts from the No Action alternative include fuel costs for electricity generation continuing to be dependent on the price of imported fossil fuel, which may continue to be unstable over time. Increases in electrical generation costs may be passed on to electricity consumers on Oahu.

4.9 Traffic

4.9.1 Proposed Action

The Proposed Action is not anticipated to significantly impact area roadways. Construction-related traffic impacts would be short-term and temporary, associated with the construction of the pipeline within the Malakole Road and Hanua Street rights-of-way, and would not be considered significant. Flagmen or special-duty police presence at the construction area, as appropriate, would assist with minimizing construction-related traffic impacts. Access to the project location would be off of Malakole Road. The project would generate a total of about 30 vehicle direction trips during the project's peak traffic hours, which would be at the beginning and end of the facility's day shift (7:00 a.m. and 3:00 p.m.). While the primary material supply and product delivery methods are anticipated to be via pipelines and ships, trucks operated by material suppliers or biodiesel purchasers may enter and exit the site. The Institute of Traffic Engineers identifies 100 vehicles per hour as the threshold number of vehicles that can change the

level of service of an intersection approach. The level of service of the surrounding area intersections would not change based on the project's roughly 30 vehicle direction trips.

4.9.2 AES Conveyor Alignment

Impacts to traffic under the AES Conveyor Alignment alternative would be less than those under the Proposed Action, as construction activities in roadways would only occur where the conveyor crosses Malakole Road. Trenching across the roadway would involve short-term closure of one lane at a time.

4.9.3 No Action Alternative

Under the No Action alternative, there would be no impacts to traffic as no construction would occur in roadways and no additional vehicle trips would be generated.

4.10 Noise

4.10.1 Proposed Action

No significant impacts from noise would occur. Typical noise levels associated with common construction equipment can range from 80 to 95 dBA at 50 feet from the source, with some drilling equipment generating greater than 100 dBA. Noise levels associated with construction would vary in location and duration, and may be continuous (generator motors), fluctuating (crane operation), or impulsive (metal drill pipes banging together). Construction-related noise is generally short in duration. Construction work would be conducted in compliance with State of Hawaii noise control rules. Impacts on construction workers would be minimized by compliance with Occupational Safety and Health Administration (OSHA) construction noise standards. For construction activities that may produce excessive noise levels, a noise permit or noise variance, as applicable, would be obtained from the State of Hawaii DOH. Permit or variance approval may require use of noise attenuation devices on construction equipment.

Noise associated with operation of the facility would be typical of industrial sources, and are not expected to exceed 70 dBA at the property line. The facility would operate 24 hours, seven days a week. Equipment such as emergency generators, which could operate intermittently at noise levels which exceed 70 dBA, would not affect noise-sensitive receptors as the nearest proposed noise-sensitive receptor, the planned Kapolei West development, would be approximately three-quarters of a mile away. The Final Environmental Impact Statement for the proposed project states that landscape screening along the south and eastern perimeter of the project would minimize noise from activities at the harbor, and the developers would provide disclosure to prospective occupants of the possible noise impacts from harbor activities and industrial users.

4.10.2 AES Conveyor Alignment

Noise impacts associated with the AES Conveyor Alignment alternative would be the same as those under the Proposed Action.

4.10.3 No Action Alternative

Under the No Action alternative, there would be no noise impacts as construction and operational noise would not be generated.

4.11 Utilities and Public Services

4.11.1 Electrical Infrastructure

4.11.1.1 Proposed Action

No significant adverse impacts to the electrical infrastructure would occur. The proposed facility is anticipated to use electricity from HECO 46kV subtransmission lines. Peak electrical usage is anticipated to be approximately 3,400 kVA. However, the facility would also produce biodiesel fuel which can be used to fuel HECO electrical generation facilities. Using 100 million gallons of biodiesel per year to fuel electrical generating equipment could contribute to additional generation capacity.

4.11.1.2 AES Conveyor Alignment

Impacts to electrical infrastructure under the AES Conveyor Alignment alternative would be the same as under the Proposed Action.

4.11.1.3 No Action Alternative

Under the No Action alternative, petroleum diesel sources would continue to be used at electrical generation facilities. The biodiesel facility would not be built, and would not be able to provide alternative sources of fuel for electrical generation facilities.

4.11.2 Potable Water

4.11.2.1 Proposed Action

No significant impacts to potable water infrastructure would occur under the Proposed Action. The BWS would provide potable water to the site from an existing 20-inch water line in Malakole Road via a water lateral to be constructed. Potable water will not be used for process water. Approximately 3,600 gallons per day would be used for day-to-day domestic uses. Peak hour demand for the water system would be approximately eight gpm. A capacity of 4,000 gpm of fire-fighting water would be required for the hydrants.

4.11.2.2 AES Conveyor Alignment

Impacts to potable water infrastructure under the AES Conveyor Alignment alternative would be the same as under the Proposed Action.

4.11.2.3 No Action Alternative

Under the No Action alternative, there would be no impacts to potable water resources because there would be no change to current infrastructure.

4.11.3 Wastewater

4.11.3.1 Proposed Action

No significant impacts to wastewater infrastructure are anticipated under the Proposed Action. Sanitary waste generated from the project would be disposed of in a septic system to be constructed on-site. Process water would be disposed of in injection wells constructed on-site. The project would not use existing municipal wastewater infrastructure.

4.11.3.2 AES Conveyor Alignment

Impacts to wastewater infrastructure under the AES Conveyor Alignment alternative would be the same as under the Proposed Action.

4.11.3.3 No Action Alternative

Under the No Action alternative, there would be no significant impacts to wastewater infrastructure, as no changes would occur.

4.11.4 Communications

4.11.4.1 Proposed Action

No significant impact to communications infrastructure would occur under the Proposed Action. Existing communication providers would provide service to the project.

4.11.4.2 AES Conveyor Alignment

Impacts to communications infrastructure under the AES Conveyor Alignment alternative would be the same as those under the Proposed Action.

4.11.4.3 No Action Alternative

Under the No Action alternative, there would be no changes or impacts to communication infrastructure.

4.11.5 Solid Waste

4.11.5.1 Proposed Action

No significant impacts to solid waste infrastructure would occur under the Proposed Action. Disposal of solid waste from construction of the proposed facility is not likely to have significant impacts. Solid waste generated from construction activities could include typical construction materials such as concrete, asphalt, gravel fill, wood, metal, and plastics. Construction-related solid waste would be reused as appropriate or disposed of at the PVT construction and demolition landfill in Nanakuli. Solid waste generated from the biodiesel production process would include small quantities, approximately a cubic yard per month, of waxes filtered from the source oil. Municipal solid waste generated from the project would be placed in a dumpster on-site that is emptied on a regular basis by a contracted private solid waste management company and taken to either the municipal landfill or H-POWER, and recycled when feasible. Quantities of municipal

solid waste generated from the facility are expected to be consistent with those generated by small offices, and are therefore not expected to have a significant impact on municipal landfill capacity.

The facility would generate small quantities of used oil and other industrial waste, and would likely be classified as a Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste under the Resource Conservation and Recovery Act (RCRA). CESQGs are defined as facilities which generate no more than 220 pounds of hazardous waste per calendar month. Hazardous waste generated by a CESQG must be manifest to an off-site treatment, storage, and disposal facility or approved designated facility. There are no hazardous waste disposal facilities in Hawaii, so such wastes would be shipped to the U.S. mainland for disposal. Intermediate storage of hazardous wastes would occur on-site in designated, contained areas.²⁹

4.11.5.2 AES Conveyor Alignment

Impacts to solid waste infrastructure would be the same as those under the Proposed Action.

4.11.5.3 No Action Alternative

Under the No Action alternative, no additional solid waste would be generated and there would be no impacts to solid waste infrastructure.

4.11.6 Emergency Response

4.11.6.1 Proposed Action

No significant impacts to emergency response facilities would occur under the Proposed Action. A 20-foot wide fire access road would be constructed around the east side of the project location to service the tank farm area for fire suppression. Fire access would be in accordance with HFD requirements.

4.11.6.2 AES Conveyor Alignment

Impacts to emergency response under the AES Conveyor Alignment would be the same as those under the Proposed Action.

4.11.6.3 No Action Alternative

The No Action alternative would have no impact on emergency response in the area.

4.12 Visual and Aesthetic Resources

4.12.1 Proposed Action

No significant impacts to visual and aesthetic resources are expected from the Proposed Action. The proposed facility would be consistent with the heavily industrialized nature of the area. Views of the project from public roadways would not impact significant

²⁹ USEPA. December 2001. *Managing Your Hazardous Waste, a Guide for Small Businesses*. EPA530-K-01-005. <http://www.epa.gov/epaoswer/hazwaste/sqg/handbook/k01005.pdf> (accessed February 14, 2007).

visual or aesthetic resources. As the area of the proposed project is relatively flat and contains two large stockpiles, views of the ocean from Malakole Road and other roads within CIP are minimal, and would not be obstructed by the facility. *Mauka-makai* viewplanes from roadways upgradient of the project, such as the H-1 freeway, would not be obstructed by the facility. As described in Section 3.12, Section 21-4.60(c) of the LUO exempts certain structures, including stacks, from the zoning district height limit of 60 feet. Therefore, no height variance would be required for a stack up to 350 feet in height. Height variances would be required for tanks which may exceed 60 feet in height.

4.12.2 AES Conveyor Alignment

The impacts to visual and aesthetic resources under the AES Conveyor Alignment alternative would be similar to the Proposed Action, with the exception of the visual impact of the pipeline along the conveyor structure. The visual impact of the pipeline along the conveyor would not be significant, as the existing conveyor is an industrial-looking structure. The addition of the pipeline to the structure would not significantly change the impact of the conveyor.

4.12.3 No Action Alternative

Under the No Action Alternative, there would be no impacts to visual and aesthetic resources because no construction would occur.

4.13 Secondary and Cumulative Impacts

As defined by HAR 11-200-2, the term “secondary impacts” means those impacts caused by the action that are later in time or farther removed in distance but still reasonably foreseeable. They may include effects related to induced changes in land use patterns and population density or growth rate, and related effects on air, water, or other natural systems, including ecosystems. Secondary impacts of the proposed project could include additional cultivation of fuel crops in Hawaii, as there would be an end-user established in the state for these crops.

“Cumulative impacts” are defined in HAR 11-200-2 as environmental impacts resulting from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. As such, all the impacts on affected resources could be considered cumulative. Because it is not practical to analyze the cumulative effects of an action on the universe, the list of environmental effects must focus on those that are truly meaningful. Cumulative effects analysis should “count what counts,” not produce superficial analyses of a long laundry list of issues that have little relevance to the effects of the proposed action or the eventual decisions.³⁰ Under the Proposed Action and alternatives, cumulative impacts could include the following:

³⁰ Council on Environmental Quality. January 1997. *Considering Cumulative Effects Under the National Environmental Policy Act*.

- Impacts to the petroleum diesel market in Hawaii: increased availability, and therefore use of biodiesel would offset the quantity of petroleum diesel sold in the state.
- Impacts to traffic: construction of additional industrial facilities in the vicinity of the proposed project location would contribute additional vehicles on the area roadways.
- Impacts to harbor usage: Ship traffic to Kalaeloa Barbers Point Harbor may increase over time as more resources are brought into the state from the mainland U.S., neighbor islands, and overseas.
- Increased use of Federal and State tax credits for use of renewable energy: as more renewable energy sources are available, more entities would be able to take advantage of existing and potential future renewable energy tax credits.
- Improved compliance with State laws: State law directs agencies to increase use of renewable fuels through laws such as the Biofuels Procurement Preference (HRS 103D), which states that contracts for the purchase of diesel fuel are to give preference to bids for biofuels or biofuel blends, and the Alternative Fuel Program Support (HRS 196A) which directs the State to provide 20 percent of highway fuel use through alternative fuels by the year 2020.

4.14 Unresolved Issues

Issues related to design and construction of the facility, in addition to other issues which may relate to the project's impacts on resource areas include:

- The proposed pipeline alignment from Pier P-5 and Pier P-6 at the harbor to the facility may be revised, as according to the May 1997 Oahu Commercial Harbors 2020 Master Plan,³¹ a dedicated petroleum dock is proposed at Pier P-4. No significant environmental impacts would be expected from realigning the proposed pipeline alignment to Pier P-4.
- The number of trucks entering and leaving the site each day would be dependent upon demand for biodiesel and the character of contracts secured with purchasers of the biodiesel fuel. The preferred distribution method is by pipeline, with trucks as a secondary option. Imperium does not propose to own a fleet of trucks. The design of the facility assumes that a 9,000-gallon tanker would be able to access the site.

³¹ State of Hawaii Department of Transportation, Harbors Division. May 1997. *Oahu Commercial Harbors 2020 Master Plan*.

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5 OTHER CONSIDERATIONS

5.1 Consistency with Government Plans and Policies

5.1.1 Hawaii State Land Use Controls

The Hawaii Land Use Commission was established after 1961 when the Hawaii State Legislature established the need for state-wide zoning laws to manage development of Hawaii's limited and valuable land. The Commission is responsible for preserving and protecting Hawaii's lands and encouraging those uses to which lands are best suited.³² The proposed project is located on land best suited for industrial use, and is therefore consistent with the intended land use.

5.1.2 HRS 205A, Special Management Area Program

The proposed project is within a SMA. An SMA Use permit would be obtained for the project.

5.1.3 City and County of Honolulu General Plan

The City and County of Honolulu General Plan identifies the site for industrial use, and the proposed action and alternatives would be consistent with this plan. Physical Development and Urban Design Objective C Policy 3 of the General Plan encourage "the continuing development of Barbers Point as a major industrial center." The General Plan also includes objectives and policies regarding energy which are supportive of the project (i.e., Energy Objective C Policy 2, which supports "biomass energy conversion systems"). The proposed facility would support the electrical infrastructure of the City and County of Honolulu.

5.1.4 Ewa Development Plan

The proposed facility would be an industrial user in an industrial area, which is consistent with the Ewa Development Plan's goals of keeping industrial users located within designated areas, rather than spread among business or residential uses. Buildings at the Imperium facility will be visible from resort and residential areas; however, the scale of the facility is consistent with that of existing petroleum refineries and electrical generation facilities in the area. To the extent practical, landscaping will be designed with the Development Plan principles in mind.

5.1.5 City and County of Honolulu Zoning

The proposed project is a general manufacturing facility, which is consistent with the I-3 zoning of the area. Height variances would be required for tanks which exceed the 60-foot height limit in the I-3 zone.

³² State of Hawaii Land Use Commission. 2006. <http://luc.state.hi.us/about.htm#PURPOSE%20OF%20THE%20LAW>

5.1.6 Oahu Commercial Harbors 2020 Master Plan

The proposed project would require bulk delivery of source oil from ships. The location of the project at Kalaeloa Barbers Point Harbor would be consistent with the Oahu Commercial Harbors 2020 Master Plan which aims to ease congestion at Honolulu Harbor by directing bulk cargo shipments to Kalaeloa Barbers Point Harbor. Expansion plans for Kalaeloa Barbers Point Harbor discussed in the 2020 Master Plan include dredging the entrance channel and turning basin to accommodate deeper draft vessels and construction of a dedicated fuel dock. Figure 4 shows the proposed improvements in the 2020 Master Plan; however, the proposed use of the project area as identified by DOT Harbors has been updated since publication of the master plan. DOT Harbors Division has stated that changes will be reflected in the next master plan revision.³³

5.2 Summary of Permits and Approvals

Government permits, approvals, and consultations that may be required for this project were identified during the pre-assessment consultation process and the development of this document, and are included in Table 5-1. This reference table is a list of permits and approvals that may eventually be required.

Table 5-1. Summary of Government Permits and Approvals

Permit, Consultation, or Concurrence	Regulatory Agency
Federal	
Requirement Pending: Department of the Army permit for features within navigable waters	U.S. Army Corps of Engineers
State	
Stationary Source Air Permit	DOH Clean Air Branch
NPDES, HAR 11-55	DOH-Clean Water Branch
Community Noise Permit, Noise Variance, HAR 11-46	DOH-Noise, Radiation, and Indoor Air Quality Branch
Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, HRS, and Burial Sites and Human Remains, HAR 13-300	Department of Land and Natural Resources-State Historic Preservation Division
City and County of Honolulu	
Special Management Area Use Permit	City Department of Planning and Permitting (DPP)
Height Variance	City DPP
Construction Plan Review; Excavation Permit; Grubbing, Grading, and Stockpiling Permit; Building Permit	City DPP

5.3 Irretrievable and Irreversible Commitment of Resources

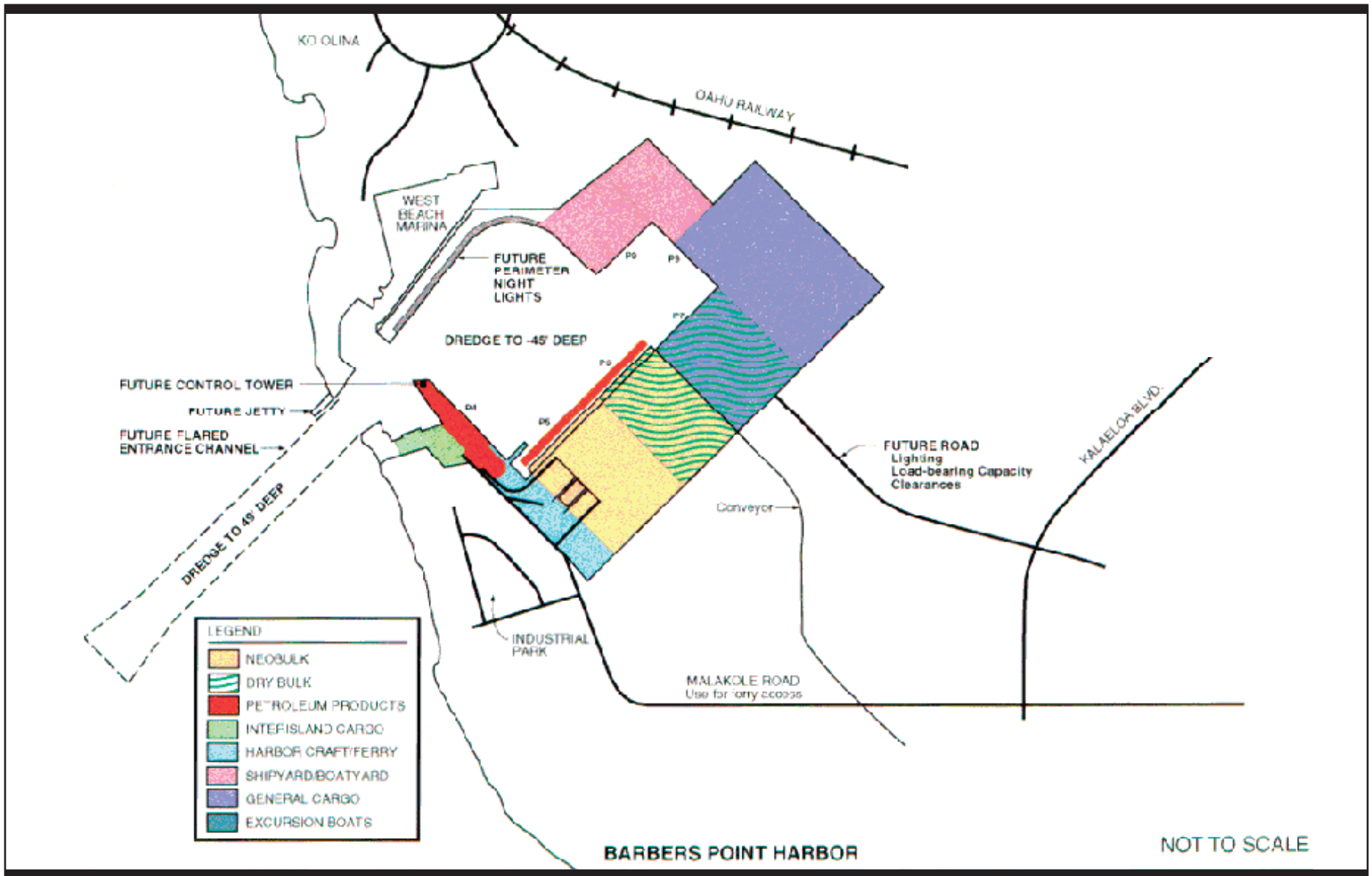
A commitment of resources is considered irreversible when it precludes restoration of those resources to their pre-project condition. Use, consumption, destruction, or degradation of resources resulting from implementation of the proposed project, such that the resource cannot be retrieved or replaced in any form, is considered an irretrievable

³³ Personal communication. March 22, 2007. Mr. Glenn Okimoto, DOT Harbors Division, and Ms. Adrienne Barnes, Imperium Renewables Hawaii LLC.

commitment of resources. The majority of resources for the Proposed Action (100 million gallons per year of palm oil) are renewable and would be generated in accordance with Imperium's Sustainable Palm Oil Policy. Other resource commitments for the Proposed Action are temporary and would only occur during construction. Irreversible and irretrievable resource commitments include:

- land on which the facility would be constructed;
- construction materials, including materials that make up the facility structures and pipeline;
- petroleum diesel fuel for heater operation;
- electricity for office use;
- potable water for biodiesel production and office use;
- available space in the construction and demolition landfill; and
- manpower.

There is no irrevocable commitment or loss or destruction of any natural or cultural resources.



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Source: Oahu Commercial Harbors 2020 Master Plan, May 1997, www.state.hi.us/dot/harbors/oahu/barbers.gif



NORTH NOT TO SCALE

Figure 4
OAHU COMMERCIAL HARBORS
2020 MASTER PLAN MAP

Imperium Hawaii Biodiesel Facility
June 2007

6 PRE-ASSESSMENT CONSULTATIONS

The following agencies and organizations were contacted prior to drafting the EA to solicit input. Meetings and phone conversations were conducted with the agencies or organizations identified in Table 6-1.

Table 6-1. Pre-Assessment Consultations

Contact Name	Organization
STATE AGENCIES	
Barry Fukunaga	DOT Director
Glenn Abe	DOT Harbors Division
Peter Young/Robert Masuda	Department of Land and Natural Resources
Sharon Har	State Representative
Calvin Say	State Speaker of the House
Hermina Morita	State Representative; Chair, Energy and Environmental Protection Committee
Clift Tsuji	State Representative; Chair, Agriculture Committee
Mike Gabbard	State Senator
Russell Kokubun	Hawaii 2050 Sustainability Task Force
CITY AND COUNTY AGENCIES	
Mufi Hanneman	Mayor
Charles Djou	City Council
Todd K. Apo	City Council
Planning Director, Chief of Customer Service, Chief of Land Use Permits, Chief of Building Division	City Department of Planning and Permitting
FEDERAL AGENCIES	
None	Federal agencies with areas of jurisdiction were not identified for the proposed project.
INTERESTED PARTIES	
Maeda Timson	Makakilo/Kapolei/Honokai Hale Neighborhood Board

7 PUBLIC PARTICIPATION

The availability of the Draft EA and anticipated FONSI were announced in the April 8, 2007, issue of *The Environmental Notice*, published by the OEQC. Copies of the Draft EA were distributed to the agencies, public officials, citizen groups, individuals, and libraries listed in Table 7-1.

Table 7-1. Distribution List

Contact Name	Organization
Pacific Ocean Division	U.S. Army Corps of Engineers
Honorable Linda Lingle, Governor	State of Hawaii Office of the Governor
Maj. General Robert Lee	State of Hawaii Department of Defense
Mr. Barry Fukunaga, Director	State of Hawaii Department of Transportation
Ms. Genevieve Salmonsens, Director	State of Hawaii Office of Environmental Quality Control
Mr. Clyde Namu'o, Administrator	State of Hawaii Office of Hawaiian Affairs
Ms. Haunani Apoliona, Chair	State of Hawaii Office of Hawaiian Affairs
Ms. Melanie Chinen, Administrator	State Historic Preservation Division, Department of Land and Natural Resources
Mr. Peter Young, Chair	State of Hawaii Department of Land and Natural Resources
Ms. Laura Thielen, Director	State of Hawaii Office of Planning
Mr. Theodore Liu, Director	State of Hawaii Department of Business, Economic Development, and Tourism
Ms. Sandra Lee Kunimoto, Chair	State of Hawaii Department of Agriculture
Dr. Chiyome Fukino, Director	State of Hawaii Department of Health
Laurence K. Lau, Esq., Deputy Director	State of Hawaii Department of Health
Ms. June Harrigan-Lum	State of Hawaii Department of Health Environmental Planning Office
Environmental Center	University of Hawaii
Mr. Glenn Yasui, Administrator	State of Hawaii Department of Transportation Highways Division
Honorable Mufi Hanneman, Mayor	City and County of Honolulu
Honorable Charles Djou, Councilmember	City and County of Honolulu Council
Honorable Todd K. Apo, Council Member	City and County of Honolulu Council
Honorable Gary Okino, Councilmember	City and County of Honolulu Council
Mr. Henry Eng, Director	City and County of Honolulu Department of Planning and Permitting
Mr. Eugene Lee, Director	City and County of Honolulu Department of Design and Construction
Mr. Clifford Lum, Manager	Honolulu Board of Water Supply
Mr. Kenneth Silva, Chief	Honolulu Fire Department
Ms. Maeda Timson, Chair	Makakilo/Kapolei/Honokai Hale Neighborhood Board
Mr. Melvin Kaku, Director	City and County of Honolulu Department of Transportation Services
Library	Hawaii State Library
Library	University of Hawaii at Manoa Library
Library	Kapolei Public Library
Library	Waianae Public Library
Library	Department of Business, Economic Development, and Tourism Library
Mr. Jeff Mikulina, Director	The Sierra Club
Ms. Donna Wong	Hawaii Thousand Friends

Contact Name	Organization
Ms. Mary Emerson	Roads LLC
Mr. David Wilson	McNeil Wilson Communications, Inc.
Ms. Mei Jeanne Wagner	McNeil Wilson Communications, Inc.
Mr. John Strom, Vice President	Enterprise Honolulu
Ms. Linda Chu Takayama	
	The Nature Conservancy
	Chevron Hawaii
	Amerigas Propane, LP
	Hawaiian Electric Company
	James Campbell Company LLC
	Campbell Hawaii Investors LLC
	Queen Emma Land Company
	Aina Nui Corporation
	Kapolei Property Development LLC
	Hanua Property LLC
	Southern Wine and Spirits
	Horizon Waste Services Inc.
	PMLW Partnership
	Dietrich Industries Inc.
	Atlas Sales Company
	Marisco Ltd.
	Maritime License Center Inc.

7.1 Comments Received within the 30-day Comment Period

Following the procedures established in HAR 11-200, comments received or postmarked within the 30-day comment period between April 8, 2007, and May 8, 2007, are timely. Commenters providing their input within this period are listed in Table 7-2 below. Comment and response letters follow.

Table 7-2. Draft EA Commenters

Name	Organization
Ms. Genevieve Salmonsens, Director	State of Hawaii Office of Environmental Quality Control
Mr. Glenn Okimoto, Administrator	State of Hawaii Department of Transportation Harbors Division
Mr. Kelvin H. Sunada, Manager	State of Hawaii Department of Health Environmental Planning Office
Mr. Russell Y. Tsuji, Administrator	State of Hawaii Department of Land and Natural Resources
Ms. Melanie Chinen, Administrator	State of Hawaii Department of Land and Natural Resources, State Historic Preservation Division
Mr. Henry Eng, Director	City and County of Honolulu Department of Planning and Permitting
Mr. Eugene Lee, Director	City and County of Honolulu Department of Design and Construction
Mr. Keith Shida, Principal Executive	Honolulu Board of Water Supply
Mr. Kenneth Silva, Chief	Honolulu Fire Department
Mr. Henry Curtis	Life of the Land

LINDA LINGLE
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERTINAWA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeq@health.state.hi.us

April 18, 2007

Mr. Glenn M. Okimoto, Administrator
Department of Transportation
Harbors Division
79 S. Nimitz Highway
Honolulu, Hawai'i 96813-4898
Attention: Mr. Glenn Abe, Supervising Property Manager

Dear Mr. Okimoto:

Subject: Draft Environmental Assessment (DEA), Imperium Renewables Hawaii LLC, Proposed Biodiesel Facility

Our office has reviewed the DEA for the project noted above. We have the following comments:

Page 3, Section 2.2.1, Construction of Biodiesel Facility, paragraph under Tank Farm: Toxic and volatile substances, such as methanol, sodium methylate and lye (sodium hydroxide), will be involved with the operation of this facility. Please be more specific concerning how design elements of the pre-containment system for storage tanks will comply with the 2003 International Fire Code standard, USEPA solid and hazardous waste monitoring regulations and USEPA Spill Prevention, Control and Countermeasures requirements.

Page 4, Section 2.2.2, Operation of Biodiesel Facility, paragraph 1, lines 6-9:
In view of the fact that this facility will be designed to process multiple feed stocks such as soy, canola and other natural oils we suggest that Imperial Renewables Hawaii LLC develop alternative plans. Proposals should be developed to attract interested local agricultural stakeholders to increase the production of local feedstock. These sources can be used in lieu of palm oil imported from Malaysia. This would act to strengthen the local economy and foster the productive use of agricultural lands formerly planted with sugar and pineapple.

Page 5, Section 2.2.2, Operation of Biodiesel Facility, paragraph 1, lines 2-4 and paragraph 4, lines 7-11:
Please address the potential impacts from pipeline construction to archaeological resources, burials, underground contaminants and transmission lines. Please address these potential impacts along proposed and alternative pipeline alignments for source oil to the proposed facility from Kalaeloa Barbers Point Harbor and for biodiesel fuel from the facility to Campbell Industrial Park. The pipelines are also discussed on page 3, Section 2.2.1 Construction of Biodiesel Facility, paragraph 1, bullet 3; page 6, Section 2.4.1, AES Conveyer Alignment; and page 33, Section 4.14, Unresolved Issues, bullet 1.

Page 12, Section 3.5, Terrestrial Flora and Fauna, paragraph 1:
Please address any other fauna that may be extant in the area or vicinity of the project, such as reptilian or arthropod species.

Page 19, Section 3.12, Visual and Aesthetic Resources, lines 7-9:
Please include a statement that refers to page 31, Section 4.12.1, Visual and Aesthetic Resources Proposed Action, lines 8-11, which clarify the height regulations of the LUO.

Page 23, Section 4.5, Terrestrial Flora and Fauna, 4.5.1 Proposed Action:
Please address potential impacts to any other fauna that may be extant in the area or vicinity of the project; such as reptilian or arthropod species.

Page 29, 4.11.2 Potable Water, 4.11.2.1, Proposed Action, lines 3-7:
Please address the impacts of water demand of this facility at approximately 144,000 gallons per day. Address the cumulative impacts of planned residential, commercial and industrial facilities to the sustainability of the aquifer of the Ewa-Waianae-Waipahu water system and the BWS system in its entirety. Include a brief synopsis of BWS rules and regulations for approval for water usage by new development. Include proposals for Imperium Renewables to offer funding to allow the BWS to increase their water capacity.

Page 31, Section 4.12, Visual and Aesthetic Resources, 4.12.1 Proposed Action, lines 8-11:
Please add a statement such as "see Table 5-1, page 35," which lists the variance required. We also suggest that the potential impacts of these facilities (over the height limits) to existing or planned residential or commercial facilities within the viewshed be addressed despite the exemption.

Page 40, Section 6, Pre-Assessment Consultations, Table 6-1 under City and County Agencies:
Please consult with the office of Councilperson Todd K. Apo, who is the councilperson for the project area.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

for 
Genevieve Salmonson
Director

c: Ms. Adrienne Barnes, Project Management Specialist, Imperium Renewables Hawaii LLC
Mr. Lee W. Sichter, Principal Planner, Belt Collins Hawaii Ltd.



May 22, 2007
2006.33.7200 / 07P-163

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813
Attn: Mr. Jeyan Thirugnanam

Dear Ms. Salmonson:

**Response to State of Hawaii Office of Environmental Quality Control (OEQC)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)**

Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honolulu, Ewa, Oahu. Our responses to your comments are as follows.

Comment 1: Section 2.2.1, Page 3 – General Project Description, Description of Proposed Action, Construction of Biodiesel Facility, paragraph under Tank Farm. Toxic and volatile substances, such as methanol, sodium methylate, and lye (sodium hydroxide), will be involved with the operation of this facility. Please be more specific concerning how design elements of the pre-containment system for storage tanks will comply with the 2003 International Fire Code standard, USEPA solid and hazardous waste monitoring regulations, and USEPA Spill Prevention, Control, and Countermeasures requirements.

Response 1: Text in Section 2.2.1, under Tank Farm, will be added as follows: "IFC 2003, Section 3404.2.9.6.4 Secondary Containment reads, 'Protected above-ground tanks shall be provided with secondary containment, drainage control or diking in accordance with Section 2704.2. A means shall be provided to establish the integrity of the secondary containment in accordance with NFPA 30.' Containment areas are designed per NFPA 30, 4.3.2.3, and meet the requirements of IFC 2003 Section 2704.2. The biodiesel containment area is 128,000 square feet reinforced concrete slab on grade. Containment walls will be reinforced concrete, 4 feet 6 inches high. The area is designed to allow for 3 inches of storm water and 6 inches for safety allowance (14.8 percent of additional volume). The methanol containment area is a 34,600 square feet reinforced concrete slab on grade. Containment walls will be reinforced concrete, 6 feet high. The area is designed to allow for 3 inches of storm water and 6 inches for safety allowance (12.3 percent of additional volume)."

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 • Honolulu, Hawaii 96819-4554 USA
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Ms. Genevieve Salmonson
May 22, 2007
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Page 2

"40 CFR 112.8 defines the USEPA SPCC requirements for Petroleum Oils and Non Petroleum Oils. Bulk storage tanks will be designed and constructed in accordance with American Petroleum Institute (API) 650 and local building code requirements. Containment for storage tanks, process areas and truck loading/unloading areas will be provided by reinforced concrete slabs on grade and reinforced concrete walls. The containment volume will accommodate the largest single storage tank volume, with sufficient freeboard to contain precipitation. The contained areas will be sloped to direct spills and storm water to collection sumps prior to passing through an oil/water separator and disposal in injection wells."

The limited quantities of solid and hazardous waste generated at the site will be stored and disposed of in accordance with state and federal regulations; therefore, the potential for contamination from hazardous waste is extremely low. Solid and/or hazardous waste containers stored on site will be kept in contained areas and visually monitored to ensure that material is not released to the environment.

Comment 2: Page 4, Section 2.2.2 – General Project Description, Description of Proposed Action, Operation of Biodiesel Facility, paragraph 1, lines 6-9. In view of the fact that this facility will be designed to process multiple feed stocks such as soy, canola, and other natural oils, we suggest that Imperium Renewables Hawaii LLC develop alternative plans. Proposals should be developed to attract interested local agricultural stakeholders to increase the production of local feed stock. These sources can be used in lieu of palm oil imported from Malaysia. This would act to strengthen the local economy and foster the productive use of agricultural lands formerly planted with sugar and pineapple.

Response 2: Imperium Hawaii would prefer to use local feedstock for the plant and would like to be a market maker for local agriculture. Ultimately, it will be the economic, social and environmental factors specific to Hawaii that will determine the viability of a particular feedstock. African palm oil, jatropha and algae are under active development for Hawaii, but none are yet feasible. In Washington state where Imperium has a sister plant, they have seen the local feedstock, canola, become viable even before the plant is on line. This has been very well-received by the State of Washington as a positive development. Imperium hopes to have similar success with a local feedstock in Hawaii. Such local feedstock development would be developed by local agriculture rather than Imperium Renewables.

Comment 3: Page 5, Section 2.2.2 – General Project Description, Description of Proposed Action, Operation of Biodiesel Facility, paragraph 1, lines 2-4 and paragraph 4, lines 7-11. Please address the potential impacts from pipeline construction to archaeological resources, burials, underground contaminants, and transmission lines. Please address these potential impacts along proposed and alternative pipeline alignments for source oil to the proposed facility from Kalaeloa Barbers Point Harbor and for biodiesel fuel from the facility to Campbell

Ms. Genevieve Salmonson
May 22, 2007
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Industrial Park. The pipelines are also discussed on page 3, Section 2.2.1, Construction of Biodiesel Facility, paragraph 1, bullet 3; page 6, Section 2.4.1, AES Conveyor Alignment; and page 33, Section 4.14, Unresolved Issues, bullet 1.

Response 3: Potential impacts from pipeline construction to archaeological resources (including burials) is discussed in Chapter 4, Anticipated Impacts to Affected Environment, Section 4.3, Archaeological Resources, and 4.4, Cultural and Historic Resources. The archaeological assessment (included in the Draft EA as Appendix B1) and Cultural Impact Assessment (included in the Draft EA as Appendix B2) conducted for the project revealed that no archaeological or paleontological features, or cultural and historic resources, are present within the project location. This assessment includes the pipeline alignments. In the unlikely event that potentially significant remains are uncovered during construction activities, work in the immediate vicinity of the findings would halt and the State Historic Preservation Division would be contacted.

Potential impacts to underground transmission lines would be avoided by coordination with property owners and owners of existing buried utilities in the vicinity of the proposed alignments to accurately locate buried utility lines. This coordination will be done through review of facility records and/or plans and direct contact with the respective owners. In addition, practices such as conducting non-intrusive subsurface investigation and probing to verify utility line location will be undertaken as appropriate in the area of known or suspected utility lines

The request to address potential impacts to underground contaminants is interpreted to be a request for information on what impacts existing underground contamination may have on public health and safety and the environment during excavation for pipeline construction. A 2006 Phase I Environmental Site Assessment for the project site, which included review of government databases and interviews with pipeline companies, did not reveal evidence of a release from pipelines in the vicinity of the project area, with one entity's records unavailable for review. Because no evidence of underground contaminants has been identified, no impacts to public health and safety or the environment are expected from planned subsurface construction. In the event that evidence of underground contamination is observed during construction, the Department of Health will be contacted, as appropriate.

Comment 4: Page 12, Section 3.5 – Terrestrial Flora and Fauna, paragraph 1. Please address any other fauna that may be extant in the area or vicinity of the project, such as reptilian or arthropod species.

Response 4: There are no native reptiles on Oahu; therefore, surveys specifically looking for reptiles were not conducted. One native invertebrate species, the Blackburn's sphinx moth (*Manduca blackburni*), is listed as endangered by federal and state government. This species is

Ms. Genevieve Salmonson
May 22, 2007
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not believed to currently exist on Oahu, and was not observed during fauna surveys conducted for the EA.

Comment 5: Page 19, Section 3.12 – Visual and Aesthetic Resources, lines 7-9. Please include a statement that refers to page 31, Section 4.12.1, Visual and Aesthetic Resources Proposed Action, lines 8-11, which clarify the height regulations of the LUO.

Response 5: The sentence from Section 4.12.1, "Section 21-4.60(c) of the LUO exempts certain structures, including stacks, from the zoning district height limit of 60 feet." has been added to Section 3.12, and Section 4.12.1 refers to Section 3.12.

Comment 6: Page 23, Section 4.5 – Terrestrial Flora and Fauna, Section 4.5.1, Proposed Action. Please address potential impacts to any other fauna that may be extant in the area or vicinity of the project; such as reptilian or arthropod species.

Response 6: As no threatened or endangered fauna species were identified in the project area, no impacts to those species are anticipated.

Comment 7: Page 29, Section 4.11.2.1 – Potable Water, Proposed Action. Please address the impacts of water demand of this facility at approximately 144,000 gallons per day. Address the cumulative impacts of planned residential, commercial, and industrial facilities to the sustainability of the aquifer of the Ewa-Waianae-Waipahu water system and the BWS system in its entirety. Include a brief synopsis of BWS rules and regulations for approval for water usage by new development. Include proposals for Imperium Renewables to offer funding to allow the BWS to increase their water capacity.

Response 7: Imperium will use non-potable groundwater for the majority of its process needs. Therefore, cumulative impacts to the Ewa-Waianae-Waipahu water system and the BWS system are not anticipated. Approximately 3,600 gallons of potable water per day are expected to be used for domestic and other non-process purposes.

Ms. Genevieve Salmonson
May 22, 2007
2006.33.7200 / 07P-163
Page 5

Comment 8: Page 31, Section 4.12.1 – Visual and Aesthetic Resources, Proposed Action, lines 8-11. Please add a statement such as “see Table 5-1, page 35,” which lists the variance required. We also suggest that the potential impacts of these facilities (over the height limits) to existing or planned residential or commercial facilities within the viewshed be addressed despite the exemption.

Response 8: The reference to Table 5-1 has been added to Section 4.12.1. In addition, the following text has been added to Section 4.12.1: “Impacts to residential communities, such as existing communities at Ko Olina resort or planned communities in the vicinity of the project, would include views of the tanks, stack, and other facilities. These impacts are not expected to be significant, as they are consistent with other the existing views of other industrial facilities in the area.”

Comment 9: Page 40, Section 6, Pre-assessment Consultations, Table 6-1, City and County Agencies. Please consult with the office of Councilperson Todd K. Apo, who is the councilperson listed for the project area.

Response 9: Imperium consulted with Councilmember Apo’s office in November 2006. We have added his name to the list of consulted parties.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

HONOLULU FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN
MAYOR



KENNETH G. SILVA
FIRE CHIEF

ALVIN K. TOMITA
DEPUTY FIRE CHIEF

April 18, 2007

Mr. Lee W. Sichter, Principal Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Sichter:

Subject: Draft Environmental Assessment
Imperium Renewables Hawaii LLC Biodiesel Production Facility
Tax Map Key: 9-1-014: Portion 024, 036, and easements

In response to your letter dated April 6, 2007, regarding the above-mentioned project, the Honolulu Fire Department (HFD) reviewed the material you provided and requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1.)
2. Provide a water supply, approved by the county, capable of supplying required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2, as amended.)

Mr. Lee W. Sichter, Principal Planner
Page 2
April 18, 2007

3. Submit civil drawings to the HFD for review and approval.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 723-7151.

Sincerely,



KENNETH G. SILVA
Fire Chief

KGS/SK:jl

cc: Genevieve Salmonson, Office of Environmental Quality Control
Mark Warner, Imperium Renewables Hawaii LLC



May 22, 2007
2006.33.7200 / 07P-161

Mr. Kenneth G. Silva, Chief
Honolulu Fire Department
City and County of Honolulu
636 South King Street
Honolulu, Hawaii 96813-5007

Dear Mr. Silva:

Response to Honolulu Fire Department (HFD) Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility Draft Environmental Assessment (EA) Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honouliuli, Ewa, Oahu. Our responses to your comments are as follows.

Comment 1: Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from a fire apparatus access road as measured by an approved route around the exterior of the building or facility.

Response 1: Imperium will provide a fire apparatus access road at the facility as described above and by the 1997 Uniform Fire Code, Section 902.2.1).

Comment 2: Provide a water supply, approved by the county, capable of supplying required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county. On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building.

Response 2: The existing system at Kalaeloa Barbers Point Harbor facility will be adequate for fire flow for fire protection, and will be extended into the site, to comply with the 1997 Uniform Fire Code Section 903.2, as amended.

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

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Mr. Kenneth G. Silva
May 22, 2007
2006.33.7200 / 07P-161
Page 2

Comment 3: Submit civil drawings to the HFD for review and approval.

Response 3: Civil drawings will be submitted to HFD for review and approval when they are prepared.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



April 24, 2007

MUFI HANNEMANN, Mayor
RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPIA, SR.
SAMUEL T. HATA
ALLY J. PARK
ROBERT K. CUNDIFF
LAVERNE T. HIGA, Ex-Officio
BARRY FUKUNAGA, Ex-Officio
CLIFFORD P. LUM
Manager and Chief Engineer
DEAN A. NAKANO
Deputy Manager and Chief Engineer

Mr. Lee Sichter, Principal Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Mr. Sichter:

Subject: Your Letter Dated April 6, 2007 Regarding Draft Environmental Assessment for Imperium Renewables Hawaii LLC Biodiesel Production Facility

Thank you for the opportunity to comment on the proposed project.

The existing water system is presently adequate to accommodate the domestic demands of the proposed development, however, the system cannot provide adequate fire protection. Our standards require a fire hydrant to be located within 250 linear feet to the site and a fire flow of 4000 gallons per minute. The developer will be required to install a fire hydrant in the vicinity of the parcel. The construction drawings should be submitted for our review and approval. Please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

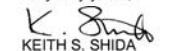
When domestic water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The Developer should look into the feasibility of using non-potable water for the non-domestic requirements of the proposed development. If the use of non-potable water is not feasible, a report on the findings should be submitted to us before we will consider the use of potable water.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun at 748-5443.

Very truly yours,



KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: Barry Usagawa

Water for Life . . . Ka Wai Ola



May 22, 2007
2006.33.7200 / 07P-155

Mr. Keith S. Shida, Principal Executive
Customer Care Division, Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Shida:

**Response to City and County of Honolulu (City) Board of Water Supply (BWS)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honouliuli, Ewa, Oahu. Our responses to the comments by the BWS, provided by letter dated April 24, 2007, and email from Mr. Barry Usagawa, P.E., dated May 8, 2007, below.

Comment 1: The existing water system is presently adequate to accommodate the domestic demands of the proposed development; however, the system cannot provide adequate fire protection. Our standards require a fire hydrant to be located within 250 linear feet to the site and a fire flow of 400 gallons per minute. The developer will be required to install a fire hydrant in the vicinity of the parcel. The construction drawings should be submitted for our review and approval. Please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

Response 1: Imperium understands that the on-site hydrant system pressure is adequate, and will connect to the DOT Harbors Division fire system. Construction drawings will be submitted to BWS for review and approval. We understand that the final decision on water availability will be confirmed when the building permit application is submitted.

Comment 2: When domestic water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and daily storage.

Response 2: Imperium understands that they will be responsible for paying the Water System Facilities Charges.

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Mr. Keith Shida
May 22, 2007
2006.33.7200 / 07P-155
Page 2

Comment 3: The developer should look into the feasibility of using non-potable water for the non-domestic requirements of the proposed development. If the use of non-potable water is not feasible, a report on the findings should be submitted to us before we will consider the use of potable water.

Response 3: Imperium will use non-potable water from brackish groundwater sources for process water.

Comment 4: The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

Response 4: Imperium will coordinate with the Fire Prevention Bureau of the Honolulu Fire Department.

Comment 5: The BWS operates and maintains a reverse osmosis (RO) demineralized water system serving several refineries and power generation facilities in and around the Campbell Industrial Park.

Response 5: Imperium acknowledges that the BWS RO system serves industrial users in and around Campbell Industrial Park.

Comment 6: The facility should provide allowances in the plant's design for the use of RO demineralized recycled water.

Response 6: Imperium intends to design the facility for the use of non-potable groundwater for process water. If process water needs can not be met by use of non-potable groundwater, the use of RO demineralized recycled water will be considered.

Comment 7: The developer should evaluate the feasibility of using demineralized recycled water for the process water requirements of the facility including off-site pipeline improvements before potable water is considered.

Response 7: Imperium intends to use non-potable groundwater for process water. If process water needs can not be met by use of non-potable groundwater, the use of RO demineralized recycled water will be considered.

Mr. Keith Shida
May 22, 2007
2006.33.7200 / 07P-155
Page 3

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management
Mr. Barry Usagawa, P.E., Water Resources Division, Honolulu Board of Water Supply

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 523-4567
Web site: www.honolulu.gov

MURI HANNEMANN
MAYOR



EUGENE C. LEE, P.E.
DIRECTOR

CRAIG I. NISHIMURA, P.E.
DEPUTY DIRECTOR

April 30, 2007

Mr. Lee W. Sichter
Principal Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Sichter:

Subject: Draft Environmental Assessment
Biodiesel Facility at Kalaeloa Barbers Point Harbor
Oahu, Hawaii


Thank you for giving us the opportunity to comment on the above Draft Environmental Assessment.

The Department of Design and Construction has the following comment:

- The proposed facility layout does not show containment and injection well locations.

Should you have any questions, please contact Marvin Char of our Civil Division, at 768-8836.

Very truly yours,



Eugene C. Lee, P.E.
Director

ECL:it (202882)

c: DDC Civil Division



May 22, 2007
2006.33.7200 / 07P-156

Mr. Eugene C. Lee, Director
Department of Design and Construction
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Lee:

**Response to City and County of Honolulu Department of Design and Construction (DDC)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comment on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honouliuli, Ewa, Oahu. Our responses to your comments are as follows.

Comment: The proposed facility layout does not show containment and injection well locations.

Response: Thank you for your comment. The facility design has not yet been finalized, and the facility layout plan that will be submitted to the Department of Planning and Permitting for review will include containment and injection well locations.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

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LINDA LINGLE
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
79 SO. NIMITZ HWY., HONOLULU, HAWAII 96813-4898

BARRY FUKUNAGA
INTERIM DIRECTOR

Deputy Director
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

HAR-PM
4377.07

April 30, 2007

Mr. Lee W. Sichter
Principal Planner
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Sichter:

Subject: Comments from State Department of Transportation, Harbors Division
Draft Environmental Assessment
Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Tax Map Key: 1st Division, 9-1-14: Portion of 24
Kalaeloa Barbers Point Harbor, Honouliuli, Ewa, Island of Oahu

By way of a letter dated April 18, 2007, Ms. Genevieve Salmonson, Director of the State Office of Environmental Quality Control ("OEQC"), expressed concerns over Imperium Renewables Hawaii LLC's ("Imperium") high estimated potable water requirements as stated in the above-captioned Draft Environmental Assessment ("DEA") for the proposed biodiesel facility at Kalaeloa Barbers Point Harbor. The State Harbors Division has additional comments, concerns and issues regarding Imperium's potable water requirements as listed below:

1. Should Imperium be able to connect directly to the 20-inch main on Malakole Road via its own potable water meters for fire and domestic use, they would be solely responsible for all facility charges assessed by the Honolulu Board of Water Supply ("BWS").
2. If Imperium is unable to directly connect to the BWS potable water system and needs to tap into the Kalaeloa Barbers Point Harbor (KBPH) water system, its high estimated water consumption raises concerns. The present water allocation (issued by the State Department of Land and Natural Resources) for KBPH is about 127,000 gallons per day ("gpd") and it is estimated that present use is less than 40,000 gpd. The approximately 144,000 gpd of potable water Imperium estimates it will require results in water consumption at KBPH exceeding the present DLNR water allocation limit. Due to its high water use, if Imperium receives its potable water through the harbor system, we require that Imperium obtain from DLNR an allocation for its estimated water use. We

Mr. Lee W. Sichter
April 30, 2007
Page 2

HAR-PM
4377.07

also require that Imperium analyze the KBPH water distribution system to assure that Imperium's estimated high potable water use does not negatively affect the rest of the system.

3. Since the highest volume of potable water use is projected for process water that will be disposed of via injection wells, Imperium should look into the feasibility of non-potable sources for this use. Brackish caprock water is available in the region. The revised DEA should examine this option.

As part of the DEA review process, please adequately address: (1) Ms. Salmonson's concerns as expressed in her letter of April 18, 2006 (copy enclosed) over Imperium's high estimated potable water requirements; and (2) the foregoing State Harbors Division comments, concerns and issues and follow-up, and incorporate your findings in the revised DEA.

Should you have questions with regard to this matter, please call Mr. Glenn Abe, Supervising Property Manager, at 587-1944.

Very truly yours,



GLENN M. OKIMOTO
Harbors Administrator

Enclosure: Copy of April 18, 2007 letter from Ms. Genevieve Salmonson

c: Ms. Genevieve Salmonson, OEQC Director
Ms. Adrienne Barnes, Project Management Specialist, Imperium Renewables Hawaii LLC

LINDA LINGLE
GOVERNOR OF HAWAII



RS 07-0788

GENEVIEVE SALMONSON
DIRECTOR

'07 APR 20 10:31

HARBORS DIVISION

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

April 18, 2007

Mr. Glenn M. Okimoto, Administrator
Department of Transportation
Harbors Division
79 S. Nimitz Highway
Honolulu, Hawai'i 96813-4898
Attention: Mr. Glenn Abe, Supervising Property Manager

Dear Mr. Okimoto:

Subject: Draft Environmental Assessment (DEA), Imperium Renewables Hawaii LLC, Proposed Biodiesel Facility

Our office has reviewed the DEA for the project noted above. We have the following comments:

Page 3, Section 2.2.1, Construction of Biodiesel Facility, paragraph under Tank Farm: Toxic and volatile substances, such as methanol, sodium methylate and lye (sodium hydroxide), will be involved with the operation of this facility. Please be more specific concerning how design elements of the pre-containment system for storage tanks will comply with the 2003 International Fire Code standard, USEPA solid and hazardous waste monitoring regulations and USEPA Spill Prevention, Control and Countermeasures requirements.

Page 4, Section 2.2.2, Operation of Biodiesel Facility, paragraph 1, lines 6-9:

In view of the fact that this facility will be designed to process multiple feed stocks such as soy, canola and other natural oils we suggest that Imperial Renewables Hawaii LLC develop alternative plans. Proposals should be developed to attract interested local agricultural stakeholders to increase the production of local feedstock. These sources can be used in lieu of palm oil imported from Malaysia. This would act to strengthen the local economy and foster the productive use of agricultural lands formerly planted with sugar and pineapple.

Page 5, Section 2.2.2, Operation of Biodiesel Facility, paragraph 1, lines 2-4 and paragraph 4, lines 7-11:

Please address the potential impacts from pipeline construction to archaeological resources, burials, underground contaminants and transmission lines. Please address these potential impacts along proposed and alternative pipeline alignments for source oil to the proposed facility from Kalaeloa Barbers Point Harbor and for biodiesel fuel from the facility to Campbell Industrial Park. The pipelines are also discussed on page 3, Section 2.2.1 Construction of Biodiesel Facility, paragraph 1, bullet 3; page 6, Section 2.4.1, AES Conveyor Alignment; and page 33, Section 4.14, Unresolved Issues, bullet 1.

R/S 07.0788

Page 12, Section 3.5, Terrestrial Flora and Fauna, paragraph 1:
Please address any other fauna that may be extant in the area or vicinity of the project, such as reptilian or arthropod species.

Page 19, Section 3.12, Visual and Aesthetic Resources, lines 7-9:
Please include a statement that refers to page 31, Section 4.12.1, Visual and Aesthetic Resources Proposed Action, lines 8-11, which clarify the height regulations of the LUO.

Page 23, Section 4.5, Terrestrial Flora and Fauna, 4.5.1 Proposed Action:
Please address potential impacts to any other fauna that may be extant in the area or vicinity of the project; such as reptilian or arthropod species.

Page 29, 4.11.2 Potable Water, 4.11.2.1, Proposed Action, lines 3-7:
Please address the impacts of water demand of this facility at approximately 144,000 gallons per day. Address the cumulative impacts of planned residential, commercial and industrial facilities to the sustainability of the aquifer of the Ewa-Waianae-Waipahu water system and the BWS system in its entirety. Include a brief synopsis of BWS rules and regulations for approval for water usage by new development. Include proposals for Imperium Renewables to offer funding to allow the BWS to increase their water capacity.

Page 31, Section 4.12, Visual and Aesthetic Resources, 4.12.1 Proposed Action, lines 8-11:
Please add a statement such as "see Table 5-1, page 35," which lists the variance required. We also suggest that the potential impacts of these facilities (over the height limits) to existing or planned residential or commercial facilities within the viewshed be addressed despite the exemption.

Page 40, Section 6, Pre-Assessment Consultations, Table 6-1 under City and County Agencies:
Please consult with the office of Councilperson Todd K. Apo, who is the councilperson for the project area.

Should you have any questions, please call Jeyan Thirugnam at 586-4185.

Sincerely,

for 
Genevieve Salmonson
Director

c: Ms. Adrienne Barnes, Project Management Specialist, Imperium Renewables Hawaii LLC
Mr. Lee W. Sichter, Principal Planner, Belt Collins Hawaii Ltd.

HARBORS DIVISION
07 APR 20 10:31



May 22, 2007
2006.33.7200 / 07P-159

Mr. Glenn M. Okimoto, Harbors Administrator
Department of Transportation Harbors Division
State of Hawaii
79 South Nimitz Highway
Honolulu, Hawaii 96813-4898
Attn: Mr. Glenn Abe

Dear Mr. Okimoto:

**Response to State of Hawaii Department of Transportation (DOT) Harbors Division
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeha Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeha Barbers Point Harbor, Honolulu, Ewa, Oahu. Our responses to your comments are as follows.

Honolulu
Guam
Hong Kong
Philippines
Seattle
Singapore
Thailand

Comment 1: Should Imperium be able to connect directly to the 20-inch main on Malakole Road via its own potable water meters for fire and domestic use, they would be solely responsible for all facility charges assessed by the Honolulu Board of Water Supply (BWS).

Response 1: Thank you for your comment. Imperium acknowledges that they will be responsible for charges assessed by BWS for connection to the potable water system.

Comment 2: If Imperium is unable to directly connect to the BWS potable water system and needs to tap into the Kalaeha Barbers Point Harbor (KBPH) water system, its high estimated water consumption raises concerns. The present water allocation (issued by the State Department of Land and Natural Resources) for KBPH is about 127,000 gallons per day (gpd) and it is estimated that its present use is less than 40,000 gpd. The approximately 144,000 gpd of potable water Imperium estimates it will require results in water consumption at KBPH exceeding the present DLNR water allocation limit. Due to its high water use, if Imperium receives its potable water through the harbor system, we require that Imperium obtain from the DLNR an allocation for its estimated water use. We also require that Imperium analyze the KBPH water distribution system to assure that Imperium's estimated high potable water use does not negatively affect the rest of the system.

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Mr. Glenn Okimoto
May 22, 2007
2006.33.7200 / 07P-159
Page 2

Response 2: Imperium will use non-potable groundwater for the majority of its process needs. Potable water will not be used for cooling water or non-domestic uses. Approximately 3,600 gallons of potable water per day are expected to be used for domestic and non-process purposes. Imperium is working with BWS to identify a location for their own water meter prior to development. Imperium does not propose to rely upon DLNR's water allocation for the harbor.

Comment 3: Since the highest volume of potable water use is projected for process water that will be disposed of via injection wells, Imperium should look into the feasibility of non-potable sources for this use. Brackish caprock water is available in the region. The revised DEA should examine this option.

Response 3: Thank you for your comment. Imperium will use non-potable water for process use, and this will be reflected in the Final EA.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 30, 2007

Belt Collins Hawaii, Ltd.
2153 North King Street Suite 200
Honolulu, Hawaii 96819
Attention: Lee Sichter

Office of Environmental Quality Control
235 South Beretania Street Suite 702
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Assessment for Proposed Biodiesel Facility at
Kalaeloa Barbers Point Harbor, Oahu, Tax Map Key: (1) 9-1-14; portion
24, 36 and easements

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.


Sincerely,




Russell Y. Tsuji
Administrator

PETER E. YEUNG
COMMISSIONER
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER FOR WATER RESOURCES MANAGEMENT
ROBERT K. MASUDA
DEPUTY COMMISSIONER
AG ADVISORY BOARD
MANAGEMENT AND ADMINISTRATION
OFFICE OF COUNTY CLERK
HONOLULU WATER RESOURCES MANAGEMENT
CONSTRUCTION, MAINTENANCE, LEASE
CONSTRUCTION AND REPAIRS DIVISION (SHEET
ENGINEERING)
PROPERTY AND VALUATION
OFFICE OF ENGINEERING
LAND
MANAGEMENT AND ADMINISTRATION
LAND
OFFICE

LINDA LINGLE
GOVERNOR OF HAWAII





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

PETER T. YOUNG
CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT
2007-11-01-08

ROBERT K. SUMIMOTO
VICE CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCE MANAGEMENT
COMMISSIONER OF CONSERVATION & COASTAL LANDS
COMMISSIONER OF FORESTRY & WILDLIFE
COMMISSIONER OF STATE PARKS
COMMISSIONER OF PUBLIC WORKS
COMMISSIONER OF COMMUNITY DEVELOPMENT
COMMISSIONER OF ECONOMIC DEVELOPMENT
COMMISSIONER OF HEALTH SERVICES
COMMISSIONER OF HUMAN SERVICES
COMMISSIONER OF LABOR RELATIONS
COMMISSIONER OF NATURAL RESOURCES
COMMISSIONER OF PLANNING
COMMISSIONER OF PUBLIC SAFETY
COMMISSIONER OF TOURISM
COMMISSIONER OF TRANSPORTATION
COMMISSIONER OF UTILITIES
COMMISSIONER OF VETERANS AFFAIRS
COMMISSIONER OF WATER RESOURCES
COMMISSIONER OF WILDLIFE & BIRD RESOURCES
COMMISSIONER OF ZONING

April 9, 2007

MEMORANDUM

TO: **DLNR Agencies:**

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Div. of Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Oahu District

- Keith Chun
- Kevin Atta

FROM: Russell Y. Tsuji

SUBJECT: Draft Environmental Assessment

LOCATION: Kalaeloa Barbers Point Harbor, Oahu, TMK: (1) 9-1-14:portion 24, 36, and easements

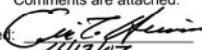
APPLICANT: Belt Collins Hawaii Ltd. of Imperium Renewables Hawaii LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 24, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

We have no objections.
 We have no comments.
 Comments are attached.

Sign: 
Date: 4/13/07

RECEIVED
LAND DIVISION
2007 APR 13 A 9 58
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

**DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION**

**LD/RYT
REF.: DEABIODIESELKALAELOA
Oahu.551**

COMMENTS


- We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone _____.
- Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The National Flood Insurance Program (NFIP) does not have any regulations for developments within Flood Zone D.**
- Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is _____.
- Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

- The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
- Additional Comments : _____
- Other: _____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: 
ERIC T. HIRANO, CHIEF ENGINEER
Date: 4/13/07



May 22, 2007
2006.33.7200 / 07P-157

Mr. Russell Y. Tsuji, Administrator
Department of Land and Natural Resources Land Division
State of Hawaii
Post Office Box 621
Honolulu, Hawaii 96809

Dear Mr. Tsuji:

**Response to State of Hawaii Department of Land and Natural Resources (DLNR)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14; portion of 24, Kalaeloa Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honolulu, Ewa, Oahu. Our response to the comment by the Engineering Division is as follows.

Comment: Please note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The National Flood Insurance Program (NFIP) does not have any regulations for developments within Flood Zone D.

Response: Thank you for your comment regarding the FIRM designation of the project site as Flood Zone D. We understand that this zone includes areas in which flood hazards are undetermined, and the NFIP does not have regulations for development.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

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Hong Kong
Philippines
Seattle
Singapore
Thailand

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 768-8000 • FAX: (808) 527-6743
INTERNET: www.honolulu.gov • DEPT. WEB SITE: www.honolulu.dpp.gov

MUFI HANNEMANN
MAYOR



HENRY ENG, FAICP
DIRECTOR

DAVID K. TANJUE
DEPUTY DIRECTOR

2007/ELOG-977(AM)

May 7, 2007

Mr. Lee Sichter
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819-4554

Dear Mr. Sichter:

Subject: Draft Environmental Assessment (EA)
Biodiesel Facility
Imperium Renewables Hawaii LLC
Kalaeloa Barbers Point Harbor
Tax Map Keys: 9-1-14; por. 24, 36 and easements

The Department of Planning and Permitting (DPP) has reviewed the Draft EA for the above-referenced project received on April 9, 2007, and offer the following comments:

Land Use Approvals Branch (LUAB) comments:

1. Part 1, Project Summary, page 1; Part 2, 2 General Project Description, page 2; and, Figure 1, page 7: Clearly indicate the parcel boundaries associated with the project with the Special Management Area (SMA) boundary line and shoreline superimposed so that specific facilities and/or structures can be identified to be located within the SMA and/or within the shoreline setback area. These facilities and/or structures will be the subject of a SMA Use Permit application and possibly a Shoreline Setback Variance (SV). Provide legal documentation (i.e., subdivision application) of the affected easements. Portions of the pipelines proposed within the easements do not require approval of a SMA Use Permit and/or SV.
2. Section 2.2.1 Construction of Biodiesel Facility, page 3: Expand on and provide estimates on the amount of excavation required to prepare the project site and discuss what type of construction equipment will be utilized. This section should also discuss where and how excess excavated materials will be stored and/or utilized. The Final EA should also indicate what mitigation measures will be undertaken to control and avoid potential soil erosion and near shore and underground water contamination during construction.

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3. Section 3.1 Land Use, page 9: We concur that the biodiesel operation as described in the EA constitutes general manufacturing which is a permitted use in the I-3 Industrial Waterfront District.
4. Section 3.12 Visual and Aesthetic Resources, page 19: Describe the scenic and open space resources in relation to the 1987 Coastal View Study and the Oahu Commercial Harbors 2020 Master Plan. Will the facility be visible from the Ko Olina Marina and Townhouses and other residential communities? If so, what measures (i.e., landscaping, paint color) are planned to be undertaken to "soften" visual impacts?

For questions pertaining to comments 1 through 4, please contact Ann Matsumura of the LUAB at 768-8020.

Community Actions Plans Branch (CAPB) comments:

5. Portions of the AES Barbers Point, Inc. conveyor belt correspond to one of the proposed alignments for the pipeline for the subject project; and, is located in the State Land Use Agricultural District. The conveyor belt was approved under Special Use Permit (SUP) No. 89/SUP-1. Attaching a project pipeline to the conveyor belt structure may require a modification to this SUP. Please contact the CAPB for a determination; and, all relevant portions of the Final EA should reflect the determination.

Any questions pertaining to the SUP should be directed to Ray Young of the CAPB at 768-8049.

Development Plans and Zone Changes Branch (DPCZB) comments:

6. Section 5.1.3, page 34: It is more accurate to note that the Physical Development and Urban Design Objective C Policy 3 of the General Plan encourage "the continuing development of Barbers Point as a major industrial center." The General Plan also includes objectives and policies regarding energy which are supportive of the project (Energy Objective C Policy 2 supports "biomass energy conversion systems," and Energy Objective D is to develop new local energy resources which may be spurred by the possibility of growing vegetable oil crops for sales to the facility).
7. Section 5.1.4, page 34: This section does not completely disclose how the project is consistent with the vision, policies, principles, and guidelines of the Ewa Development Plan (DP). We note that the project is consistent with the Ewa DP Vision for Development of the Secondary Urban Center by developing jobs in heavy industrial areas near Kalaeloa Barbers Point Harbor. In addition, the

Mr. Lee Sichter
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project is consistent with Section 3.7.3 of the Ewa DP relating to policies for Industrial Centers which call for the Barbers Point Industrial Area to continue to grow. However, the Final EA should discuss how the project is consistent with Section 3.7.3.2, Planning Principles, in terms of: 1) appropriate scale; 2) environmental compatibility; and Section 3.7.3.3, Guidelines for the Barbers Point Industrial Area, in terms of: 1) coastal environment; 2) building height and mass; and 3) landscape treatment.

8. Section 4.11.2, Potable Water, page 29: Discuss how the project is consistent with the Ewa DP vision for conservation of potable water resources by development of a dual water distribution system providing both potable and non-potable water (see page 2-17 of the Ewa DP) and with Section 4.2, Water Allocation and System Development policies which call for installation of dual transmission lines "to allow conservation of potable water and use of nonpotable water for irrigation and other appropriate uses." (See page 4-19 of the Ewa DP).

Any questions pertaining to comments 6 through 8 may be directed to Bob Stanfield of the DPCZB at 768-8051.

Thank you for the opportunity to review the above-referenced Draft EA.

Very truly yours,


Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:fm

cc: Office of Environmental Quality Control

doc533785



May 22, 2007
2006.33.7200 / 07P-160

Mr. Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

**Response to City and County of Honolulu Department of Planning and Permitting (DPP)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)**

Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaheo Barbers Point Harbor, Oahu

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaheo Barbers Point Harbor, Honouliuli, Ewa, Oahu. Our responses to your comments are as follows.

Land Use Approvals Branch

Comment 1: Part 1, Project Summary, page 1; Part 2, General Project Description, page 2; Figure 1, page 7. Clearly indicate the parcel boundaries associated with the project with the Special Management Area (SMA) boundary line and shoreline superimposed so that specific facilities and/or structures can be identified to be located within the SMA and/or within the shoreline setback area. These facilities and/or structures will be the subject of a SMA Use Permit application and possibly a Shoreline Setback Variance (SV). Provide legal documentation (i.e., subdivision application) of the affected easements. Portions of the pipelines proposed within the easements do not require approval of a SMA Use Permit and/or SV.

Response 1: Please see the attached figure for the location of the proposed project in relation to the SMA boundary line. The entire parcel on which the project is located (TMK 1-9-1-14: 24) is within the SMA boundary. A SMA Use Permit application will be submitted to the City and County of Honolulu upon DOT Harbors Division's acceptance of the Final EA. While a shoreline certification has not been conducted for this project, the proposed facility is located greater than 1,000 feet from the shoreline as shown on the 1998 U.S. Geological Survey Ewa 7.5-minute Quadrangle topographic map. Therefore, we do not anticipate that a SV will be required for this project.

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Mr. Henry Eng
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Comment 2: Section 2.2.1, Construction of Biodiesel Facility, page 3. Expand on and provide estimates on the amount of excavation required to prepare the project site and discuss what type of construction equipment will be utilized. This section should also discuss where and how excess excavated materials will be stored and/or utilized. The Final EA should also indicate what mitigation measures will be undertaken to avoid potential soil erosion and near shore and underground water contamination during construction.

Response 2: There are currently two stockpiles of excess dredged harbor material, totaling approximately 77,000 cubic yards (c.y.), stored on the property which will be removed prior to site grading and used off-site by other entities. Based on current site design, approximately 6,400 c.y. of material will be excavated for facility construction, while 15,700 c.y. of material will be needed for embankment. Therefore, it is not anticipated that there will be excess excavated material from the site. Heavy construction equipment will include front-load tractors, rollers, backhoes, forklifts, loaders, dozers, dump trucks, water tanks, and other equipment typically necessary for site grading. National Pollutant Discharge Elimination System (NPDES) general permit coverage for discharges of storm water associated with construction activity will be obtained at least 30 days prior to ground disturbance. As part of the NPDES Notice of Intent (NOI), construction Best Management Practices (BMPs) for erosion and sediment control will be developed to prevent potential soil erosion from the site and potential violations of State water quality standards. Potential sources of underground water contamination during construction will likely be limited to petroleum products used in construction equipment. BMPs for fueling and equipment maintenance will also be developed as part of the NPDES NOI. It will be the contractor's responsibility to maintain equipment and clean up leaks and spills from equipment.

Comment 3: Section 3.1, Land Use, page 9. We concur that the biodiesel operation as described in the EA constitutes general manufacturing which is a permitted use in the I-3 Industrial Waterfront District.

Response 3: Thank you for your concurrence on the use of the I-3 Waterfront Industrial District.

Comment 4: Section 3.12, Visual and Aesthetic Resources, page 19. Describe the scenic and open space resources in relation to the 1987 Coastal View Study and the Oahu Commercial Harbors 2020 Master Plan. Will the facility be visible from the Ko Olina Marina and Townhouses and other residential communities? If so, what measures (i.e., landscaping, paint color) are planned to be undertaken to "soften" visual impacts?

Response 4: The following text has been added to Section 3.12, Visual and Aesthetic Resources:

"The 1987 *Coastal View Study* conducted by the City and County of Honolulu Department of Land Utilization states,

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May 22, 2007
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"The Ewa section contains Campbell Industrial Park, Barbers Point Naval Air Station, Ewa Town, the proposed Ewa Marina, and Iroquois Point. The terrain is flat with no significant land forms. While expansive, views from Farrington Highway are very distant and have little visual significance due to an absence of noticeable land forms or other focal points."

The EA prepared as part of the Oahu Commercial Harbors 2020 Master Plan states, "In today's environmentally sensitive society, major construction projects are construed as the perpetrators of harmful, environmental actions. Because the recommendations contained in the 2020 Master Plan have the potential for adverse environmental impacts, a cursory environmental assessment of the 2020 proposals is provided..." While the 2020 Master Plan references the Coastal View Study, stating that it was prepared to identify significant views from within the SMA boundary islandwide, the Master Plan does not specifically discuss scenic and open space resources at the Kalaeloa Barbers Point Harbor.

The facility will be visible from parts of the Ko Olina Resort when looking south from the resort across the harbor toward Campbell Industrial Park. The existing views from the resort toward the proposed facility include harbor facilities, warehouses, large coral stockpiles in the location of the proposed project, cement storage domes, an elevated coal conveyor, petroleum refining facilities, and electrical generating facilities. Existing residential communities farther from the project site, including Honokai Hale, have similar views of the existing industrial area. Proposed residential communities in the area currently include the planned Kapolei West development. As part of the Environmental Impact Statement prepared for that development, the developers have proposed landscape screening along the south and eastern perimeter.

Community Actions Plan Branch

Comment 5: Portions of the AES Barbers Point, Inc. conveyor belt correspond to one of the proposed alignments for the pipeline for the subject project; and, is located in the State Land Use Agricultural District. The conveyor belt was approved under Special Use Permit (SUP) No. 89/SUP-1. Attaching a project pipeline to the conveyor belt structure may require a modification to this SUP. Please contact the CAPB for a determination; and, all relevant portions of the Final EA should reflect the determination.

Response 5: Thank you for the information regarding the SUP for the AES Barbers Point conveyor. If Imperium pursues siting of the pipeline along the AES conveyor alignment, a determination from CAPB whether modification to SUP No. 89/SUP-1 is necessary would be sought.

Development Plans and Zone Changes Branch

Comment 6: Section 5.1.3, page 34. It is more accurate to note that the Physical Development and Urban Design Objective C Policy 3 of the General Plan encourage "the continuing

Mr. Henry Eng
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development of Barbers Point as a major industrial center." The General Plan also includes objectives and policies regarding energy which are supportive of the project (Energy Objective C Policy 2 supports "biomass energy conversion systems," and Energy Objective D is to develop new local energy resources which may be spurred by the possibility of growing vegetable oil crops for sales to the facility).

Response 6: Thank you for your comment regarding the consistency of the project with the City and County of Honolulu General Plan. Language clarifying the consistency with the above referenced policies has been added to Section 5.1.3 of the EA.

Comment 7: Section 5.1.4, page 34; this section does not completely disclose how the project is consistent with the vision, policies, principles, and guidelines of the Ewa Development Plan (DP). We note that the project is consistent with the Ewa DP Vision for Development of the Secondary Urban Center by developing jobs in heavy industrial areas near Kalaeloa Barbers Point Harbor. In addition, the project is consistent with Section 3.7.3 of the Ewa DP relating to policies for Industrial Centers which call for the Barbers Point Industrial Area to continue to grow. However, the Final EA should discuss how the project is consistent with Section 3.7.3.2, Planning Principles, in terms of: 1) appropriate scale; 2) environmental compatibility; and Section 3.7.3.3, Guidelines for the Barbers Point Industrial Area, in terms of: 1) coastal environment; 2) building height and mass; and 3) landscape treatment.

Response 7: Thank you for your concurrence that the project is consistent with the Ewa DP Vision for Development of the Secondary Urban Center and policies for growth of the Barbers Point Industrial Area. Regarding consistency with Section 3.7.3.2, Planning Principles, Appropriate Scale, the following text has been added to Section 5.1.3 of the EA: "Buildings at the Imperium facility will be visible from resort and residential areas; however, the scale of the facility is consistent with that of existing petroleum refineries and electrical generation facilities in the area. To the extent practical, landscaping will be designed with the Development Plan principles in mind." Regarding consistency with Environmental Compatibility, Sections 4.2 (Air Quality), 4.6.3 (Groundwater Resources), 4.6.4 (Surface Water), and 4.10 (Noise) address how the project proposes to minimize impacts on the natural environment that are called out in the DP Section 3.7.3.2, Environmental Compatibility. The facility will be greater than 150 feet from the shoreline.

Regarding consistency with Ewa DP Section 3.7.3.3, Guidelines, Barbers Point Industrial Area, Coastal Environment, the facility will be greater than 150 feet from the coast (shoreline); the facility would not impact access to the shoreline, as the facility is upland of Malakole Road and does not involve modifications to shoreline access. Regarding consistency with Ewa DP Section 3.7.3.3, Guidelines, Barbers Point Industrial Area, Building Height and Mass, the DP states that "Taller, vertical structures [exceeding 60 feet] are acceptable when required as part of an industrial operation, but a viewplane study should be conducted for structures over 100 feet in height to determine if they can be sited or designed to minimize visibility from residential,

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resort, and commercial areas, public rights-of-way and the shoreline.” Structures at the facility are not expected to exceed 100 feet. As stated in Section 4.12.1, the Land Use Ordinance exempts stacks from the zoning district height limit. Because of the need to site the facility near the harbor and the 11-acre lease parcel size, alternative siting options are not provided. Regarding the Landscape Treatment section, as stated above, to the extent practical, landscaping will be designed with the Development Plan principles in mind.

Comment 8: Section 4.11.2, Potable Water, page 29. Discuss how the project is consistent with the Ewa DP vision for conservation of potable water resources by development of a dual water distribution system providing both potable and non-potable water (see page 2-17 of the Ewa DP) and with Section 4.2, Water Allocation and System Development policies which call for installation of dual transmission lines “to allow conservation of potable water and use of nonpotable water for irrigation and other purposes.” (See page 4-19 of the Ewa DP)

Response 8: Imperium will use non-potable water from a brackish groundwater aquifer for biodiesel production process water.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

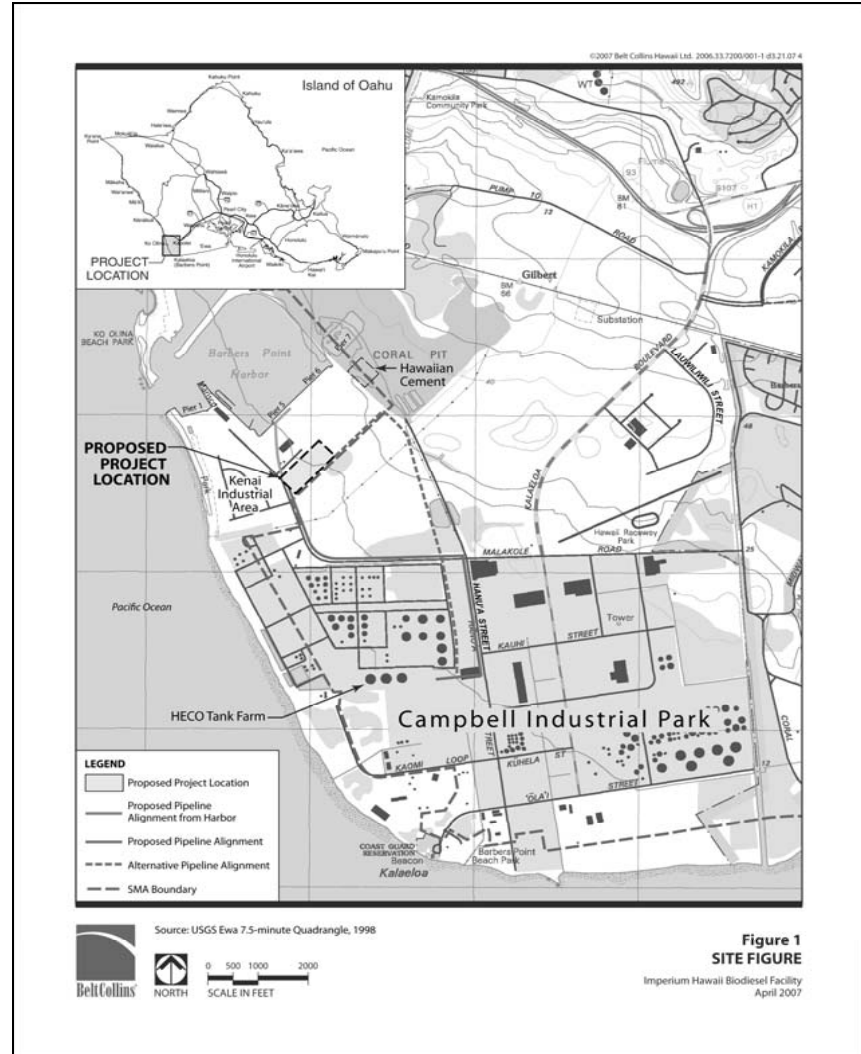
Very truly yours,
 BELT COLLINS HAWAII LTD.



Lee W. Sichter
 Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
 Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
 Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management



LINDA LINGLE
GOVERNOR OF HAWAII



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

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EPO-07-080

May 7, 2007

Mr. Lee Sichter
Belt Collins Hawaii, Ltd.
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

Dear Mr. Sichter:

SUBJECT: Draft Environmental Assessment for Proposed Biodiesel Facility at Kalaeloa
Barbers Point Harbor, Oahu, Hawaii
TMK: (1) 9-1-014: 024 (portion) and 036

Thank you for allowing us to review and comment on the subject documents. The documents were routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch, Safe Drinking Water Branch, Wastewater Branch, Clean Air Branch, Solid and Hazardous Wastewater Branch, and General comments.

Clean Water Branch (CWB)

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

1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Anti-degradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
 - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
 - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

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2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:
 - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(914)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
 - b. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. **An NPDES permit is required before the start of the construction activities.**
 - c. Hydro-testing water.
 - d. Construction dewatering effluent.You must submit a separate NOI form for each type of discharge at least 30 days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 days before the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at: <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.
3. For types of wastewater not listed in Item 2 above or you must obtain an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at: <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>
4. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.
5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply

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with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation

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

Safe Drinking Water Branch

Underground Injection Control (UIC)

1. General Comments:

Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under Hawaii's Administrative Rules, Title 11, Chapter 11-23, titled Underground Injection Control. The Department of Health's approval must be first obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs.

Authorization to use an injection well is granted when a UIC permit is issued to the injection well facility. The UIC permit contains discharge and operating limitations, monitoring and reporting requirements, and other facility management and operational conditions. A UIC permit application form is needed to apply for a UIC permit.

A UIC permit can have a valid duration of up to five years. Permit renewal is needed to keep an expiring permit valid for another term.

2. Specific Comments

The project site is situated mauka (inland) of the UIC line. New industrial wastewater injection wells cannot be constructed mauka of the UIC line.

Questions about UIC may be directed to Chauncey Hew at 586-4258.

Wastewater Branch

1. We have three (3) individual wastewater system (IWSs) records for this parcel. Approvals to construct these facilities were granted in 1994, 2000, and 2005. To date, no final IWS inspection reports have been submitted to the Department. Status of these facilities is requested;

Mr. Sichter
May 7, 2007
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2. Please provide the following information: a) volume of process wastewater; b) sources of wastewater discharges such as boiler blow down, cleaning, & production facilities; and c) list of potential chemicals and other pollutants;
3. The proposed biodiesel manufacturing process appears to result in the generation of wastewater that is typically high in free fatty acids and glycerin. Please provide more details on the ultimate disposal of glycerin and fatty acids; and
4. Process wastewater containing chemicals, oils, and other contaminants need to be pre-treated prior to discharge into the injection wells.

All wastewater plans must meet Department's Rules, HAR Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. If you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Clean Air Branch

Imperium Renewables Hawaii, LLC will be required to obtain an air permit prior to initiating construction and operation of the facility. In order to avoid project delays an air permit application should be submitted as early as possible and include specifications of the equipment and controls, process flow diagrams, emission data, and any required air quality modeling assessments. Depending on the amount of projected emissions and the applicability of any federal air standards, either a noncovered source permit or a covered source permit will be required.

Additionally, a significant potential for fugitive dust emissions exists during all phases of construction and operations. Proposed activities that occur in proximity to existing residences, businesses, public areas or thoroughfares, exacerbate potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. The plan, which does *not* require DOH approval, would help with recognizing and minimizing the dust problems from the proposed project.

Activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance problems.

The contractor should provide adequate measures to control the fugitive dust from the road areas and during the various phases of construction. Examples of measures that can be implemented to control dust include, but are not limited to, the following:

Mr. Sichter
May 7, 2007
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- a) Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
- b) Providing an adequate water source at the site prior to start-up of construction activities;
- c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimizing dust from shoulders and access roads;
- e) Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Controlling dust from debris being hauled away from the project site.

Solid and Hazardous Waste Branch

1. We recommend that the project developer draft a solid waste management plan that encompasses all project phases from site clearance, construction, and through to the occupation/operation of the completed project. Specific examples of elements that the plan should address include:
 - The recycling of greenwaste during clear and grub activities;
 - Recycling construction and demolition wastes, if appropriate;
 - The use of recycled content building materials where possible
2. The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health (Department) permitted solid waste disposal or recycling facility.
3. Solid waste generated by plant operations shall go to a Department permitted solid waste disposal or recycling facility.
4. The Department should be notified when the final use of the glycerin resulting from the production process is determined as we may have comments at that time.

General

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

Mr. Sichter
May 7, 2007
Page 6

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

Sincerely,



KELVIN H. SUNADA, MANAGER
Environmental Planning Office

- c: EPO
EMD
CWB
SDWB
WWB
CAB
SHWB
OEQC, Ms. Genevieve Salmonson



May 22, 2007
2006.33.7200 / 07P-158

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

Attention: Mr. Jiakai Liu

Dear Mr. Sunada:

**Response to State of Hawaii Department of Health (DOH)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comments on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honouliuli, Ewa, Oahu. Our responses to the comments by the DOH Environmental Health Administration Branches are below.

Clean Water Branch (CWB)

Comment 1: Any project and its potential impacts to State waters must meet the following criteria:

- a) Anti-degradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
- b) Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
- c) Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

Response 1: Thank you for the information provided. Construction and operation of Imperium's proposed facility will meet the anti-degradation policy at HAR 11-54-1.1. The receiving State waters are designated Class A marine waters. The project and its potential impacts are consistent with the designated uses of the receiving State waters. We understand that discharges from the project must meet water quality criteria listed in HAR 11-54-4 through 11-54-8.

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Mr. Kelvin Sunada
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Comment 2: You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) Form:

- a) Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
- b) Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
- c) Hydrotesting water
- d) Construction dewatering effluent

Response 2: We understand that an NPDES permit is required for the above listed activities. Imperium will submit an NOI Form C for construction activities at least 30 days prior to the commencement of construction as the project will disturb greater than one acre of land. Imperium will also submit an NOI Form B for discharges of storm water associated with industrial activities.

Regarding permit coverage for discharges of hydrotesting water and construction dewatering effluent; the preliminary site design will include areas within the project site to retain hydrotesting and dewatering effluent. However, if during the design process it is determined that hydrotesting and dewatering effluent can not be contained on the site and allowed to infiltrate, NOI forms for those discharges will be submitted at least 30 days prior to the start of the discharge activity.

Comment 3: For types of wastewater not listed in Item 2 above you must obtain an NPDES individual permit. An application for an NPDES individual permit must be submitted at least 180 days before the commencement of the discharge.

Response 3: Imperium does not anticipate discharges of wastewater not listed above to State waters. Discharge of process wastewater will be to injection wells on the site, for which an Underground Injection Control permit will be obtained prior to discharge. Discharge of sanitary wastewater will be into septic systems on site, for which appropriate approvals and permits will be obtained prior to discharge. In the event that design changes necessitate discharge of wastewater not listed above to State waters, an individual NPDES permit will be obtained at least 180 days prior to commencement of discharge.

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Comment 4: You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.

Response 4: Imperium will submit a copy of the NOI for construction activities to the SHPD, and will inform CWB that SHPD has been sent a copy. Please note that SHPD has also received a copy of the Draft EA for this project.

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

Response 5: We understand that discharges to State waters must comply with the Water Quality Standards and permitting requirements in HAR 11-54 and 11-55. During construction, the use of Best Management Practices, good housekeeping practices, and compliance with NPDES permit conditions will help to prevent water quality violations. During facility operation, compliance with NPDES permit conditions, adherence to the Storm Water Pollution Control Plan, and periodic monitoring will help to prevent water quality violations.

Underground Injection Control (UIC)

Comment 6: Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under HAR 11-23, Underground Injection Control. The Department of Health's approval must first be obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs. Authorization to use an injection well is granted when a UIC permit is issued to the injection well facility. The UIC permit contains discharge and operating limitations, monitoring and reporting requirements, and other facility management and operational considerations. A UIC permit application form is needed to apply for a UIC permit. A UIC permit can have a valid duration of up to five years. Permit renewal is needed to keep an expiring permit valid for another term.

Response 6: No injection well operation will occur without first obtaining a UIC permit. Imperium proposes to construct and operate injection wells for process wastewater discharge and storm water discharge. UIC permit applications will be submitted prior to construction of injection wells.

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Comment 7: The project site is situated mauka (inland) of the UIC line. New industrial wastewater injection wells cannot be constructed mauka of the UIC line.

Response 7: In accordance with HAR 11-23-05 C, injection wells for treated process water disposal will be installed within 150 feet of the UIC line. In accordance with HAR 11-23-05 A, the injection wells for storm water disposal may be installed anywhere within the site, subject to DOH review and approval. Imperium proposes to construct injection wells in accordance with HAR 11-23-05 and subject to DOH staff review.

Wastewater Branch

Comment 8: We have three (3) individual wastewater systems (IWSs) records for this parcel. Approvals to construct these facilities were granted in 1994, 2000, and 2005. To date, no final IWS inspection reports have been submitted to the Department. Status of these facilities is requested.

Response 8: Thank you for providing this information. Imperium will notify the State Department of Transportation (DOT) Harbors Division, the landowner for the parcel of which Imperium is leasing a portion. DOT will be responsible for notifying lessees of the need to provide the status of these facilities. Imperium will file the inspection reports for their IWS with the DOH following its construction.

Comment 9: Please provide the following information: a) volume of process wastewater; b) sources of wastewater discharges such as boiler blow down, cleaning, and production facilities; and c) list of potential chemicals and other pollutants.

Response 9: The volume of process wastewater is expected to be approximately 137 gallons per minute (197,280 gallons per day), the majority of which will be from cooling water. Potential chemicals to be used include the following list. Please note that, although the list contains products from specific manufacturers, Imperium may use other manufacturers of equivalent products.

- Trade name CH2O Incorporated "Callaway 4015 pwg" – Aluminum sulfate-based coagulant, with an anticipated maximum of 55 gallons to be stored on site at a time.
- Trade name CH2O Incorporated "Pretreat Plus 0100" – Information from the MSDS states "proprietary formulation of generally available chemical ingredients. Complying with 29 CFR 1910.1200 (d), each ingredient in this formulation has been reviewed with the 'Guide to Occupational Exposure Values – 2005' published by ACGIH. None of the ingredients have listed occupational exposure values, and can be considered generally safe if handled with due care a mild solution." An anticipated maximum of 55 gallons would be stored on site at a time.

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- Trade name CH2O Incorporated "Filtron KC" – Anionic surfactants, tetrasodium EDTA, trisodium phosphate for pH control, with approximately five gallons to be brought on-site for cleaning at a time.
- Trade name CH2O Incorporated 6321 – Sodium hydroxide solution for use as a tower scale inhibitor. Approximately 165 gallons would be stored on site at a time.
- Trade name CH2O Incorporated Unibrom Plus – Bromine chloride solution for uses as a tower biocide. Approximately 100 gallons would be stored on site at a time.
- Trade name CH2O Incorporated 6262 – Sodium sulfite solution for use as a boiler oxygen scavenger. Approximately 100 gallons would be stored on site at a time.
- Trade name CH2O Incorporated 6656 – A polymer solution used as a boiler polymer dispersant. Approximately 100 gallons would be stored on site at a time.
- Trade name CH2O Incorporated 6382 – A proprietary mixture of cyclohexylamine and morpholine for condensate treatment. Approximately 100 gallons would be stored on site at a time.
- Palm oil – approximately 105 million gallons per year, used in the manufacture of biodiesel.
- Imperium Renewables Biodiesel – approximately 100 million gallons per year would be produced.
- Imperium Renewables glycerin
- Methanol – used in the manufacture of biodiesel.
- Sodium methylate – used in the manufacture of biodiesel.
- Petroleum #2 diesel – potentially blending with biodiesel and auxiliary hot oil burner fuel.
- Antioxidant – blended into biodiesel.
- Trade name United Color Manufacturing BK-50 – Red dye blended into biodiesel for the on-road transportation market.

Comment 10: The proposed biodiesel manufacturing process appears to result in the generation of wastewater that is typically high in free fatty acids and glycerin. Please provide more details on the ultimate disposal of glycerin and fatty acids.

Response 10: Imperium plans to store glycerin generated from the biodiesel production process in a tank on-site prior to sale or use by off-site users. Process wastewater will be treated using an oil-water separator prior to disposal in injection wells.

Comment 11: Process wastewater containing chemicals, oils, and other contaminants need to be pre-treated prior to discharge into the injection wells.

Response 11: Imperium will pre-treat process wastewater using an oil-water separator prior to discharge in injection wells and will ensure all discharged water meets regulatory requirements.

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Clean Air Branch

Comment 12: Imperium Renewables Hawaii LLC will be required to obtain an air permit prior to initiating construction and operation of the facility. In order to avoid project delays an air permit application should be submitted as early as possible and include specifications of the equipment and controls, process flow diagrams, emission data, and any required air quality modeling assessments. Depending on the amount of projected emissions and the applicability of any federal air standards, either a noncovered source permit or a covered source permit will be required.

Response 12: Thank you for your comment on the requirement to obtain an air permit. Imperium has prepared an air permit application which was submitted to the DOH on May 15, 2007.

Comment 13: A significant potential for fugitive dust emissions exists during all phases of construction and operations. Proposed activities that occur in proximity to existing residences, businesses, public areas or thoroughfares, exacerbate potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. The plan, which does not require DOH approval, would help with recognizing and minimizing the dust problems from the proposed project.

Response 13: Thank you for your comment regarding the potential for fugitive dust emissions. During construction activities, the contractor will be responsible for implementing Best Management Practices (BMPs) to control dust on site. During operation, the majority of the site will be paved, covered with buildings, or landscaped. Implementation of the construction BMPs and housekeeping procedures during operation will minimize the potential for fugitive dust emissions.

Comment 14: Activities must comply with the provisions of Hawaii Administrative Rules, Chapter 11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance problems.

Response 14: Thank you for providing the above information regarding regulatory requirements for fugitive dust control. Imperium plans to comply with applicable regulations on fugitive dust. This project is located within the I-3 (Industrial Waterfront) zoning district, and surrounding land uses are industrial. Therefore, buffer zones will not likely be necessary; however, Imperium will implement BMPs to alleviate potential nuisance problems during construction.

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Comment 15: The contractor should provide adequate measures to control the fugitive dust from the road areas and during the various phases of construction. [note: examples of dust control measures included in original comment are not replicated here]

Response 15: The contractor will provide BMPs for fugitive dust control during construction. Roads adjacent to the site are paved, and once construction is complete, project roadways will also be paved.

Solid and Hazardous Waste Branch

Comment 16: We recommend that the project developer draft a solid waste management plan that encompasses all project phases from site clearance, construction, and through to the occupation/operation of the completed project. Specific examples of elements that the plan should address include:

- The recycling of greenwaste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of recycled content building materials where possible

Response 16: Imperium will prepare a solid waste management plan prior to construction, which will address the elements identified above.

Comment 17: The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

Response 17: Imperium will ensure that solid waste generated during construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

Comment 18: Solid waste generated by plant operations shall go to a Department permitted solid waste disposal or recycling facility.

Response 18: Solid waste generated by plant operations will be recycled as much as practical, and the remainder will go to a Department permitted solid waste disposal facility.

Comment 19: The Department should be notified when the final use of the glycerin resulting from the production process is determined as we may have comments at that time.

Response 19: Imperium will inform the DOH Solid and Hazardous Waste Branch of planned uses of the glycerin when uses are identified.

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General

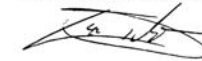
Comment 20: We strongly recommend that you review all of the Standard Comments on our website www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

Response 20: Imperium has reviewed the standard comments on the website you provided above and will adhere to comments specifically applicable to this project.

Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

LIFE OF THE LAND

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May 8, 2007

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re: Imperium Renewables Inc (IRI) Draft Environmental Assessment (DEA) Kalaeloa Harbor Biodiesel Facility.

Introduction

The Harbors Division of the Department of Transportation is seeking public comment on a draft environmental assessment for the proposed construction and operation of a facility to process up to 100 million gallons of biodiesel fuel per year. The project site comprises 11.2 acres of undeveloped land located within the special management area at Kalaeloa Harbor. Approximately 104 million gallons of source oil would be provided to the facility by ship by way of pipelines from Kalaeloa Barbers Point Harbor. The facility would also have the capability to accept oil by intermodal container or truck if available.

The proposed primary source of vegetable oil for biodiesel production would be palm oil imported from Malaysia

The facility would be designed for multiple feed stocks and would be capable of accepting soy, canola, and other natural oils. Ten million gallons of glycerin would be generated as a byproduct in the production process, available to be stored on-site or sold to industrial facilities. The proposed facility would operate 24 hours a day, employing approximately 50 to 60 persons over three eight hour shifts.

Palm oil is the proposed primary oil source, but the facility could accept multiple feed stocks such as soy, canola, and other natural oils.

Definitions

1. Please define clean burning ("biodiesel is a clean-burning, alternative fuel")?
2. How does imperium define "renewable"?

Chemicals

3. What are the environmental impacts associated with using base catalysts?
4. How is methanol made?
5. What are the environmental impacts associated with using methanol?

Glycerin

6. What Hawaii markets exist for glycerin and in what quantities?
7. What are the environmental impacts associated with glycerin?

Feedstock

8. Has Imperium considered using local feedstock, and if so, (a) which crops; (b) grown where; and (c) by whom?
9. What discussions has Imperium had regarding non-palm oil vegetable oil feedstocks?
10. How much palm oil does Imperium currently plan to import for its Pacific Northwest biorefineries?
11. Would Imperium use available US feedstock to support their Washington biorefineries before shipping feedstock to Hawaii?
12. What is the relative wholesale delivered cost to Hawaii for palm oil, canola oil, soy oil?
13. The DEA states that: "IRI has made a strategic decision to take advantage of the benefits offered by sourcing multiple feedstocks from around the globe. With this decision comes risk. Instead of ignoring the second most traded vegetable oil in the world, IRI is committed to exert extensive time and energy to being part of the solution."
Please name all the countries which you might buy feedstock from.

Harbor

14. What changes and/or modifications must be made to the pipelines in the harbors to accommodate biofuels?
15. Which Kalaeloa Barbers Point Harbor pipes would be used?

Electricity

16. What amount of electricity is needed to run the plant?
17. How much electricity is needed for each gallon of biodiesel generated?
18. Has Imperium discussed (a) selling biodiesel to HECO?; if so, (b) what quantities; and (c) for what end use?
19. What is the relative BTUs/gallon for imported palm oil, canola oil, soy oil?

20. Regarding utility use of biodiesel: (a) What talks have been held?; (b) Which utility plants are being considered for biodiesel?; (c) What permits would be needed?; (d) Are Imperium and HECO meeting to discuss a fuel contract?; (e) Who in HECO is the contact person? (Ref: Biodiesel from the proposed facility could be used as a renewable source of fuel for electrical generation plants owned by HECO)

Water

21. How much potable water is needed for each gallon of biodiesel generated?

Sustainability

22. The DEA states that: "The Truth about Palm Oil ... There's been no shortage of concern about the negative impact that palm oil plantations has had on the rainforests of the world, specifically in Malaysia and Indonesia. It is important to note two things related to this. First, the market for palm oil has been strong well before biodiesel and would exist without it."
If sustainable palm oil could not be guaranteed, what feedstock would be used (type, location)?
23. If Imperium uses palm oil which is later found to be non-sustainable, what penalty would Imperium

find acceptable?

24. The DEA states that: "Palm oil has received a disproportionate amount of negative publicity due to its perceived reliance on environmentally unsound practices as the industry expands."
As the palm oil industry expands, has there been significant environmentally unsound practices?

25. The DEA states that: "The need to compete within the energy industry requires usage of the most efficient source of biomass-based oil crops that can be grown on our lands; this is critical to the long term strength and success of both agriculture and energy."

Do you plan to use crops grown in Hawaii?

26. In creating renewable energy, is using biofuels better than ocean thermal energy systems?

27. In creating renewable energy, is using biofuels better than energy efficiency devices?

28. In creating renewable energy, is using biofuels better than wave energy systems?

29. In creating renewable energy, is using biofuels better than wind energy systems?

30. How does food security mesh with using agricultural lands for energy crops?

31. The DEA states that: "While it is acknowledged that there are issues which need to be addressed, it runs deeper than the issues of one specific industry. There are issues surrounding the agricultural practices of all crops including deforestation, sustainable and legal land use, pesticides and fertilizers, monoculture, the list goes on with many various issues."

How does palm oil practices compare to non-palm oil practices with regard to deforestation?

32. How does palm oil practices compare to non-palm oil practices with regard to sustainable land use?

33. How does palm oil practices compare to non-palm oil practices with regard to illegal land use?

34. How does palm oil practices compare to non-palm oil practices with regard to pesticides used?

35. How does palm oil practices compare to non-palm oil practices with regard to fertilizers used?

36. How does palm oil practices compare to non-palm oil practices with regard to monoculture?

37. How does palm oil practices compare to non-palm oil practices with regard to other significant impacts?

38. The DEA states that: "A very tangible example of this is that we make every effort to source palm oil from plantations on peninsular Malaysia and, when not possible, from plantations which have been in existence since 1996 or earlier. This is one way we can assure we do not buy palm oil grown on recently destroyed virgin rainforest. The most severe sustainability issues revolve around the destruction of virgin rainforest found in East Malaysia and Indonesia."

Do any of these pre-1996 palm oil plantations act as middle men between rainforest palm oil and the world market? If not, how do you know this?

39. What fuel is used to grow palm oil to Malaysia? Is biodiesel used in the farm equipment?

40. Would you grow palm oil on land that was a rainforest in 1995?

Subsidies

41. What are the tax credits (state, federal) you will receive or get per gallon of biodiesel created?

People

42. Which people listed in "Table 6-1. Pre-Assessment Consultations" have received financial support, donations, contributions, or are on the payroll of Imperium, and to what extent?

Fossil Fuels

43. Why would Imperium consider using petroleum diesel fuel for its ignition compression engines?

44. What other processes would Imperium consider using non-biodiesel fuels?

Imperium Renewables Inc. (IRI)

45. The DEA states that: "However, being a company founded on sound environmental principles also requires active participation to ensure the establishment of a sustainable and less damaging method to

grow these biomass-based oil crops."

What environmental principles was the company founded on?

46. What specifically does IRI do to get crops using less damaging methods to grow?

47. What is environmentally unsound about the current growing methods?

48. The DEA states that: "IRI's approach to solving these issues is to proactively engage in organizations which can make a difference here and now; organizations which are not just industry mouthpieces or environmentally radical groups which do not give proper weight to the realities of the world we live and refuse to accept the dynamic nature of our society. The RSPO addresses these needs."
Please give a few examples of "environmentally radical groups".

49. Please name each Hawaii based environmental group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

50. Please name each Hawaii based cultural group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

51. Please name each Hawaii based community group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

52. Which Hawaii based groups were to radical to meet with?

53. What do you mean by "realities of the world"?

54. What do you mean by "the dynamic nature of our society"?

55. Are organizations which express concern about RSPO radical?

RSPO

56. The DEA states that: "The RSPO was founded by the World Wildlife Foundation (WWF), the Malaysian Palm Oil Association (MPOA), and a group of major palm oil producers and users including Golden Hope Plantations Berhad and Unilever. The RSPO has the membership and support of a wide variety of industry and NGO groups which give it the knowledge to implement sound practices as well as the "teeth" to enforce these practices and truly make a change in the way palm oil is grown, processed, and used."
Please provide a list of the members of the RSPO.

57. Please provide a list of each of the RSPO's teeth. For each tooth listed, give examples of where RSPO took action against an entity for violating that principle or tooth.

58. For each tooth in which you do not provide an example of an enforcement action, please explain whether this means that (a) there were no violations; or (b) there were violations but no enforcement.

59. The DEA states that: "The questions the RSPO is attempting to address are numerous and extremely complex, but there is an answer and a solution is possible. IRI intends to be a part of that solution. We will continue to use palm oil as a feedstock for biodiesel production and will gladly defend this decision to critics who refuse to look at the true problems facing our world and who instead focus on excluding an extremely versatile and efficient crop for reasons more to do with ignorance and protectionism than reality."
Do all problems automatically have solutions?

60. Is IRI currently part of the solution, or will you be part of the solution once the solution has been determined by RSPO?

61. Are there reasonable solutions to the world's problems that do not involve biofuels?

62. The DEA states that: "IRI has included the following language regarding sustainability in our contracts with our first supplier of palm oil, Cargill: Seller and Buyer recognize that the sustainability of

palm oil production is an important issue in the bio fuels market. Seller is a member of the Roundtable on Sustainable Palm Oil (RSPO) and will be part of the pilot process to test the agreed criteria over the next two years on one of its plantations. Buyer and Seller agree to exchange information about the development of sustainability criteria for palm oil production during the term of the Agreement. Seller agrees to offer Buyer a range of options for sustainable palm oil supply as they become available. Seller will work in good faith to develop the sustainability of palm oil production according to the criteria relevant in the target market of the product."

Does Cargill support sustainable agricultural practices? What is their record of using sustainable biofuels?

63. The DEA states that: "We will continue to require all future suppliers to be full and active participants in the RSPO and ensure they implement the criteria as they are developed and approved by the RSPO. This language provides assurance that our partners, as well as ourselves, will continue to be a part of the solution. Above and beyond the language in the contract, IRI actively works with the Corporate Social Responsibility departments and the Sustainable Practices representative of the companies we contract with to ensure each company is doing everything it can to use sustainable practices in the production of palm oil as well as all oil seed crops."
Are the Corporate Social Responsibility and Sustainable Practices Departments you are referring to existing departments or new departments within multinational agricultural companies?

64. The DEA states that: "The RSPO is developing a formalized system which all palm oil producers can follow; however, many companies are implementing and have implemented sustainable practices well ahead of the RSPO official guidelines. These are the companies with which we do business."
Which companies are well ahead of RSPO? Please provide an example of an international agricultural company you would not deal with?

65. Is RSPO not leading the drive towards sustainable palm oil?

66. Which RSPO practices are lagging other approaches to creating a sustainable palm oil approach. Please be very specific.

Food

67. The DEA states that: "If renewable energy could get even a fraction of the hundreds of billions of dollars that the oil industry has enjoyed, and continues to enjoy, we wouldn't even be talking about food vs. fuel."

If the biofuel industry were to get billions of dollars in subsidies, wouldn't this lead to more food production being converted to biofuel production?

68. Wouldn't this exasperate the food v. fuel conflict?

69. The DEA states that: "In fact, this paper will discuss some of the exciting alternative feedstocks already under development which will make this argument moot. The first thing you need to understand, however, is that the use of today's agri-based feedstocks is both necessary and likely temporary. We begin with some facts. The Truth about Today's Agri-based Feedstocks. The base feedstocks for today's biodiesel are all vegetable oils. They come from a range of seeds, including soybeans, rapeseed, mustard seed, canola seed and palm. What most people don't know is that the oil we use in biodiesel is a byproduct of crushing these seeds. With the exception of palm oil, these seeds are primarily and initially harvested for other uses."
Are oil seeds an economically viable industry WITHOUT selling the oil components?

70. The DEA states that: "The process involves crushing the seed and separating the non-oil components (the "meal") for use in everything from packaged goods to feed for livestock, and the oil, which has traditionally been used in a variety of low-end consumer food products (like salad dressings) and industrial products (like engine lube). Currently, vegetable oil used in the production of biodiesel does not supplant or divert oil used for food. Our industry is simply using the supply of vegetable oil that is a byproduct of the existing market for both meal and oil from these types of feedstock."
Does the palm oil industry put any pressure on food production to shift to biofuel production?

71. The DEA states that: "We are not even using all of the surplus that exists today. Each year, more than 95 million tons of vegetable oil is produced in the world. The biodiesel industry last year consumed 2.3 million tons worldwide, or just 2 percent of our worldwide vegetable oil supply. Even forecasted growth in our industry 10 years out shows us barely exceeding the existing surplus."

(a) If there is sufficient existing excess supply, why do you need government subsidies to support the biofuel industry? (b) Why are new areas being planted if there is an oversupply that will exist for a decade or more?

72. The DEA states that: "In Washington state alone, we have 2.5 million acres that have the potential to support canola or mustard seed crops. Developing these would be enough to provide the oil for our Grays Harbor plant."
How much of Washington State agriculture acreage is growing biofuels for use in the Grays Harbor facility?

73. The DEA states that: "Despite the conjecture of those who oppose the use of these feedstocks to create clean, renewable fuel, we are not taking food out of people's mouths to power our cars. Far from it. We are utilizing existing excess supply of vegetable oil and using it to create environmentally-friendly fuel that will replace current petroleum-based fuel."
How do you define "environmentally-friendly fuel"?

74. What air pollutants are unique to biofuels as opposed to petroleum-based fuels?

75. What air pollutants are common to both biofuels and petroleum-based fuels, but which biofuels produce a greater negative impact?

76. The DEA states that: "Who knows what will be invented in the next 20 years? One thing is for sure - we won't be having this silly food vs. fuel argument."
Why is the food v. fuel argument silly?

Energy Yield

77. The DEA states that: "The Truth about Energy Yield. There has also been much discussion about the energy yield of biodiesel. Naysayers claim that it still takes fuel to make biodiesel - after all, you need fuel to drive the harvesters, crush the seeds and deliver the oil to the production facility. That's true. But that fuel cost is amortized over a number of other uses - remember that the same fuel is used to create meal and other products."

What portion of the fossil fuel used in agriculture should be allocated to biofuels in general and palm oil in particular?

78. The DEA states that: "In addition, carbon that is emitted in the harvesting is then recaptured by the plants the following year (since plants "digest" carbon to as part of the photosynthesis process)."
What portion of the fossil fuel used in agriculture (such as for tractors, irrigation, etc) is not recaptured when plants are re-grown the following year?

79. The DEA states that: "Finally, biodiesel has been shown to have the highest energy yield of commercially available renewable liquid fuels with a whopping increase of 320%."
Please provide a significant list of peer-reviewed government-based scientific studies which analyze the "energy yield"?

80. What are the boundaries used in these studies, that is, are they cradle-to-grave studies or are they limited to part of the life cycle?

81. Which of the peer-reviewed studies show that "energy yields" are significant?

82. Which of the studies also evaluate other environmental impacts?

83. If they exist, please provide a url (web source) for each study cited.

Greenhouse Gas Emissions

84. The DEA states that: "With petroleum fuels, you expend carbon to "harvest" the fuel, and then expend it to burn the fuel -there is no recapturing. DOE, EPA and other government agencies have put forth massive amounts of documentation that shows the life cycle balance of biofuels (and biodiesel specifically) provides a large reduction in greenhouse gases over petroleum, even with the equipment, nitrogen and other petrochemical usage included."

Please provide a significant list of peer-reviewed government-based scientific studies which analyze the "life cycle balance of biofuels"? If they exist, please provide a url (web source) for each study cited.

85. What are the boundaries used in these studies, that is, are they cradle-to-grave studies or are they limited to part of the life cycle?

86. Which of the peer-reviewed studies show that greenhouse gas emissions are reduced? If they exist, please provide a url (web source) for each study cited.

87. Which of the studies also evaluate other environmental impacts? If they exist, please provide a url (web source) for each study cited.

88. Most carbon in the atmosphere came from the soil. Farming practices greatly differ and have very different soil to atmosphere carbon flows. (a) Please provide any studies, documents etc that you have on soil-atmosphere carbon flows for Malaysian palm oil. (b) Do you acknowledge that this is a valid area of concern.

Shipping

89. What fuel is used to ship palm oil to Hawaii?

Labor

90. The DEA states that: "Second, the countries most able to export palm oil are among the most destitute in the world. Palm oil represents an economic boon to them."

How does mono-cropping palm oil instead of supporting small-scale locally-based economic policies represent an economic boom "to them"?

91. Who is the "them"?

92. Would Hawaii be better off if we grew locally based mono-cropped palm oil?

93. The DEA states that: "Social: Cleaner air, new jobs and reduced cost for energy all positively impact communities around the country and the world."

Does this include the safety, adequate working conditions, and pay of employees?

94. Does palm oil promote sound labor practices in Malaysia and Indonesia?

95. Does the concept of Sustainable Palm Oil include sustainable labor practices? If so, please elaborate on the wages, labor conditions, age limits, etc for palm oil plantation employees in Malaysia.

Algae

96. The DEA states that: "Today, algae farms connected to coal plant smokestacks absorb carbon dioxide as it exits the stack. The resulting emissions contain 40% less CO2 (a larger cut than the Kyoto treaty mandates) and 86% less nitrous oxide. Because the algae grow so fast, a single acre can produce up to 15,000 gallons of oil. Compare that to palm oil's 600 gallons per acre and soy's 60 gallons per acre and you can see why algae is the feedstock of the future. But that's not all. A byproduct of the algae can be used as feedstock for ethanol, so out of one smokestack you get the building blocks for two renewable fuels."

What are the positive environmental impacts of using algae to produce biofuel?

97. What are the negative environmental impacts of using algae to produce biofuel?

98. Does Imperium guarantee that algae biofuel will be the dominant biofuel of the future?

99. Does IRI endorse the use of algae for biodiesel?

100. The DEA states that: "What kind of scale are we talking about? Some estimates calculate that just one 1,000 megawatt power plant using this type of system could produce more than 40 million gallons

of biodiesel and 50 million gallons of ethanol a year. And based on the size of a plant and surrounding real estate to host a tank farm, some believe that there are up to 1,000 potential locations."

If the numbers are to be believed, then can't each biofuel refinery grow sufficient algae next-door to its refinery?

101. If this occurs, how will this be an economic boom to Malaysia as a country, and to the palm oil workers in Malaysia?

Economic Externalities

102. The DEA states that: "Washington exports over \$25,000,000 per day in petrodollars. Imagine if we can capture even a small portion and keep it right here in the state."

What percentage of the amount of money that Hawaii exports to buy oil to you plan to capture for Hawaii. Please be specific. How much money does Hawaii export? How much money would Hawaii export under your scenario? How will the flow of profits differ under an petro oil and vege oil scenario?

Certification

103. Who specifically certifies whether palm oil is sustainable?

104. At what place in the production process is it certified?

105. What is certified: the liquid, the container, the work order, etc.?

106. Who does it at the place that it is certified?

107. How is the certified product kept separate from non-certified product?

108. Do any producers produce both certified and non-certified product?

109. Do any producers of certified product trade in non-certified product?

110. Can a producer of certified product purchase and re-sell non-certified product?

111. What is the premium price commanded by certified product as opposed to non-certified product?

112. What is the specific job requirements of certifiers? Please provide documentation.

113. Please provide a copy of the form used for certification.

114. Who handles certification? Is it RSPO, a subsidiary, a contractor, or some other entity do the actual certification?

115. Has any certifier been fired for falsely certifying product?

116. What percentage of the crop evaluated is certified?

117. What percentage of the certified crop was later found to be incorrectly certified?

118. What is the process for verification of certification?

119. What is the process for returning incorrectly certified product?

120. How does IRI guarantee that product is certified?

121. Do you rely on RSPO for all certification analysis, or do you have in-house capabilities?

122. Do you have your own certification or compliance branch?

123. If so, how many people does it employ?

124. How is your verification process done?

125. What is the procedure for disposing or returning product that is not certified?

126. What percentage of certified product has IRI rejected?

127. **RWE npower**, Britain's largest electricity supplier and a member of the RSPO, decided against using sustainable palm oil since the supply could not reasonable be certified sustainable. The Dutch power company **Essent** considered burning sustainable palm but also withdrew because of questions associated with the sustainability of palm oil. Where these reasonable decisions?

Henry Curtis
Executive Director



May 22, 2007
2006.33.7200 / 07P-162

Mr. Henry Curtis, Executive Director
Life of the Land
76 North King Street #203
Honolulu, Hawaii 96817

Dear Mr. Curtis:

**Response to Life of the Land (LOTL) Comments on
Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)**

Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comment on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honolulu, Ewa, Oahu. Our responses to your comments are as follows.

Comment 1: Please define clean burning ("biodiesel is a clean-burning, alternative fuel")?

Response 1: Clean burning fuels are those with less combined emissions than traditional fuels.

Comment 2: How does Imperium define "renewable"?

Response 2: Imperium defines renewable as "capable of being replaced by natural ecological cycles or sound management practices."¹

Comment 3: What are the environmental impacts associated with using base catalysts?

Response 3: Imperium is not aware of significant adverse impacts associated with the use of the base catalyst.

Comment 4: How is methanol made?

Response 4: Imperium will not be making methanol. However, methanol (also known as wood alcohol) is generally produced by using steam to reform natural gas to create a synthesis gas (a combination of carbon monoxide and hydrogen), which is then fed into a reactor vessel in the presence of a catalyst to produce methanol and water vapor.

Comment 5: What are the environmental impacts associated with using methanol?

¹ Merriam Webster Dictionary, <http://mw1.merriam-webster.com/dictionary/renewable>.

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Response 5: The methanol used at Imperium will be used in a closed system; therefore, Imperium is not aware of significant adverse impacts associated with its use.

Comment 6: What Hawaii markets exist for glycerin and in what quantities?

Response 6: With the production of biodiesel increasing in the United States and the world, the supply of glycerin continues to increase. This is reducing the per pound cost of glycerin and has led to significant development efforts to make products from glycerin instead of petroleum. Glycerin is used to make a variety of products from pharmaceutical products to propylene glycol, to epoxy resin raw material, to feed for livestock. It remains to be seen what the primary markets for glycerin will be in Hawaii.

Comment 7: What are the environmental impacts associated with glycerin?

Response 7: Imperium is not aware of any significant adverse impacts associated with the proper management and use of glycerin.

Comment 8: Has Imperium considered using local feedstock, and if so, (a) which crops; (b) grown where; and (c) by whom?

Response 8: Imperium would prefer to use local feedstock for the plant, but is flexible regarding the type of feedstock. The plant has been designed to utilize a wide variety of feedstocks and may be switched from one to another or run on multiple feedstocks simultaneously. Ultimately, it will be the economic, social and environmental factors specific to Hawaii that will determine the viability of a particular feedstock. African palm oil, jatropha and algae are under active development for Hawaii, but none are yet feasible. In Washington state where Imperium has a sister plant, the local feedstock canola has become viable even before the plant is on line. This has been very well-received by the State of Washington as a positive development. Imperium hopes to have similar success with a local feedstock in Hawaii. Such local feedstock development would be developed by local agriculture rather than Imperium Renewables.

Comment 9: What discussions has Imperium had regarding non-palm oil vegetable oil feedstocks?

Response 9: Imperium is not limited to processing only one type of vegetable oil and has utilized soy, canola and palm in the Seattle Biodiesel facility. Other feedstocks are also viable from a production standpoint.

Comment 10: How much palm oil does Imperium currently plan to import for its Pacific Northwest biorefineries?

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Response 10: Imperium Renewables does not plan to import any palm oil for its Grays Harbor facility in 2007. Forward forecasting of oil procurement is proprietary information.

Comment 11: Would Imperium use available US feedstock to support their Washington biorefineries before shipping feedstock to Hawaii?

Response 11: Imperium Renewables will distribute feedstock based on the needs of the individual facilities and the markets for the fuel. The market preference is typically a combination of the following factors: locally grown feedstocks, cost-effective finished product and the performance attributes of the fuel.

Comment 12: What is the relative wholesale delivered cost to Hawaii for palm oil, canola oil, soy oil?

Response 12: The wholesale prices of palm, canola, and soy oil fluctuate based on the market from which they are purchased because they are all commodities.

Comment 13: The DEA states that: "IRI has made a strategic decision to take advantage of the benefits offered by sourcing multiple feedstocks from around the globe. With this decision comes risk. Instead of ignoring the second most traded vegetable oil in the world, IRI is committed to exert extensive time and energy to being part of the solution." Please name all the countries which you might buy feedstock from.

Response 13: Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO). Future forecasting of oil procurement is proprietary.

Comment 14: What changes and/or modifications must be made to the pipelines in the harbors to accommodate biofuels?

Response 14: None. Imperium plans to run new pipelines to the pier to service the facility.

Comment 15: Which Kalaeloa Barbers Point Harbor pipes would be used?

Response 15: None.

Comment 16: What amount of electricity is needed to run the plant?

Response 16: Imperium plans on installing two 2,500 kVa transformers at the site for electrical supply.

Comment 17: How much electricity is needed for each gallon of biodiesel generated?

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Response 17: Electricity consumption varies based upon plant operating rate, but is approximately 0.16 kilowatt hours per gallon of biodiesel.

Comment 18: Has Imperium discussed (a) selling biodiesel to HECO?; If so, (b) what quantities; and (c) for what end use?

Response 18: (a) Yes. (b) Quantities are unknown. (c) The end use is for power production.

Comment 19: What is the relative BTUs/gallon for imported palm oil, canola oil, soy oil?

Response 19: The relative BTUs/gallon for palm, canola, and soy are all roughly similar and between 120,000-130,000.

Comment 20: Regarding utility of biodiesel: (a) What talks have been held?; (b) Which utility plants are being considered for biodiesel?; (c) What permits would be needed?; (d) Are Imperium and HECO meeting to discuss a fuel contract? (e) Who in HECO is the contact person? (ref: Biodiesel from the proposed facility could be used as a renewable source of fuel for electrical generation plants owned by HECO)

Response 20: (a) Imperium has submitted a proposal in response to the RFP issued by HECO to supply its future generating facility. Talks regarding this potential contract are confidential. (b) Biodiesel use by utilities will be determined by the utility. (c) Information on the Imperium facility's permits is contained within the EA. (d) See response (a). (e) The HECO contact person for the RFP is Peter Rosegg.

Comment 21: How much potable water is needed for each gallon of biodiesel generated?

Response 21: Potable water will be used at the facility for domestic use. The facility requires roughly 140,000 gallons per day of cooling water, which will be provided by non-potable brackish groundwater.

Comment 22: The DEA states that: "The Truth about Palm Oil ... There's been no shortage of concern about the negative impact that palm oil plantations has had on the rainforests of the world, specifically in Malaysia and Indonesia. It is important to note two things related to this. First, the market for palm oil has been strong well before biodiesel and would exist without it." If sustainable palm oil could not be guaranteed, what feedstock would be used (type, location)?

Response 22: Imperium will only use sustainably grown feedstock.

Comment 23: If Imperium uses palm oil which is later found to be non-sustainable, what penalty would Imperium find acceptable?

Response 23: Imperium can not answer this hypothetical question.

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Comment 24: The DEA states that: "Palm oil has received a disproportionate amount of negative publicity due to its perceived reliance on environmentally unsound practices as the industry expands." As the palm oil industry expands, has there been significant environmentally unsound practices?

Response 24: Imperium is not familiar with any significant environmentally unsound practices elsewhere. For this plant, Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 25: The DEA states that: "The need to compete within the energy industry requires usage of the most efficient source of biomass-based oil crops that can be grown on our lands; this is critical to the long term strength and success of both agriculture and energy." Do you plan to use crops grown in Hawaii?

Response 25: As discussed above in Question 8, Imperium would like to use local crops as they become available, but realizes that oil crops for biodiesel feedstock in Hawaii have not yet been developed. In the future, as feedstock becomes available in Hawaii, its use will depend upon several factors including but not limited to price, quality, timely availability, and the suppliers' commitment to participation in the RSPO.

Comment 26: In creating renewable energy, is using biofuels better than ocean thermal energy systems?

Response 26: From a general perspective, Imperium supports a diversification of Hawaii's energy portfolio to include all options that are economically, environmentally and socially sound. It is not possible to compare biofuels and ocean thermal energy systems and determine which is "better" "in creating renewable energy."

Comment 27: In creating renewable energy, is using biofuels better than energy efficiency devices?

Response 27: It is not possible to compare biofuels and energy efficiency devices and determine which is "better" "in creating renewable energy."

Comment 28: In creating renewable energy, is using biofuels better than wave energy systems?

Response 28: It is not possible to compare biofuels and wave energy system and determine which is "better" "in creating renewable energy."

Comment 29: In creating renewable energy, is using biofuels better than wind energy systems?

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Response 29: It is not possible to compare biofuels and wind energy systems and determine which is "better" "in creating renewable energy."

Comment 30: How does food security mesh with using agricultural lands for energy crops?

Response 30: As Hawaii looks to a sustainable future, more food will need to be grown locally to meet those goals. Imperium is excited about the future of crops like Jatropha because it grows on marginal land and does not compete for prime agriculture areas used for food crops.

Comment 31: The DEA states that: "While it is acknowledged that there are issues which need to be addressed, it runs deeper than the issues of one specific industry. There are issues surrounding the agricultural practices of all crops including deforestation, sustainable and legal land use, pesticides and fertilizers, monoculture, the list goes on with many various issues." How does palm oil practices compare to non-palm oil practices with regard to deforestation?

Response 31: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 32: How does palm oil practices compare to non-palm oil practices with regard to sustainable land use?

Response 32: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 33: How does palm oil practices compare to non-palm oil practices with regard to illegal land use?

Response 33: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 34: How does palm oil practices compare to non-palm oil practices with regard to pesticides used?

Response 34: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from suppliers in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

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Comment 35: How does palm oil practices compare to non-palm oil practices with regard to fertilizers used?

Response 35: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 36: How does palm oil practices compare to non-palm oil practices with regard to monoculture?

Response 36: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 37: How does palm oil practices compare to non-palm oil practices with regard to other significant impacts?

Response 37: Imperium cannot make comparisons between palm oil practices and non-palm oil practices elsewhere. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 38: The DEA states that: "A very tangible example of this is that we make every effort to source palm oil from plantations on peninsular Malaysia and, when not possible, from plantations which have been in existence since 1996 or earlier. This is one way we can assure we do not buy palm oil grown on recently destroyed virgin rainforest. The most severe sustainability issues revolve around the destruction of virgin rainforest found in East Malaysia and Indonesia." Do any of these pre-1996 palm oil plantations act as middle men between rainforest oil palm and the world market? If not, how do you know this?

Response 38: Imperium does not have information concerning pre-1996 palm oil plantations acting as middle men. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 39: What fuel is used to grow palm oil to Malaysia? Is biodiesel used in the farm equipment?

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Response 39: This question does not concern the Imperium facility or the DEA. Imperium does not have information on this subject and believes that it is beyond the scope of an Environmental Assessment (EA) under HRS Chapter 343 and HAR Chapter 11-200.

Comment 40: Would you grow palm oil on land that was a rain forest in 1995?

Response 40: Imperium is not in the business of growing feedstock.

Comment 41: What are the tax credits (state, federal) you will receive or get per gallon of biodiesel created?

Response 41: For the sale of 100 percent biodiesel (B100), there are no federal tax credits. There is a blender credit of one cent per one percent biodiesel blended into petroleum diesel. Currently the total tax on biodiesel in Hawaii is \$0.388 made up of \$0.078 cents per gallon of county and state tax and 4.7 percent of sales tax. The normal diesel rate is \$0.44.

Comment 42: Which people listed in "Table 6-1. Pre-Assessment Consultations" have received financial support, donations, contributions, or are on the payroll of Imperium, and to what extent?

Response 42: Imperium has made no donations or contributions, provided no financial support, or added any of the people listed on Table 6-1 to the Imperium payroll.

Comment 43: Why would Imperium consider using petroleum diesel fuel for its ignition compression engines?

Response 43: Imperium plans on permitting its facility to the more stringent standards associated with petroleum diesel and references the use of fossil fuels to power our generators and heavy machinery in the DEA; however, Imperium prefers to use biodiesel and will use it as its primary fuel. Petroleum diesel fuel may be used for startup and backup operations.

Comment 44: What other processes would Imperium consider using non-biodiesel fuels?

Response 44: Imperium will use propane in systems that require gaseous ignition including the flare and the boiler.

Comment 45: The DEA states that: "However, being a company founded on sound environmental principles also requires active participation to ensure the establishment of a sustainable and less damaging method to grow these biomass-based oil crops." What environmental principles was the company founded on?

Response 45: The founding environmental principles are energy conservation and the creation of renewable energy sources.

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Comment 46: What specifically does IRI do to get crops using less damaging methods to grow?

Response 46: Imperium is an active member in the RSPO and will only purchase sustainably grown feedstock.

Comment 47: What is environmentally unsound about the current growing methods?

Response 47: Imperium is unclear as to the meaning of “environmentally unsound” in this comment. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 48: The DEA states that: “IRI’s approach to solving these issues is to proactively engage in organizations which can make a difference here and now; organizations which are not just industry mouthpieces or environmentally radical groups which do not give proper weight to the realities of the world we live and refuse to accept the dynamic nature of our society. The RSPO addresses these needs.” Please give a few examples of “environmentally radical groups.”

Response 48: An example of an environmentally radical group would be a group that embraces militancy.

Comment 49: Please name each Hawaii based environmental group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

Response 49: Imperium did not consult with Hawaii based environmental groups prior to the submittal of the Draft EA.

Comment 50: Please name each Hawaii based cultural group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

Response 50: Imperium met with Yiko Chiba at the Office of Hawaiian Affairs on March 19, 2007. There were no issues or concerns raised.

Comment 51: Please name each Hawaii based community group you consulted with prior to submitting your Draft EA to the Department of Transportation. Please provide dates, contacts, concerns raised, and any mitigation approaches the company took for each organization contacted.

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Response 51: Imperium briefed Maeda Timpson (Chair) and the Kapolei Neighborhood Board on February 28, 2007. There were no issues or concerns raised.

Comment 52: Which Hawaii based groups were to radical to meet with?

Response 52: Imperium does not believe there are any environmental groups that are too radical in Hawaii to meet and are open to briefing anyone expressing interest in the project.

Comment 53: What do you mean by “realities of the world”?

Response 53: The reference was in regard to the environmental, societal, political, and economical actuality of the world.

Comment 54: What do you mean by “the dynamic nature of our society”?

Response 54: The reference was in regard to the changing circumstances of developing countries.

Comment 55: Are organizations which express concern about RSPO radical?

Response 55: By our definition, expressing concern about the RSPO does not make an organization radical.

Comment 56: The DEA states that: “The RSPO was founded by the World Wildlife Foundation (WWF), the Malaysian Palm Oil Association (MPOA), and a group of major palm oil producers and users including Golden Hope Plantations Berhad and Unilever. The RSPO has the membership and support of a wide variety of industry and NGO groups which give it the knowledge to implement sound practices as well as the “teeth” to enforce these practices and truly make a change in the way palm oil is grown, processed, and used.” Please provide a list of the members of the RSPO.

Response 56: There are over 200 members of the RSPO. Imperium refers you to the RSPO website. www.rsपो.org.

Comment 57: Please provide a list of each of the RSPO’s teeth. For each tooth listed, give examples of where RSPO took action against an entity for violating that principle or tooth.

Response 57: Imperium refers you to the RSPO website for information concerning its enforcement practices.

Comment 58: For each tooth in which you do not provide an example of an enforcement action, please explain whether this means that (a) there were no violations; or (b) there were violations but no enforcement.

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Response 58: Imperium refers you to the RSPO website for information concerning its enforcement practices.

Comment 59: The DEA states that: "The questions that the RSPO is attempting to address are numerous and extremely complex, but there is an answer and a solution is possible. IRI intends to be part of that solution. We will continue to use palm oil as a feedstock for biodiesel production and will gladly defend this decision to critics who refuse to look at the true problems facing our world and who instead focus on excluding an extremely versatile and efficient crop for reasons more to do with ignorance and protectionism than reality." Do all problems automatically have solutions?

Response 59: No.

Comment 60: Is IRI currently part of the solution, or will you be part of the solution once the solution has been determined by RSPO?

Response 60: Imperium will be a part of the solution. We have joined the RSPO Implementation Committee and plan to work actively to assist the goals of the organization.

Comment 61: Are there reasonable solutions to the world's problems that do not involve biofuels?

Response 61: Imperium believes this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

Comment 62: The DEA states that: "IRI has included the following language regarding sustainability in our contracts with our first supplier of palm oil, Cargill: Seller and Buyer recognize that the sustainability of palm oil production is an important issue in the biofuels market. Seller is a member of the Roundtable on Sustainable Palm Oil ("RSPO") and will be part of the pilot process to test the agreed criteria over the next two years on one of its plantations. Buyer and Seller agree to exchange information about the development of sustainability criteria for palm oil production during the term of the Agreement. Seller agrees to offer Buyer a range of options for sustainable palm oil supply as they become available. Seller will work in good faith to develop the sustainability of palm oil production according to the criteria relevant in the target market of the product." Does Cargill support sustainable agricultural practices? What is their record of using sustainable biofuels?

Response 62: Cargill supports sustainable agricultural practices as evidenced by its commitments in the quoted contract. The question concerning Cargill's use of biofuels does not concern the Imperium facility or the DEA. Imperium believes that this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

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Comment 63: The DEA states that: "We will continue to require all future suppliers to be full and active participants in the RSPO and ensure they implement the criteria as they are developed and approved by the RSPO. This language provides assurance that our partners, as well as ourselves, will continue to be a part of the solution. Above and beyond the language in the contract, IRI actively works with the Corporate Social Responsibility departments and the Sustainable Practices representatives of the companies we contract with to ensure each company is doing everything it can to use sustainable practices in the production of palm oil as well as all oil seed crops." Are the Corporate Social Responsibility and Sustainable Practices Departments you are referring to existing departments or new departments within multinational agricultural companies?

Response 63: Imperium cannot speculate as to whether the departments we work with are new; all are existing.

Comment 64: The DEA states that: "The RSPO is developing a formalized system which all palm oil producers can follow; however, many companies are implementing and have implemented sustainable practices well ahead of the RSPO official guidelines. These are the companies with which we do business." Which companies are well ahead of the RSPO? Please provide an example of an international agricultural company you would not deal with.

Response 64: Imperium is committed to working with companies who are members of the RSPO. As noted above, the RSPO has many members, and Imperium does not know which members are ahead of RSPO. For this plant, Imperium will buy feedstock from supplies in countries that are committed to sustainable farming and/or members of the Roundtable on Sustainable Palm Oil (RSPO).

Comment 65: Is RSPO not leading the drive toward sustainable palm oil?

Response 65: The RSPO is leading the drive towards sustainable palm.

Comment 66: Which RSPO practices are lagging other approaches to creating a sustainable palm oil approach. Please be very specific.

Response 66: Imperium believes that this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

Comment 67: The DEA states that: "If renewable could get even a fraction of the hundreds of billions of dollars that the oil industry has enjoyed, and continues to enjoy, we wouldn't even be talking about food vs. fuel." If the biofuel industry were to get billions of dollars in subsidies, wouldn't this lead to more food production being converted to biofuel production?

Response 67: Imperium does not believe so.

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Comment 68: Wouldn't this exasperate the food v. fuel conflict?

Response 68: Imperium does not profess to be the expert in international policy matters but we do believe that bioenergy presents more positive opportunities for the world's poor than negative. We agree with the recent statements to the press by the UN's Assistant Director-General for the Sustainable Development Department of the Food and Agricultural Organization (FAO), Alexander Muller on this topic:

"Regarding the issue of food security, he noted that the availability of adequate food supplies could be threatened by biofuel production to the extent that land, water and other productive resources were diverted away from food production. The dangers, however, needed to be seen in light of the enormous benefits presented by bioenergy. Modern bioenergy could make energy services more widely and cheaply available in remote rural areas, supporting productivity growth in agriculture or other sectors with positive implications for food availability and access. To some extent, the report showed how food security risks were the mirror image of opportunities." (press release available at http://www.un.org/News/briefings/docs/2007/070508_Energy.doc.htm)

Comment 69: The DEA states that: "In fact, this paper will discuss some of the exciting alternative feedstocks already under development which will make this argument moot. The first thing you need to understand, however, is that the use of today's agri-based feedstocks is both necessary and likely temporary. We begin with some facts. The Truth about Today's Agri-based Feedstocks. The base feedstocks for today's biodiesel are all vegetable oils. They come from a range of seeds, including soybeans, rapeseed, mustard seed, canola seed and palm. What most people don't know is that the oil we use in biodiesel is a byproduct of crushing these seeds. With the exception of palm oil, these seeds are primarily and initially harvested for other uses." Are oil seeds an economically viable industry WITHOUT selling the oil components?

Response 69: Yes.

Comment 70: The DEA states that: "The process involves crushing the seeds and separating the non-oil components (the "meal") for use in everything from packaged goods to feed for livestock, and the oil, which has traditionally been used in a variety of low-end consumer food products (like salad dressing) and industrial products (like engine lube). Currently, vegetable oil used in the production of biodiesel does not supplant or divert oil used for food. Our industry is simply using the supply of vegetable oil that is a byproduct of the existing market for both meal and oil from these types of feedstock." Does the palm oil industry put any pressure on food production to shift to biofuel production?

Response 70: Imperium does not believe so. Generally the kernel of the palm plant is used for food products and the flesh of the fruit is used for fuel.

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Comment 71: The DEA states that: "We are not even using all of the surplus that exists today. Each year, more than 95 million tons of vegetable oil is produced in the world. The biodiesel industry last year consumed 2.3 million tons worldwide, or just 2 percent of our worldwide vegetable oil supply. Even forecasted growth in our industry 10 years out shows us barely exceeding the existing surplus." (a) If there is sufficient existing excess supply, why do you need government subsidies to support the biofuel industry? (b) Why are new areas being planted if there is an oversupply that will exist for a decade or more?

Response 71: Government subsidies are used as incentives to encourage the growth of the biofuel industry. New areas are being planted because the biofuels industry is a growing market.

Comment 72: The DEA states that: "In Washington state alone, we have 2.5 million acres that have the potential to support canola and mustard seed crops. Developing these would be enough to provide the oil for our Grays Harbor plant." How much of Washington State agricultural acreage is growing biofuels for use in the Grays Harbor facility?

Response 72: The acreage of Washington agriculture going to the Grays Harbor facility has not yet been determined.

Comment 73: The DEA states that: "Despite the conjecture of those who oppose the use of these feedstocks to create clean, renewable fuel, we are not taking food out of people's mouths to power our cars. Far from it. We are utilizing existing excess supply of vegetable oil and using it to create environmentally-friendly fuel that will replace current petroleum-based fuel." How do you define "environmentally-friendly fuel"?

Response 73: Biodiesel that is processed using sustainable feedstock is an environmentally friendly fuel because the feedstock is a renewable resource, the feedstock absorbs carbon dioxide as it is growing, and biodiesel produces substantially less total emissions than petroleum diesel.

Comment 74: What air pollutants are unique to biofuels as opposed to petroleum-based fuels?

Response 74: None, but the burning of petroleum diesel emits a wide range of toxic air contaminants not present in biodiesel emissions.

Comment 75: What air pollutants are common to both biofuels and petroleum-based fuels, but which biofuels produce a greater negative impact?

Response 75: Both petroleum diesel and biodiesel have the following emissions, the number in parentheses represents the reduction of the emission for B100 compared to petroleum diesel: total unburned hydrocarbon (-67 percent), particulate matter (-47 percent), polycyclic aromatic hydrocarbon (PAH) (-80 percent), nitrated PAH (-90 percent). Please note: biodiesel has no

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sulfates. Nitrogen oxide (NOx) may have a slightly higher emission in biodiesel than in petroleum diesel, but this is dependent on the engine.

Comment 76: The DEA states that: "Who knows what will be invented in the next 20 years? One thing is for sure – we won't be having this silly food vs. fuel argument." Why is the food v. fuel argument silly?

Response 76: The thinking behind the statement that the food versus fuel issue is a silly argument was that the appropriate use of bioenergy will actually expand rather than decrease the availability of food to the world's population. However, Imperium Renewables recognizes that there are legitimate concerns regarding the impact of bioenergy on food and agrees that the use of "silly" was unfortunate in the context. Imperium apologizes to anyone who interpreted this as a minimization of this issue.

Comment 77: The DEA states that: "The Truth about Energy Yield. There has also been much discussion about the energy yield of biodiesel. Naysayers claim that it still takes fuel to make biodiesel – after all, you need fuel to drive the harvesters, crush the seeds and deliver the oil to the production facility. That's true. But that fuel cost is amortized over a number of other uses – remember that the same fuel is used to create meal and other products." What portion of the fossil fuel used in agriculture should be allocated to biofuels in general and palm oil in particular?

Response 77: Imperium would like to see all petroleum diesel used in agriculture allocated to biodiesel. Imperium cannot speculate as to what allocation would/should include sustainable palm oil.

Comment 78: The DEA states that: "In addition, carbon that is emitted in the harvesting is then recaptured by the plants the following year (since plants "digest" carbon to as part of the photosynthesis process)." What portion of the fossil fuel used in agriculture (such as for tractors, irrigation, etc) is not recaptured when plants are grown the following year?

Response 78: It is unknown which portion of fossil fuels used in agriculture are reabsorbed.

Comment 79: The DEA states that: "Finally, biodiesel has been shown to have the highest energy yield of commercially available renewable liquid fuels with a whopping increase of 320%." Please provide a significant list of peer-reviewed government-based scientific studies which analyze the "energy yield"?

Response 79: The definitive report on this issue is A Joint Study Sponsored by: U.S. Department of Agriculture and U.S. Department of Energy, NREL/TP-580-24772; May 1998 ; biodiesel, life cycle inventory, petroleum diesel. An Overview of Biodiesel and Petroleum Diesel Life Cycles. To our knowledge, the findings of this report have never been challenged in a credible manner.

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Comment 80: What are the boundaries used in these studies, that is, are they cradle-to-grave studies or are they limited to part of the life cycle?

Response 80: We would refer you to the report cited in the response to Comment 79 for the response to this question.

Comment 81: Which of the peer-reviewed studies show that "energy yields" are significant?

Response 81: We would refer you to the report cited in the response to Comment 79 for the response to this question.

Comment 82: Which of the studies also evaluate other environmental impacts?

Response 82: Biodiesel is the only fuel in our knowledge to have completed both Tier 1 testing regarding speciated emissions and Tier 2 testing regarding health effects with remarkably positive and benign results. We would recommend a thorough review of these documents to understand the environmental benefits of switching from petroleum diesel to biodiesel. The following Power Point available on the EPA website illustrates the dramatic reductions in toxins: <http://www.epa.gov/air/caaac/mstrs/howellpart1.pdf>

The following Power Point available on the EPA website illustrates the relatively benign nature of biodiesel emissions in terms of health effects:
<http://www.epa.gov/air/caaac/mstrs/howellpart2.pdf>

Comment 83: If they exist, please provide a url (web source) for each study cited.

Response 83: The URL for the study is :
www.biodiesel.org/resources/reportsdatabase/reports/gen/19980501-gen-203.pdf.

Comment 84: The DEA states that: "With petroleum fuels, you expend carbon to "harvest" the fuel, and then expend it to burn the fuel – there is no recapturing. DOE, EPA and other government agencies have put forth massive amounts of documentation that shows the life cycle balance of biofuels (and biodiesel specifically) provides a large reduction in greenhouse gases over petroleum, even with the equipment, nitrogen and other petrochemical uses included." Please provide a significant list of peer-reviewed government-based scientific studies which analyze the "life cycle balance of biofuels"? If they exist, please provide a url (web source) for each study cited.

Response 84: Please see 79 and 83 above

Comment 85: What are the boundaries used in these studies, that is, are they cradle-to-grave studies or are they limited to part of the life cycle?

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Response 85: Please see the above-referenced report itself.

Comment 86: Which of the peer-reviewed studies show that greenhouse gas emissions are reduced? If they exist, please provide a url (web source) for each study cited.

Response 86: The reductions cited are not tailpipe emission reductions; they are life cycle emissions attributable to the renewable nature of the fuel. The key distinction is between extracting trapped carbon from oil reserves and releasing it into the atmosphere to remain there versus converting crops into bioenergy that take up carbon dioxide in photosynthesis, thereby creating a relatively closed loop. Please see the response to Comment 79 for the url.

Comment 87: Which of the studies also evaluate other environmental impacts? If they exist, please provide a url (web source) for each study cited.

Response 87: Imperium is not aware of studies that meet this request.

Comment 88: Most carbon in the atmosphere came from the soil. Farming practices greatly differ and have very different soil to atmosphere carbon flows. (a) Please provide any studies, documents etc that you have on soil-atmosphere carbon flows for Malaysian palm oil. (b) Do you acknowledge that this is a valid area of concern.

Response 88: Imperium acknowledges that sustainable farming practices are a valid issue, and is not aware of studies that meet this request.

Comment 89: What fuel is used to ship palm oil to Hawaii?

Response 89: Currently feedstock is shipped to Hawaii using marine diesel or bunker C oil. Imperium anticipates providing the marine sector with biodiesel.

Comment 90: The DEA states that: "Second, the countries most able to export palm oil are among the most destitute in the world. Palm oil represents an economic boon to them." How does monocropping palm oil instead of supporting small-scale locally-based economic policies represent an economic boon "to them"?

Response 90: Imperium believes that monocropping as well as small-scale locally-based agriculture represent economic opportunities.

Comment 91: Who is the "them"?

Response 91: The reference to "them" is in regards to the countries of Malaysia and Indonesia.

Comment 92: Would Hawaii be better off if we grew locally based mono-cropped palm oil?

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Response 92: Imperium supports the activities of Hawaii's 2050 Sustainability Task Force in their efforts to move the state toward full sustainability. Imperium would not profess to be adequately informed to answer questions such as this one without larger community involvement.

Comment 93: The DEA states that: "Social: Cleaner air, new jobs and reduced cost for energy all positively impact communities around the country and the world." Does this include the safety, adequate working conditions, and pay of employees?

Response 93: Imperium is dedicated to the safety, training, positive work conditions and pay of its employees.

Comment 94: Does palm oil promote sound labor practices in Malaysia and Indonesia?

Response 94: Imperium believes that this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

Comment 95: Does the concept of Sustainable Palm Oil include sustainable labor practices? If so, please elaborate on the wages, labor conditions, age limits, etc for palm oil plantation employees in Malaysia.

Response 95: Imperium believes that this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

Comment 96: The DEA states that: "Today, algae farms connected to coal plant smokestacks absorb carbon dioxide as it exits the stack. The resulting emissions contain 40% less CO2 (a larger cut than the Kyoto treaty mandates) and 86% less nitrous oxide. Because the algae grow so fast, a single acre can produce up to 15,000 gallons of oil. Compare that to palm oil's 600 gallons per acre and soy's 60 gallons per acre and you can see why algae is the feedstock of the future. But that's not all. A byproduct of the algae can be used as feedstock for ethanol, so out of one smokestack, you get the building blocks for two renewable fuels." What are the positive environmental impacts of using algae to produce biofuel?

Response 96: The supplemental positive environmental impacts of using algae at power plants are the active reductions of carbon dioxide and NOx from the atmosphere when algae farms are collocated with energy plant stacks.

Comment 97: What are the negative environmental impacts of using algae to produce biodiesel fuel?

Response 97: Imperium is not aware of negative environmental impacts of using algae.

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Comment 98: Does Imperium guarantee that algae biofuel will be the dominant biofuel of the future?

Response 98: Imperium cannot speculate as to whether algae will be the dominant feedstock of the future.

Comment 99: Does IRI endorse the use of algae for biodiesel?

Response 99: Yes, Imperium endorses the use of algae for biodiesel.

Comment 100: The DEA states that: "What kind of scale are we talking about? Some estimates calculate that just one 1,000 megawatt power plant using this type of system could produce more than 40 million gallons of biodiesel and 50 million gallons of ethanol a year. And based on the size of a plant and surrounding real estate to host a tank farm, some believe that there are up to 1,000 potential locations." If the numbers are to be believed, then can't each biofuel refinery grow sufficient algae next-door to its refinery?

Response 100: No. The statement references power generating facilities, not biodiesel production facilities.

Comment 101: If this occurs, how will this be an economic boon to Malaysia as a country, and to the palm oil workers in Malaysia?

Response 101: Imperium believes that this question is beyond the scope of an EA under HRS Chapter 343 and HAR Chapter 11-200.

Comment 102: The DEA states that: "Washington exports over \$25,000,000 per day in petrodollars. Imagine if we can capture even a small portion and keep it right here in the state." What percentage of the amount of money that Hawaii exports to buy oil to you plan to capture for Hawaii. Please be specific. How much money does Hawaii export? How much money would Hawaii export under your scenario? How will the flow of profits differ under a petro oil and vege oil scenario?

Response 102: Imperium will ease Hawaii's dependence on foreign petroleum diesel. The exact amount of money that Hawaii exports for petroleum diesel is unknown; however, Hawaii imports 90% of all of its energy needs. Imperium will provide a small percentage of that need. The exact profits are unknown at this time.

Comment 103: Who specifically certifies whether palm oil is sustainable?

Response 103: The process of certifying sustainable palm oil is still being determined by the RSPO. Until they have finalized the certification, Imperium will only buy palm oil from members of the RSPO, which represent the plantations' commitment to sustainable palm.

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Comment 104: At what place in the production process is it certified?

Response 104: The plantation is certified as having sustainable practices.

Comment 105: What is certified: the liquid, the container, the work order, etc.?

Response 105: The plantation is certified as having sustainable practices.

Comment 106: Who does it at the place that it is certified?

Response 106: Certification of sustainable practices is still pending by the RSPO. A possible certification process could include an internal program that a plantation would implement and follow and the certification would occur by a third party certification or quality control companies in order to ensure compliance to the program.

Comment 107: How is the certified product kept separate from non-certified product?

Response 107: The question of keeping certified feedstock from non-certified feedstock would be a matter of careful documentation.

Comment 108: Do any producers produce both certified and non-certified product?

Response 108: The answer to the question is unknown.

Comment 109: Do any producers of certified product trade in non-certified product?

Response 109: The answer to the question is unknown.

Comment 110: Can a producer of certified product purchase and re-sell non-certified product?

Response 110: This is a realistic concern and one that must be addressed in the certification process.

Comment 111: What is the premium price commanded by certified product as opposed to non-certified product?

Response 111: The premium on sustainable feedstock versus non-sustainable feedstock has not yet been established in the market.

Comment 112: What is the specific job requirements of certifiers? Please provide documentation.

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Response 112: As discussed in question 106, the certification process is still pending by the RSPO; however, a third party such as SGS Group would be used. A company such as SGS Group has very strict guidelines for certification as it is their credibility that ensures their business. Please refer to the SGS website for specific information about the company. www.sgs.com.

Comment 113: Please provide a copy of the form used for certification.

Response 113: A specific form for certification does not currently exist.

Comment 114: Who handles certification? Is it RSPO, a subsidiary, a contractor, or some other entity do the actual certification?

Response 114: Ultimately the RSPO will handle the certification process.

Comment 115: Has any certifier been fired for falsely certifying product?

Response 115: The answer to this question is unknown.

Comment 116: What percentage of the crop evaluated is certified?

Response 116: Certification by the RSPO is still pending, but the entire crop would be certified.

Comment 117: What percentage of the certified crop was later found to be incorrectly certified?

Response 117: The answer to this question is unknown.

Comment 118: What is the process for verification of certification?

Response 118: The certification process by the RSPO is still pending.

Comment 119: What is the process for returning incorrectly certified product?

Response 119: As the certification process has not been established, this is premature.

Comment 120: How does IRI guarantee that product is certified?

Response 120: Until the RSPO resolves the certification process, Imperium guarantees that a product is sustainably grown by only working with plantations that are members of the RSPO that are known to have sustainable practices.

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Comment 121: Do you rely on RSPO for all certification analysis, or do you have in-house capabilities?

Response 121: Ultimately Imperium will rely on the RSPO to certify sustainably grown palm.

Comment 122: Do you have your own certification or compliance branch?

Response 122: No.

Comment 123: If so, how many people does it employ?

Response 123: Not applicable.

Comment 124: How is your verification process done?

Response 124: Imperium will rely on RSPO for verification.

Comment 125: What is the procedure for disposing or returning product that is not certified?

Response 125: Please see the response to 119 above.

Comment 126: What percentage of certified product has IRI rejected?

Response 126: Please see question 119 in response to this question.

Comment 127: RWE npower, Britain's largest electricity supplier and a member of the RSPO, decided against using sustainable palm oil since the supply could not reasonable be certified sustainable. The Dutch power company Essent considered burning sustainable palm but also withdrew because of questions associated with the sustainability of palm oil. Where these reasonable decisions?

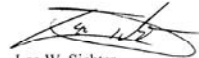
Response 127: They appear to be reasonable decisions.

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Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.



Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

May 18, 2007

Mr. Lee W. Sichter
Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200
Honolulu, Hawai'i 96819-4554

LOG NO: 2007.1427
DOC NO: 0705amj15
Archaeology

Dear Mr. Sichter:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
DEA for Proposed Biodiesel Facility at Kalaheo Barbers Point Harbor
Honouliuli Ahupua'a, Ewa District, Island of O'ahu
TMK: (1) 9-1-014: 024 (portion), 036, and easements**

Thank you for the opportunity to review the aforementioned document, which we received on April 9, 2007. According to the DEA, the proposed project (for which an archaeological assessment and a cultural impact assessment was conducted by Pacific Legacy, Inc.) consists of the construction and operation of a facility to process up to 100 million gallons of bio-diesel fuel per year.

Your characterization of the conclusions of the archaeological assessment for this project (pp.22-23) is incomplete and does not convey important information from the study by Pacific Legacy, Inc. (Cleghorn and Mooney 2007), which states:

If pipelines are placed in the alternative alignments, it is recommended that archaeological monitoring be conducted while excavating the pipeline trenches. If sinkholes are encountered during trench excavation they should be excavated and the deposits sampled.

We concur with these observations, and request they be included in the final EA. We further request that our office be notified as soon as possible should *any* subterranean sinkholes be exposed during any aspect of this project, as they may need to be assessed for historic significance.

Please contact SHPD at (808) 692-8015 if you have any concerns regarding this letter.

Aloha,



Melanie Chinen, Administrator
State Historic Preservation Division

AMJ:rtj



May 22, 2007
2006.33.7200 / 07P-164

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

Dear Ms. Chinen:

**Response to State Historic Preservation Division (SHPD)
Comments on Imperium Renewables Hawaii LLC Proposed Biodiesel Facility
Draft Environmental Assessment (EA)
Tax Map Key (TMK) 1-9-1-14: portion of 24, Kalaeloa Barbers Point Harbor, Oahu**

On behalf of our client, Imperium Renewables Hawaii LLC (Imperium), thank you for your review of and comment on the Draft EA for Imperium's proposed biodiesel facility at Kalaeloa Barbers Point Harbor, Honolulu, Ewa, Oahu. Our responses to your comment is as follows.

Comment: Your characterization of the conclusions of the archaeological assessment for this project (pp. 22-23) is incomplete and does not convey important information from the study by Pacific Legacy, Inc. (Cleghorn and Mooney 2007), which states:

If pipelines are placed in the alternative alignments, it is recommended that archaeological monitoring be conducted while excavating the pipeline trenches. If sinkholes are encountered during trench excavation they should be excavated and the deposits sampled.

We concur with these observations, and request they be included in the final EA. We further request that our office be notified as soon as possible should any subterranean sinkholes be exposed during any aspect of this project, as they may need to be assessed for historic significance.

Response: Section 4.3.1 has been updated to include the following text: "The archaeological assessment conducted for this project recommends archaeological monitoring during excavation of trenches for pipeline placement. If sinkholes are encountered during any project excavation, SHPD would be contacted."

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Ms. Melanie Chinen
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Thank you again for your comments. Should you have further questions or comments, please do not hesitate to call Ms. Adrienne Barnes of Imperium at (808) 782-9052 or me at (808) 521-5361.

Very truly yours,

BELT COLLINS HAWAII LTD.

Lee W. Sichter
Principal Planner

MCM:LWS:lsf

cc: Mr. Mark Warner, P.E., Director of Project Engineering, Imperium Renewables
Ms. Adrienne Barnes, Project Specialist, Imperium Renewables Hawaii
Mr. Glenn Abe, Hawaii DOT Harbors Division, Property Management

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8 FINDING OF NO SIGNIFICANT IMPACT

8.1 Applicant

The applicant is Imperium Renewables Hawaii LLC.

8.2 Approving Agency

The approving agency is the State of Hawaii Department of Transportation, Harbors Division.

8.3 Brief Description of the Proposed Action

Imperium proposes to construct and operate a biodiesel production facility capable of producing 100 million gallons per year of biodiesel fuel from vegetable oil at Kalaeloa Barbers Point Harbor, Kapolei, Ewa, Oahu, Hawaii.

8.4 Determination and Reasons Supporting Determination

HAR Section 11-200-12 establishes 13 significance criteria which agencies shall use in evaluating a project's impacts. Following is a discussion of how the construction and operation of the proposed biodiesel production facility relates to the 13 criteria.

Pursuant to subparagraph 12, *...an action shall be determined to have a significant effect on the environment if it:*

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

Discussion: The Proposed Action and alternative alignment would occur within an existing industrially-zoned area, on vacant land which does not contain significant natural or cultural resources. Previous activities at the project location, including stockpiling of coral, have likely altered site conditions, and no archaeological or paleontological features are present within the project location. In the unlikely event that potentially significant remains are uncovered during construction activities, work in the immediate vicinity of the findings would halt and the SHPD would be contacted.

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

Discussion: The proposed project location is an undeveloped industrial property with no significant habitat for Federal- or State-listed endangered, threatened, proposed, or candidate species. The industrial zoning precludes other beneficial uses, such as agriculture or park land.

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

Discussion: The Proposed Action and alternative alignment serve to increase the amount of renewable energy production in Hawaii, and reduce dependence on petroleum-based

energy sources which drain non-renewable resources. Therefore, the Proposed Action and alternative alignment are consistent with the State's long-term environmental policies, goals, and guidelines as expressed in HRS Chapter 344.

(4) *Substantially affects the economic or social welfare of the community or state;*

Discussion: Under the Proposed Action and alternative alignment, a relatively small number of new jobs would be created, and it is not anticipated that an increase in new residents would occur.

(5) *Substantially affects public health;*

Discussion: During construction, noise levels and air emissions would comply with State rules so that public health and welfare are not jeopardized. Air emissions from operation of the facility would not contribute to a reduction in air quality that would impact the public. Water quality would not be affected as runoff from the project would be contained within injection wells on the site. Solid waste generated from the facility is expected to be minimal and could be disposed of in the municipal landfill. Less than 220 pounds per month of hazardous wastes would be generated, and would be shipped to U.S. mainland treatment, storage, and disposal facilities in accordance with Federal and State regulations.

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

Discussion: The Proposed Action and alternative alignment would support existing facilities which use diesel fuel, and provide an alternative fuel source for these facilities. The project in and of itself would not induce population growth, as the biodiesel would be used in place of petroleum diesel for which there is already a demand. Because the project would not induce growth, secondary impacts such as effects on public facilities would not occur.

(7) *Involves a substantial degradation of environmental quality;*

Discussion: Construction and operation of the facility would not contribute to degradation of surface or groundwater quality, as surface runoff and process water, which would be pre-treated via an oil/water separator, would be discharged to injection wells into an aquifer with no listed utility. Air emissions from the facility would be monitored, and emissions of pollutants would be minimized through the use of BACT. Atmospheric emissions generated from operation of the facility would include CO, VOCs, CO₂, PM₁₀, NO_x, and SO₂. CO and VOCs are controlled by providing adequate fuel residence time and high temperature in the combustion device to ensure complete combustion, or use of catalytic oxidation, which would remove CO and VOCs from the exhaust gas. The use of fuel with low-ash content would minimize the emission of PM₁₀ to the atmosphere, and drift eliminators would control emissions from the cooling tower. SO₂ is controlled by the use of scrubbers in the stack and low-sulfur fuel. An air permit would be obtained from the Hawaii DOH.

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

Discussion: Use of renewable, sustainably harvested palm oil in electricity generation and/or transportation would reduce environmental effects of petroleum fuel use in Hawaii. Cumulative impacts such as impacts to the petroleum diesel market, achievement of state energy goals, increased use of alternative energy tax credits, and increased harbor usage, would not have a considerable effect on the environment.

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

Discussion: Field surveys determined that rare, threatened, or endangered species, or their habitat, are not present at the project location or along the alternative alignment.

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

Discussion: The State of Hawaii is an attainment area for all criteria air pollutants. Air emissions from construction are short-term and temporary, and emissions from operation of the facility, including CO, VOCs, CO₂, PM₁₀, NO_x, and SO₂. CO and VOCs would not cause the area to be in non-attainment of air quality standards. No impacts to surface or groundwater quality would occur from the Proposed Action or alternative alignment. Construction-related noise impacts would be short-term and temporary, and a noise permit or noise variance would be obtained, with noise attenuation measures taken as appropriate. Operational noise levels are anticipated to be within the 70 dBA noise level allowed in industrial areas.

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

Discussion: The Proposed Action and alternative alignment are not located in environmentally sensitive areas.

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

Discussion: The Proposed Action and alternative alignment would be located in an industrial area where similar structures and higher stacks are present. Views from adjacent public roadways would be consistent with existing views of the industrial setting, and *mauka-makai* viewplanes from roadways upslope of the project would not be impacted.

- (13) *Requires substantial energy consumption.*

Discussion: The Proposed Action and alternative alignment would produce a renewable fuel which could be used to offset fossil fuel consumption at electrical generation facilities or vehicles.

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APPENDIX A

IMPERIUM SUSTAINABLE PALM OIL CORPORATE POLICY



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Innovating renewables for the future www.imperiumrenewables.com

Sustainable Palm Oil Corporate Policy

Imperium Renewables, Inc.

The Roundtable on Sustainable Palm Oil (RSPO) is an association created by organizations carrying out their activities in and around the entire supply chain for palm oil to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue with its stakeholders.

Vision: RSPO assures palm oil contributes to a better world

Mission: To advance the production, procurement and use of sustainable oil palm products through:

- the development, implementation and verification of credible global standards and,
- the engagement of stakeholders along the supply chain

Specific information regarding the RSPO, its goals, statues, and members can be found at www.rspo.org.

IRI has been an active member of the RSPO since March 22, 2006.

IRI's approach to the burgeoning biodiesel industry is based on a global perspective of the vegetable oil and petroleum markets. Palm oil has received a disproportionate amount of negative publicity due to its perceived reliance on environmentally unsound practices as the industry expands. While it is acknowledged that there are issues which need to be addressed, it runs deeper than the issues of one specific industry. There are issues surrounding the agricultural practices of all crops including deforestation, sustainable and legal land use, pesticides and fertilizers, monoculture, the list goes on with many various issues.



The need to compete within the energy industry requires usage of the most efficient source of biomass-based oil crops that can be grown on our lands; this is critical to the long term strength and success of both agriculture and energy. However, being a company founded on sound environmental principles also requires active participation to ensure the establishment of a sustainable and less damaging method to grow these biomass-based oil crops.

IRI's approach to solving these issues is to proactively engage in organizations which can make a difference here and now; organizations which are not just industry mouthpieces or environmentally radical groups which do not give proper weight to the realities of the world we live and refuse to accept the dynamic nature of our society. The RSPO addresses these needs.

The RSPO was founded by the World Wildlife Foundation (WWF), the Malaysian Palm Oil Association (MPOA), and a group of major palm oil producers and users including Golden Hope Plantations Berhad and Unilever. The RSPO has the membership and support of a wide variety of industry and NGO groups which give it the knowledge to implement sound practices as well as the "teeth" to enforce these practices and truly make a change in the way palm oil is grown, processed, and used.

The questions the RSPO is attempting to address are numerous and extremely complex, but there is an answer and a solution is possible. IRI intends to be a part of that solution. We will continue to use palm oil as a feedstock for biodiesel production and will gladly defend this decision to critics who refuse to look at the true problems facing our world and who instead focus on excluding an extremely versatile and efficient crop for reasons more to do with ignorance and protectionism than reality.

IRI has included the following language regarding sustainability in our contracts with our first supplier of palm oil, Cargill:

Seller and Buyer recognize that the sustainability of palm oil production is an important issue in the bio fuels market. Seller is a member of the Roundtable on Sustainable Palm Oil ("RSPO") and will be part of the pilot process to test the agreed criteria over the next two years on one of its plantations. Buyer and Seller agree to exchange information about the development of sustainability criteria for palm oil production during the term of the Agreement. Seller agrees to offer Buyer a range of options for sustainable palm oil supply as they become available. Seller will work in good faith to develop the sustainability of palm oil production according to the criteria relevant in the target market of the product.



We will continue to require all future suppliers to be full and active participants in the RSPO and ensure they implement the criteria as they are developed and approved by the RSPO. This language provides assurance that our partners, as well as ourselves, will continue to be a part of the solution.

Above and beyond the language in the contract, IRI actively works with the Corporate Social Responsibility departments and the Sustainable Practices representative of the companies we contract with to ensure each company is doing everything it can to use sustainable practices in the production of palm oil as well as all oil seed crops.

The RSPO is developing a formalized system which all palm oil producers can follow; however, many companies are implementing and have implemented sustainable practices well ahead of the RSPO official guidelines. These are the companies with which we do business.

A very tangible example of this is that we make every effort to source palm oil from plantations on peninsular Malaysia and, when not possible, from plantations which have been in existence since 1996 or earlier. This is one way we can assure we do not buy palm oil grown on recently destroyed virgin rainforest. The most severe sustainability issues revolve around the destruction of virgin rainforest found in East Malaysia and Indonesia.

IRI has made a strategic decision to take advantage of the benefits offered by sourcing multiple feedstocks from around the globe. With this decision comes risk. Instead of ignoring the second most traded vegetable oil in the world, IRI is committed to exert extensive time and energy to being part of the solution.



Renewable Energy - Our Point of View

As a nation, we need to create a market for biofuels. We here at Imperium Renewables believe that biodiesel is the right fuel for us to pursue. Our nation and the world are starting a 500 lap race against competitors who are starting at the 499 mile marker. The oil industry is the most subsidized and politically entrenched industry in the country. How so?

Whereas the average tax rate for companies in the US is about 18 percent, the oil industry is taxed at about 11 percent which equates to a tax savings of about \$1.5 billion in 2000 and more than \$140 billion since 1968.¹ Unless the government will underwrite development of alternative energy, it will be left to the private equity markets. And no investor will back a company if there isn't a market for a product. Today's biofuel efforts are just that – the beginnings of a new market for which we need to prove there is demand.

If renewable energy could get even a fraction of the hundreds of billions of dollars that the oil industry has enjoyed, and continues to enjoy, we wouldn't even be talking about food vs. fuel. In fact, this paper will discuss some of the exciting alternative feedstocks already under development which will make this argument moot. The first thing you need to understand, however, is that the use of today's agri-based feedstocks is both necessary and likely temporary. We begin with some facts.

The Truth about Today's Agri-based Feedstocks

The base feedstocks for today's biodiesel are all vegetable oils. They come from a range of seeds, including soybeans, rapeseed, mustard seed, canola seed and palm. What most people don't know is that the oil we use in biodiesel is a **byproduct** of crushing these seeds. With the exception of palm oil, these seeds are primarily and initially harvested for other uses.

The process involves crushing the seed and separating the non-oil components (the "meal") for use in everything from packaged goods to feed for livestock, and the oil, which has traditionally been used in a variety of low-end consumer food products (like salad dressings) and industrial products (like engine lube).

Currently, vegetable oil used in the production of biodiesel does not supplant or divert oil used for food. Our industry is simply using the supply of vegetable oil that is a byproduct of the existing market for both meal and oil from these types of feedstock.

We are not even using all of the surplus that exists today. Each year, more than 95 million tons of vegetable oil is produced in the world. The biodiesel industry last year consumed 2.3 million tons worldwide, or just 2 percent of our worldwide vegetable oil supply. Even forecasted growth in our industry 10 years out shows us barely exceeding the existing surplus.

And, as a nation, we have tremendous capacity to increase the production of these feedstocks – **without replacing or cannibalizing existing crops**. How? There are two opportunities. The first is simply including crops such as mustard, canola or even high oil yield soybean with other vegetable oil seeds as part of an existing crop rotation program, either replacing placeholder crops or planting during a typical fallow year. Studies have shown a 10 percent increase in the yield of wheat crops in the year following the harvest of canola crops.

Another potential solution is to plant bio-energy crops on lands currently dormant as a result of the U.S. government's [Conservation Reserve Program](#) (CRP), which aims to protect millions of acres of American topsoil from erosion and which is designed to safeguard the nation's natural resources.

¹ Roberts, Paul. The End of Oil. New York: First Mariner Books, 2005



Acreage enrolled in the CRP is planted to resource-conserving vegetative covers, making the program a major contributor to increased wildlife populations in many parts of the country. There's no reason participants in this program couldn't plant soy or other feedstocks.

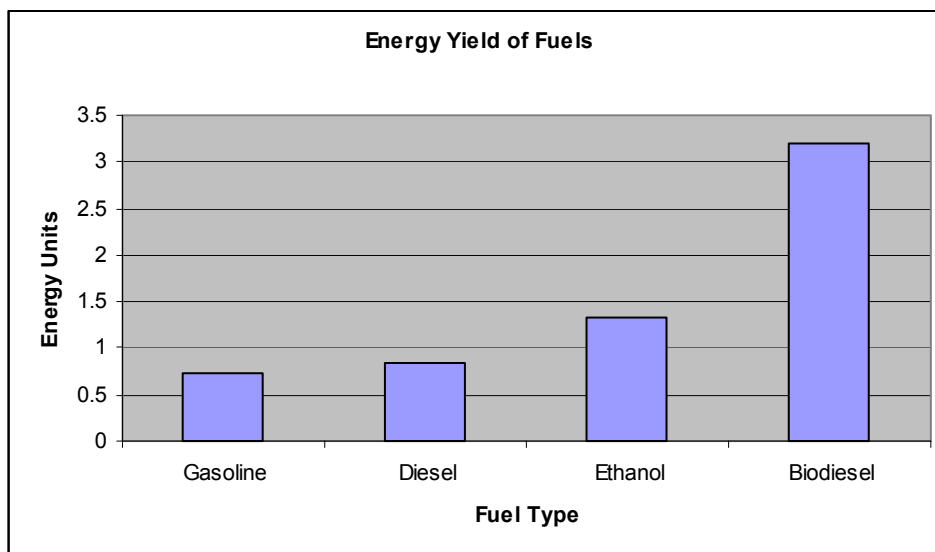
In Washington state alone, we have 2.5 million acres that have the potential to support canola or mustard seed crops. Developing these would be enough to provide the oil for our Grays Harbor plant.

Despite the conjecture of those who oppose the use of these feedstocks to create clean, renewable fuel, we are not taking food out of people's mouths to power our cars. Far from it. We are utilizing existing excess supply of vegetable oil and using it to create environmentally-friendly fuel that will replace current petroleum-based fuel.

The Truth about Energy Yield

There has also been much discussion about the energy yield of biodiesel. Naysayers claim that it still takes fuel to make biodiesel – after all, you need fuel to drive the harvesters, crush the seeds and deliver the oil to the production facility. That's true. But that fuel cost is amortized over a number of other uses – remember that the same fuel is used to create meal and other products. In addition, carbon that is emitted in the harvesting is then recaptured by the plants the following year (since plants "digest" carbon to as part of the photosynthesis process).

With petroleum fuels, you expend carbon to "harvest" the fuel, and then expend it to burn the fuel – there is no recapturing. DOE, EPA and other government agencies have put forth massive amounts of documentation that shows the life cycle balance of biofuels (and biodiesel specifically) provides a large reduction in greenhouse gases over petroleum, even with the equipment, nitrogen and other petrochemical usage included. Finally, biodiesel has been shown to have the highest energy yield of commercially available renewable liquid fuels with a whopping increase of 320%.





The Truth about Palm Oil

Imperium Renewables will use imported palm oil from Malaysia to produce biodiesel in our Grays Harbor plant. There's been no shortage of concern about the negative impact that palm oil plantations has had on the rainforests of the world, specifically in Malaysia and Indonesia. It is important to note two things related to this. First, the market for palm oil has been strong well before biodiesel and would exist without it. Second, the countries most able to export palm oil are among the most destitute in the world. Palm oil represents an economic boon to them.

This does not excuse the destruction of the environment – but it does provide a frame of reference. After all, we in the United States did a pretty good job of deforestation of our country when we settled it (and some would argue, we still do). At Imperium, we believe that we can positively affect the market for palm oil through collaboration across the value chain. We are a member of a unique organization called the Roundtable for Sustainable Palm Oil (RSPO www.rspo.org).

Founded in 2001 by the World Wildlife Fund (WWF, www.wwf.org), the RSPO is an association created by organizations carrying out their activities in and around the entire supply chain for palm oil to promote the growth and use of sustainable palm oil through co-operation within the supply chain and open dialogue with its stakeholders. Its key objectives are as follows:

- Research and develop definitions and criteria for the sustainable production and use of palm oil;
- Undertake practical projects designed to facilitate implementation of sustainable best practices;
- Develop solutions to practical problems related to the adoption and verification of best practices for plantation establishment and management, procurement, trade and logistics;
- Acquire financial resources from private and public funds to finance projects under the auspices of the Roundtable on Sustainable Palm Oil;
- Communicate the Roundtable's work to all stakeholders and to a broader public.

Why is palm oil so important to the biodiesel industry? Because it has the highest yield per acre (650 gallons) of any oilseed and this is critical to keeping our costs competitive with petroleum-based alternatives. There is, however, a catch. Biodiesel created from palm oil does not perform as well in cold climates as it does in warm climates. Therefore, palm oil can never be relied upon for 100 percent of the feedstock. Coincidentally, biodiesel based on oilseed grown in colder climates like the US and Europe tends to perform better in cold climates. We believe this is nature's way of keeping us focused developing on next-generation feedstock.

To read our corporate commitment to sustainable palm oil development, [click here](#).

New feedstock development

So far, we've discussed a few key insights to the biodiesel industry. To recap: first, we need to prove there's a market for biodiesel, so we are using first-generation, available biomass to create fuel that is already at work in conventional diesel engines. The feedstock used to create our fuel, is surplus oil obtained from a wide range of seeds and plants which are already being harvested for other uses. We are also taking steps to ensure that the feedstock is developed in a sustainable manner.

But we know that long term, we need alternatives. Why? Because demand for fuel will continue to increase, and eventually we won't have enough land to produce feedstock. The good news is that we won't ever reach that point. There are a number of promising alternatives to plant biomass already being developed today. The most promising is algae. That's right – algae.



Today, algae farms connected to coal plant smokestacks absorb carbon dioxide as it exits the stack. The resulting emissions contain 40% less CO₂ (a larger cut than the Kyoto treaty mandates) and 86% less nitrous oxide. Because the algae grow so fast, a single acre can produce up to 15,000 gallons of oil. Compare that to palm oil's 600 gallons per acre and soy's 60 gallons per acre and you can see why algae is the feedstock of the future. But that's not all. A byproduct of the algae can be used as feedstock for ethanol, so out of one smokestack you get the building blocks for two renewable fuels.

What kind of scale are we talking about? Some estimates calculate that just one 1,000 megawatt power plant using this type of system could produce more than 40 million gallons of biodiesel and 50 million gallons of ethanol a year. And based on the size of a plant and surrounding real estate to host a tank farm, some believe that there are up to 1,000 potential locations.

Do the math. That's a lot of fuel. Forty billion gallons per year to be exact, and that's just for the United States.

And this is not a pipe dream. On November 30, 2006 a company announced the results of a field test in Arizona. "This is the first time ever that algae biomass created on-site by direct connection to a commercial power plant has been successfully converted to both these biofuels," said Isaac Berzin, founder and Chief Technology Officer of GreenFuel, one of several companies that develop this technology. "The conversion and certification of the fuels were conducted by respected, independent laboratories."

What's really amazing about this is the relatively short amount of time it has taken to create this breakthrough technology. Who knows what will be invented in the next 20 years? One thing is for sure – we won't be having this silly food vs. fuel argument.

Renewable Energy and the Quadruple Bottom Line

Many people these days talk about the triple bottom line when they talk about environmentally sustainable development or organic farming. They mean that developing sustainable products or fostering sustainable lifestyles have economic, social and environmental benefits. Imperium Renewables believes that renewable energy, specifically biodiesel, creates a quadruple bottom line. The fourth component it adds is security.

- **Economic:** Biodiesel is a unique example of an industry that spreads benefit across the entire value chain. In the case of our Grays Harbor facility, more than 250 jobs are being created during the construction phase with over 50 full time jobs at the plant once it opens. We expect to become the state's largest purchaser of Canola oil grown by Washington state farmers. Distributors and retailers blend biodiesel with existing diesel or sell it unblended – either way fewer dollars are leaving our state. Economies of scale will result in biodiesel being priced at, or likely below, petroleum diesel, saving companies and individuals money at the pump. In addition with Imperium Grays Harbor in operation, it will produce 10% of Washington's diesel demand. Washington exports over \$25,000,000 per day in petrodollars. Imagine if we can capture even a small portion and keep it right here in the state. The National Biodiesel Board has calculated that for every dollar that biodiesel is supported in federal tax dollars, \$2.50 is created and put back into the American economy.
- **Social:** Cleaner air, new jobs and reduced cost for energy all positively impact communities around the country and the world.
- **Environment:** We've already discussed the positive environmental benefits of biodiesel. Imagine how much better it will be in 20 years.



- **Security:** By increasing the production and consumption of renewable fuels made in America, we can begin to reduce our dependence on petroleum oil – regardless of its origins. This increases our physical security from the instability caused by being reliant on countries and leaders hostile to our country and our way of life. It also protects us from the onset of global warming which will create massive disruptions to our coastlines, our mountains and our very future.

It's Time to Get Going

The debate is over. The status quo is not an option. We can sit back and watch our planet be plunged into an irreversible decline, fueled either by a global war for a dwindling supply of oil or by the melting glaciers, rising sea levels and drought-fed wildfires that will forever change the landscape of our country. Or we can do something about it.

We're not sitting on the sidelines. Are you?

APPENDIX B1

ARCHAEOLOGICAL ASSESSMENT

Pacific
Legacy

Incorporated

CULTURAL
RESOURCES
CONSULTANTS

ARCHAEOLOGICAL ASSESSMENT
FOR THE PROPOSED
IMPERIUM RENEWABLE BIO-DIESEL PLANT
AT BARBERS POINT, HONOULIULI
`EWA, O`AHU
(TMK (1) 9-1-14:24)

Prepared By:
Pacific Legacy, Inc.



Pacific Legacy: Exploring the past, informing the present, enriching the future

**ARCHAEOLOGICAL ASSESSMENT
FOR THE PROPOSED
IMPERIUM RENEWABLE BIO-DIESEL PLANT
AT BARBERS POINT, HONOULIULI
`EWA, O`AHU
(TMK (1) 9-1-14:24)**

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12 February 2007

ABSTRACT

Pacific Legacy conducted an archaeological assessment of approximately 15 acres for the proposed Imperium Renewable Bio-Diesel Plant project at Barbers Point in Honouliuli, `Ewa, O`ahu. This archaeological assessment consisted of a review of the previous archaeological investigations that have taken place in the area over the last 30 years and a field inspection of the project area.

The review of previous archaeological investigations indicates that the proposed project area was part of a larger area that had been surveyed previously. One of the most common features of the area are sinkholes in the limestone, many of which are paleontological sites containing extinct avifauna and some of which were subsequently used by pre-Contact and early historic Hawaiians for habitation and gardening purposes. It appears that some of the archaeological features within the project area were studied more intensively through controlled archaeological excavations, prior to this land being used as a stockpile for dredge materials from the Barbers Point Deep Draft Harbor.

The field inspection of the proposed project area revealed that this area has been extensively impacted by heavy equipment and by the depositing of enormous stockpiles of dredged limestone. It was concluded that no archaeological or paleontological features are present within the project area and that there is an extremely low possibility of construction activities impacting potentially significant remains. No further archaeological work is recommended for the Bio-Diesel Plant project area.

Likewise, no further archaeological work is recommended for the proposed pipeline alignments. However if the alternative pipeline alignments are selected, archaeological monitoring is recommended during trench excavations.

A final caveat is offered -- in the unlikely event that potentially significant remains are uncovered during contraction activities, work in the immediate vicinity of the finding should halt and the State Historic Preservation Division should be contacted (phone 808-692-8015).

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Frontispiece: General view of southwestern portion of property

1.0 INTRODUCTION

Imperium Renewables Hawaii is planning to develop a renewable Bio-Diesel Plant at Barbers Point at Honuliuli, in `Ewa on the island of O`ahu. The project area consists of approximately 11.2 acres (444-feet by 1500-feet) adjacent to the Barbers Point Deep Draft Harbor (Figure 1).

Imperium proposes to construct and operate a bio-diesel production facility capable of producing 100 million gallons per year of bio-diesel fuel from vegetable oil at Kalaeloa Barbers Point Harbor, Kapolei, `Ewa, Oahu, Hawaii. The proposed bio-diesel production facility will comprise approximately 11.2 acres of a rectangular parcel leased from DOT Harbors Division near the intersection of Malakole Road and John Wayne Avenue (aka Internal Access Road), near Kalaeloa Barbers Point Harbor and Kenai Industrial Park. The bio-diesel fuel will be stored in tanks on the property, and transported to end users in the Campbell Industrial Park area via pipeline or truck. A pipeline to transport the bio-diesel would be constructed in an existing pipeline easement along the Malakole Road and Hanua Street rights-of-way. An alternative pipeline alignment is being evaluated along the existing AES coal conveyor easement (Figure 1).

As part of the studies for the Environmental Impact Statement (EIS), Pacific Legacy, under contract to Imperium Renewable Hawaii, conducted an assessment of archaeological and historical resources. The purpose of this assessment was to determine if any significant or potentially significant historical resources are present within the project area or in the vicinity of the project area. If potentially significant resources are present within the project area, the impacts of the project to these resources will need to be addressed and mitigation measures for potential adverse effects to these resources will be recommended.

The assessment of what resources are present was accomplished by reviewing previous archaeological investigations in the area and conducting a field inspection of the project area. The source for these previous archaeological investigations was the State Historic Preservation Division (SHPD) library at Kapolei, which houses a relatively complete collection of archaeological reports. The field inspection was conducted by Pacific Legacy archaeologists James McIntosh and Kimberley Mooney on 19 December 2006 and 22 January 2007.

1.1 PROJECT AREA DESCRIPTION

The project area consists of approximately 15.2 acres adjacent to the Barbers Point Deep Draft Harbor on the dry leeward side of the island of O`ahu. It is located in the traditional land division or *ahupua`a* of Honouliuli in the district of `Ewa.

The project area is situated at an elevation of less than 10-feet above sea level atop a limestone plain that has weathered into a karst topography (MacDonald and Abbott 1970:154, Figure 238).



Figure 1. Location of project area (figure courtesy of Belt Collins Hawaii).

The expansive limestone plain that forms the substrate in `Ewa was formed during an interglacial period approximately 120,000 years ago, when sea levels in Hawai`i were some 6-8m above the present sea level, which has been termed the Waimānalo Sea Stand. During this period, coral reefs continued to rise with the gradually rising sea levels. During the next period of glaciation, sea level dropped leaving exposed coral reefs that were then eroded by marine and rainwater action. Rain water naturally absorbs carbon dioxide to form a weak carbonic acid, which when pooled onto limestone dissolves portions of the limestone forming karst topography. One of the hallmark features of the karst topography on the `Ewa plain are sinkholes which formed in the more soluble portions of the exposed fossil reef. These sinkholes are typically bell-shaped in cross section with openings commonly 1 m in diameter with base diameters increasing to 2 - 3 m in diameter. These sinkholes became important resources for avian populations prior to human settlement in Hawai`i, then important resource locales for early Hawaiian populations on the `Ewa Plain (Zeigler 2002:96-97).

Rainfall in the Barbers Point region is low at less than 20 inches (508 mm) per year (Juvik and Juvik 1998:56). The climate is generally dry and hot.

The project area has been used as a stockpile area for dredged materials originating from the deep draft Harbor that was constructed in the late 1970s (Figure 2)



Figure 2. Stockpile of dredged material in southern portion of project area (view to South).

2.0 PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

The first serious archaeological investigations in the Barbers Point area were conducted in 1970 by Ernest Lewis and a group of volunteers who worked for five Sundays surveying approximately 500 acres of land and test excavating a sample of the sites (Lewis 1970). This survey area was bordered by the Oahu Railroad to the north, Malakole Rd. to the south and west, and Kalaeloa Blvd. to the east. This survey area encompassed the proposed building site for the Imperium Bio-Diesel Plant. The project resulted in recording five house sites, one large stone enclosure, and numerous walls. In addition they noted the presence of hundreds of mounds, or *ahu*, and hundreds of sinkholes, some of which appeared to be deliberately filled. Lewis concludes that this area, though seemingly marginal at best, was indeed settled and developed by Hawaiians previous to the arrival of Europeans. Further, he adds that there is great archaeological potential in the area to shed light on ways in which native Hawaiians adapted to such harsh conditions specifically by looking at subsistence patterns and innovations as well as evidence of possible trade for natural resources. Lewis recommended further archaeological investigation to help elucidate the nature of human adaptation in marginal environments.

In the fall of 1975, 900 acres were archaeologically surveyed in the Barber's Point Harbor area by William Barrera (Barrera 1975). The inland portion of the project area was previously surveyed by Lewis (1970). The *makai* portion of Barrera's survey area resulted in recording 24 archaeological sites, 12 of which were previously unrecorded (T-1 through T 15). Of the new sites, Barrera found 3 additional house sites, over 50 mounds, 2 C-shape shelters, 1 L-shape shelter, 1 rectangular enclosure, a 15m by 1.2 m wall, and a limestone sink. The results of his survey prompted Barrera to recommend more intensive surveying in both inland and *makai* areas of the project.

In 1976, Aki Sinoto of the Bishop Museum conducted a surface survey of the proposed Barbers Point Deep Draft Harbor (Sinoto 1976). His survey documented nearly 100 house sites, walled shelters, mounds, cairns, caves, modified sinkholes, and other man made features, which were dated to the late prehistoric and possibly to the early historic period. Sinoto also conducted a series of test excavations as well as more extensive excavations in a house site near the quarry. Based on the discovery of extinct avifauna in the area, Sinoto suggested that the area was archaeologically significant enough to warrant further investigations or alternatively preservation.

In 1978, Sinoto excavated habitation sites, modified sinkholes, unmodified sinkholes, and associated features in the Deep Draft Harbor project area (Sinoto 1978). His excavations yielded abundant artifacts and ecofacts, including basalt flakes, a basalt adz, an adz chip, a basalt hammerstone, a piece of ground hematite, ten pieces of volcanic glass, a modified bird bone, two coral abraders, and a bone fishhook fragment. Within the midden, Sinoto's team recovered coastal mollusks, crustaceans, and echinoid species, as well as bones from fish, rat, bird, and even trace amounts of human bone. A late 17th Century date, based on hydration dating of volcanic glass, was given to the habitation site B6-70. Sinoto also discussed several trends of

pre-Contact land use in the Barber's Point area based on his archaeological findings. One such example was that natural elements of the land, such as outcrops enclosing low-lying spots were used as building foundations and features. Sinoto also found that habitation structures were oriented to block the northeast trade winds. He was also able to see a pattern of midden discard that more typically scattered to the leeward periphery of occupation floors. From these and other archaeological observations, Sinoto was able to shed significant light on the lifeways of prehistoric populations on the `Ewa plane. However, he was unable to explain the connection between avifaunal extinctions and these early inhabitants.

In 1982, Bert Davis from the Bishop Museum conducted extensive excavations in the area known as Stockpile III, which included the area that is being proposed for the Imperium Bio-Diesel Plant (Davis 1995). Using a multi-disciplinary approach, Davis set out to explain the dynamics between ecological change in the subject area and humans (prehistoric and/or historic). Davis investigated over 70 archaeological and paleontological features in his 177 acre study area, from which he recovered artifactual, soil, pollen, and faunal samples. The site complexes most closely located to the proposed site of the Imperium Bio-Diesel Plant are sites 2707, 2708, and 2711, which consist of numerous sinkholes, mounds, C-shaped walls, etc. These features functioned for a number of habitation and gardening activities, and a small number of the sinkholes were used for human burial interments. At the conclusion of Davis' work, this area was used for the massive stockpiling of dredge materials for the excavation of the Barbers Point Deep Draft Harbor. It appears that over 50% of the Imperium Bio-Diesel Plant project area is located within the boundaries of the Stockpile III area.

In 1988, Lynn Miller conducted data recovery excavations in two previously recorded sites located in west Barber's Point/Campbell Industrial Park in an area that was slated for building a container storage facility (Miller 1993). Between the two sites, 20 features were analyzed, consisting of four enclosures, two sinkhole caves, one gardening area, one *ahu*, one historic structure, and eleven modified and unmodified sinkholes. Excavations recovered an assortment of pre-Contact and post-Contact materials including datable charcoal, extinct bird bones, as well as one human burial found in a sinkhole. In addition, C-14 dating yielded results that suggest human settlement of the area took place sometime between A.D. 800 and 1800. Furthermore, based on architectural and other material remains, Miller suggests that the area was subject to more intense, though sporadic, use by pre-Contact Hawaiians than previously believed.

In 1994, archaeologists from Cultural Surveys of Hawaii conducted a 56.5 acre survey on the James Campbell Estate just *mauka* of the Barber's Point Deep Draft Harbor and northeast of the limestone/coral quarry (Hammatt et al. 1994). During this survey, 37 archaeological sites associated with habitation were found which included 68 individual features. The authors state that the sites represented activities ranging from temporary or seasonal habitation to agriculture as well as various historic activities. Additionally, the authors suggest that the subject sinkholes were probably spatially associated with habitation structures and possibly functioned as mulch planting containers as well as depositories for the remains of extinct avifauna.

2.1 PROPOSED PIPELINE EASEMENT AREAS

In 1979, Aki Sinoto surveyed an 80 acre parcel for the U.S. Army bordering Malakole Road on the north and positioned about 1200 feet west of Kalaeloa Blvd., where dredged materials from the Deep Draft Harbor were slated to be dumped. The study area adjoins the eastern boundary of the areas previously surveyed by Sinoto in 1977 and by Archaeological Research Center Hawai'i in 1978 (Sinoto 1979). The major objective for Sinoto's survey was to locate and identify cultural features and paleontological sites existing in the subject area, assess the significance of the remains, and determine the level of preservation appropriate, if any. According to Sinoto (1979), forty sites, representing 12 different feature types were found in the survey area. The general categories of sites are described as: complexes, which are comprised of multiple structural forms with functional association and spatial continuity; discrete structural forms that include walls, enclosures, platforms, *ahu*, C-shapes, L-shapes, U-shapes, and open filled/paved areas; modified natural features, which are modified sinkholes and depressions; and remnant features described as features in poor conditions. Sinoto deduces that these sites, found sporadically throughout the southern portion of the site, are a continuation of sites found in previous surveys to the west. While he states that the attributes of these sites are no different than those found in the west, the sites represent the marginal portion of a larger complex. The sites located within the northwest proposed Imperium Bio-Diesel Plant easement are: 50-Oa-B6-173 (now site 9670) which is a modified sink with a small wall; 50-Oa-B6-174 (now site 9671) described as an *ahu*; and 50-Oa-B6-188 (now site 9685) which is a modified depression. The current status of these sites is unknown though they are presumed destroyed because of all of the construction activity that has taken place in this area.

Archaeological/paleontological investigations and subsequent salvage work were performed in 1981 by Hallett Hammatt and William Folk in Kalaeloa along the north side Malakole Road, in the area known as Stockpile Area III. The areas along Malakole Rd. and "Powerline Road" are significant, as they are included in or around the proposed project pipeline easements and contain a number of salvaged archaeological and paleontological sites (sites 2624, 9669, 2712, 2723, 2777, 2780, 2781, & 2784). These sites are comprised of various structures and sinkholes for or related to seasonal habitation. Site 2624 was a non-cultural, oval sink complex. Site 9669 was a large, unmodified, wide mouthed, 1.5 meter deep cave-shaped sink containing numerous land snail remains and bird bones associated with cultural midden over 30 cm deep. Site 2712, was an enclosure with avifaunal and land snail remains in association with cultural material with numerous sinkholes nearby containing good soil deposits. Site 2723 can be described as a partially collapsed "L-shaped" wall surrounded by numerous filled and unfilled sinks. Site 2777 was a square, 4 by 4 meter enclosure constructed mainly of limestone slabs, rocks, and boulders, with a wet sink in its immediate vicinity. Sites 2780 & 2781 are alignments of limestone boulders, that Hammatt and Folk (1981) label as possibly the remnants of a recent squatter's shack. Site 2784, was described as a natural solution sink with a 2 by 4 meter opening and a 1 meter depth, probably associated with sites 2780 & 2781. These sites were salvaged or recorded, and destroyed in the process. Ultimately, of 138 sites, 88 were tested and 26 were excavated (Hammatt and Folk 1981).

Hamilton Ahlo and Robert Hommon surveyed a 28 acre parcel of land, then owned by the Campbell Estate, in 1983 located directly between the Standard Oil Refinery to the north, Hanua

St. to the east, and a lot (TMK 9-1-26:12) that was vacant at the time. This survey was performed for the proposed Solid Waste Processing and Resource Recovery Facility. Ahlo and Hommon (1983), discovered eight possible sites that were deemed tentative, due to the lack of archaeological and paleontological data found during this investigation. These potential sites, labeled T-1 through T-8, were located between the proposed pipeline alignment and the alternative pipeline alignment (Figure 1), west of the Standard Oil Refinery. The sites included a series of dry sinkholes, a sinkhole with standing water at base, a filled sinkhole, rectangular pits with no known origin or function, and a charcoal bearing soil deposit. Ahlo and Hommon recommended that subsurface testing be conducted to determine if the possible sites were indeed archaeological sites.

In 1984, Hommon and Ahlo performed a series of test excavations in sites recorded in 1983. The authors excavated six of the eight possible sites identified and found no significant archaeological or paleontological materials. Hommon and Ahlo (1984) admit that there had been extensive modern bulldozing activities in the area and that any archaeological materials that may have been associated with the sinkholes were destroyed or removed. The authors recommended no further investigations in the area and no need for monitoring during the construction of the proposed project.

A 552 acre parcel was archaeologically assessed in 1989 by Hallett Hammatt and David Shideler for the proposed Kapolei Business/Industrial Park, located in the immediate vicinity of the proposed Imperium Bio-Diesel Plant northern pipeline easements. The irregular, "Z" shaped parcel lies directly between the Oahu Railroad tracks and Malakole Rd., with southern portions extending westward as far as the bend in Malakole Rd. and eastwards over 3000 feet past Kalaeloa Blvd. While the northern portion of the site spans over 7000 feet along the railroad from Makaiwa Gulch to just 1000 feet shy of Kalaeloa Blvd., the width in the center of the site is only an average of about 2500 feet. In their report, Hammatt and Shideler (1989) affirm that since the 1970's many archaeological investigations have been performed in the subject area, yet disclose that there were still a number of areas within the project boundary of archaeological and paleontological concern. Their goal was to locate, identify, and assess remaining archaeological and/or paleontological sites and areas for potential sites, review past studies and associated sites in their project area, identify potential impacts of future developments on sites, and to make recommendations for the above mentioned issues. Of particular interest to the current project is the "Malakole Sinkhole Area," which runs along the west side of "Powerline Road" and north of Malakole Road. This 8 acre sinkhole area has over 100 sinks with openings exceeding 1 meter and combined contain a plethora of prehistoric avifaunal remains. While Hammatt and Shideler (1989) the surface in this area has been extensively "chain dragged" and bulldozed, the authors maintain that sinkhole sites are still relatively intact or are simply filled with rubble, and therefore, still scientifically significant. Preservation has been recommended for the resources within this area.

3.0 FIELD INSPECTION

Field inspections of the project area were carried out on two days (19 December 2006 and 22 January 2007). A third field inspection was conducted on 2 February 2007 to inspect the pipeline easements. These inspections verified that the project area has been heavily impacted by heavy equipment and the stockpiling of coral dredge material (see Figure 2). The southern portion of the project area is covered by a ca 4.5 m (15 feet) high stockpile of dredge material, the northern portion of the project area is covered by a two-tiered stockpile that ranges from ca. 6 - 12 m (20 - 40 feet) (Figure 3). The area between these two stockpiles appears to have been extensively impacted by heavy machinery and shows evidence of recent dumping (Figure 4).

Because no boundary survey pins were present on the property, the field inspection covered areas outside of the project area. The general area appears to be extensively impacted. The field crew observed stacks of old tires, abandoned truck parts, and recent construction debris. All of these materials support the inference that this is an industrial area that has been extensively impacted.

The area to the SE of the northern-most stockpile (Figure 3) contained three sinkholes. One of these was a typical bell-shaped sink hole measuring ca. 1.5 x 1.0 x 1.0 m deep with soil accumulation and coral rubble on the interior surface (Figure 5). The other two sinkholes, measuring ca. 1 x 1.5 m and 3.0 m in diameter, were filled with coral rubble (Figures 6 and 7 respectively). None of these sinkholes should be impacted by the proposed development as currently planned.

The inspection of the pipeline easements indicated that the proposed pipeline alignments (Figure 1) contain active utilities (Figures 8 and 9). We did not have access to the alternative pipeline alignments, but our general analysis of the area suggests that the alternative alignment has probably been extensively impacted by heavy machinery movement and construction activities.



Figure 4. Flat land between the northern and southern stockpiles (view to the south)



Figure 5. Bell-shaped sinkhole.



Figure 6. Rubble filled sinkhole (1 x 1.5 m).



Figure 7. Rubble filled sinkhole (3 m diameter).



Figure 8. Proposed pipeline easement along Malakole Road (view to W).



Figure 9. Proposed pipeline easement along Malakole Road (view to W).

4.0 DISCUSSION AND RECOMMENDATIONS

This archaeological assessment has shown that the Barbers Point area has undergone considerable archaeological investigations in the last 30 years. These investigations have shown that the most common archaeological features in this area are sinkholes, which are also important paleontological resources as many contain evidence of extinct avian species that once occupied the `Ewa Plain.

The review of archaeological literature indicates that the proposed Imperium Bio-Diesel Plant project area has been previously surveyed, with some sites being more intensively studied. The field inspection revealed that the proposed project area has been extensively impacted by stockpiling and heavy equipment use in the area.

It appears that the proposed project area does not contain any archaeological or paleontological features and that there is an extremely low likelihood of any potentially significant features being impacted by the proposed development of this parcel. No further archaeological work is recommended for this project area. The pipeline easements are slightly different.

The proposed pipeline alignments (see Figure 1) currently contain active utility lines and the easements appear to be extensively disturbed and have very little potential of containing archaeological or paleontological resources. Thus, no further archaeological work is recommended for the proposed pipeline alignments.

The ground surface of the alternative pipeline alignments has been impacted, but as the work by Hammatt and Shideler (1989) showed, chain dragging may not always destroy sinkhole sites, but simply fill them and possibly obliterate their surface identification attributes. Thus the alternative alignments may contain important archaeological or paleontological resources. If pipelines are placed in the alternative alignments, it is recommended that archaeological monitoring be conducted while excavating the pipeline trenches. If sinkholes are encountered during trench excavations they should be excavated and the deposits sampled. Recovered materials should be analyzed and reported, thus mitigating the adverse effects of the trenching. If human remains are encountered all work should halt in the vicinity of the find and the State Historic Preservation Division (808-692-8015) should be notified.

A final caveat is that in the unlikely event that potentially significant resources are uncovered during construction activities in any portion of the Bio-Diesel Plant project area, work in the immediate vicinity of the finding should halt and the State Historic Preservation Division should be contacted (808-692-8015).

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APPENDIX B2
CULTURAL IMPACT ASSESSMENT

Pacific
Legacy

Incorporated

CULTURAL
RESOURCES
CONSULTANTS

CULTURAL IMPACT ASSESSMENT
FOR THE PROPOSED
IMPERIUM RENEWABLE BIO-DIESEL PLANT
AT BARBERS POINT, HONOULIULI
`EWA, O`AHU
(TMK (1) 9-1-14:24)

Prepared By:
Pacific Legacy, Inc.



Pacific Legacy: Exploring the past, informing the present, enriching the future

**CULTURAL IMPACT ASSESSMENT
FOR THE PROPOSED
IMPERIUM RENEWABLE BIO-DIESEL PLANT
AT BARBERS POINT, HONOULIULI
`EWA, O`AHU
(TMK (1) 9-1-14:24)**

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ABSTRACT

At the request of Belt Collins Hawai`i, Ltd., Pacific Legacy, Inc. completed a Cultural Impact Assessment on 11.2 acres located approximately one-fifth of a mile southeast of the Barbers Point Deep Draft Harbor, `Ewa, O`ahu, Hawai`i. The function of this assessment is to determine if any traditional practices will be displaced or disrupted by the proposed development of the Imperium Bio-Diesel Plant. Under Act 50, the Hawai`i State Department of Health "Guidelines for Cultural Impact Assessments" mandate that the subject property be studied as well as surrounding areas where construction or development have impact potential. The guidelines also recommend personal interviews with traditional cultural practitioners and knowledgeable informants on cultural practices. However, for this study, only three leads were obtained. While numerous contacts were pursued, the attempts were unsuccessful in interviewing additional informants.

The research conducted confirms that the general area of west `Ewa has an extensive and unique cultural past as well as a comprehensive historical record. However, the area has been subjected to widespread, major land alterations ranging from the cattle ranching and sugar cane harvesting of historic times to the dredging of the Barbers Point Deep Draft Harbor and massive development of Campbell Industrial Park in the recent past. This string of activities has likely hindered any cultural traditions that may have taken place from the time of initial European contact to the present. Hence, due to the disruption of European contact, historic land partitioning, and previous land alterations in west `Ewa, it does not appear that the proposed development will have any adverse effect on contemporary and/or traditional cultural activities in the area. Although, some native Hawaiians believe that it may further negatively impact the spiritual connection they have with the land.

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Frontispiece: Photograph of central portion of proposed Imperium Bio-Diesel Plant building area looking east.

1.0 INTRODUCTION

The development of a renewable Bio-Diesel Plant has been proposed by Imperium Renewables Hawaii to be built in the Barbers Point Deep Draft Harbor vicinity in `Ewa, southwest O`ahu. The proposed 11.2 acre project is to be located just under a fifth of a mile southeast of the Barbers Point Deep Draft Harbor (Figure 1).

Imperium proposes to construct and operate a biodiesel production facility capable of producing 100 million gallons per year of biodiesel fuel from vegetable oil at Kalaeloa Barbers Point Harbor, Kapolei, Ewa, Oahu, Hawaii. The proposed biodiesel production facility will comprise approximately 11.2 acres of a rectangular parcel leased from DOT Harbors Division near the intersection of Malakole Road and John Wayne Avenue (aka Internal Access Road), near Kalaeloa Barbers Point Harbor and Kenai Industrial Park. The biodiesel fuel will be stored in tanks on the property, and transported to end users in the Campbell Industrial Park area via pipeline or truck. A pipeline to transport the biodiesel would be constructed in an existing pipeline easement along the Malakole Road and Hanua Street rights-of-way. An alternative pipeline alignment is being evaluated along the existing AES coal conveyor easement (Figure 1).

Under a contract to Imperium Renewable Hawaii and as part of the studies for the Environmental Impact Statement (EIS), Pacific Legacy conducted a Cultural Impact Assessment (CIA) of the project area. In order to determine the current cultural significance of the proposed project area or its vicinity, an assessment was conducted by reviewing historic and contemporary documents, recent cultural inquiries performed in the area, and by interviewing individuals who might have knowledge about traditional land use in the western `Ewa Plain.

1.1 PURPOSE

The CIA is a requirement under Act 50, which was signed into law by former Governor Ben Cayantano on 26 April 2000. Under Act 50, the Hawai`i State Department of Health "Guidelines for Cultural Impact Assessments" mandate that the subject property be studied as well as surrounding areas where construction or development have impact potential. The guidelines also recommend personal interviews with traditional cultural practitioners and knowledgeable informants on cultural practices. Act 50 has the stated purpose to:

Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and amend the definition of "significant effect" to include adverse effects on cultural practices.

1.2 METHODS

Archival and recent research papers were consulted and oral interviews were conducted to collect pertinent data for the CIA. Archival research was performed at the following repositories:

- State of Hawai`i Historic Preservation Office
- State of Hawai`i Office of Environmental Quality Control
- State of Hawai`i Public Library

Semiformal interviews were conducted and recorded on audio micro-cassettes. Questions were prepared for the interviews which followed a “talk-story” format and led to themes that allowed the interviewee to tell what he or she thought was most important to them concerning west `Ewa. The audio micro-cassettes were not transcribed, but were used to backup and fill in details of topics noted during the interview. The taped interviewees each signed a release form. The micro-cassettes and release forms are on file at Pacific Legacy’s Kailua office.

2.0 PROJECT AREA DESCRIPTION

The proposed project is to be developed on the 15.2 acres just one-fifth of a mile southeast of the Barbers Point Deep Draft Harbor on the leeward side of O`ahu, which is in the traditional land division or *ahupua`a* of Honouliuli in the district of `Ewa (Figures 1 & 2). The project area is positioned at about 3 meters above mean sea level in the west side of `Ewa's coral plain, a vast and lifeless exposed coral reef. The area's natural substrate consists of a thin, friable red silt loam atop thick, karstic limestone, which is riddled with caverns, sinkholes, and deep aquifers rather than surface water (Hammatt and Folk 1981; Hammatt *et al* 1994; Davis 1995; Zeigler 2002).

Currently, there are two large coral stockpiles from dredging the harbor that cover over half of the site. The rest of the site appears, on the surface, to have heavily disturbed local and non-local sediments with small random stands of relatively young *kiawe* and various drought-tolerant plants of exotic nature. Additionally, while refuse of all manner can be found throughout the site, several large modern dumping areas appear to be fairly recent.

2.1 ENVIRONMENTAL SETTING

The great limestone plain was formed during an interglacial period, about 120,000 years ago, when sea levels were approximately 6-8m higher than the present. This rise in sea level brought the coastline inland and allowed a shallow sea, named the Waimanalo Sea Stand, to deposit marine life in the form of a living reef system. Once sea levels dropped due to a change in glacial sequence, the reefs were exposed and partially eroded by geologic forces. The exposed reef and erosional sediments deposited within and around it were eventually concretized as a thick layer of limestone. As limestone is subject to erosion by chemical agents such as carbonic acid, a karstic topography, characterized by subsurface caverns, sinkholes, and waterways, was created in the ensuing millennia by acidic rain and runoff water flowing into the porous limestone from upland. `Ewa's sinkholes can typically be described in a cross section as bell-shaped with apertures usually 1m in diameter and base diameters of 2-3m. In `Ewa, sinkholes became essential factors in the settlement of a wide variety of unique avian species and later aided human exploitation of this area and its resources (Lewis 1970; Barrerra 1975; Sinoto 1976, 1978; Davis 1979; Miller 1993; Hammatt and Folk 1981; Hammatt *et al* 1994; Davis 1995).

The extremes of environmental variants in western `Ewa, such as average rainfall, temperature, and winds combined with unique geologic conditions have created a harsh yet fragile ecosystem. Vegetation in the western `Ewa Plain is typically xeric and is now dominated by hardy exotics due to the region's aridity and sun intensity. Most endemic plant species were slowly phased out as Hawaiians, and subsequently Europeans, introduced exotics. The faunal assemblage, as seen in the fossil record, has also changed drastically. Particularly, many unique avian varieties had gone extinct after initial arrival of humans.

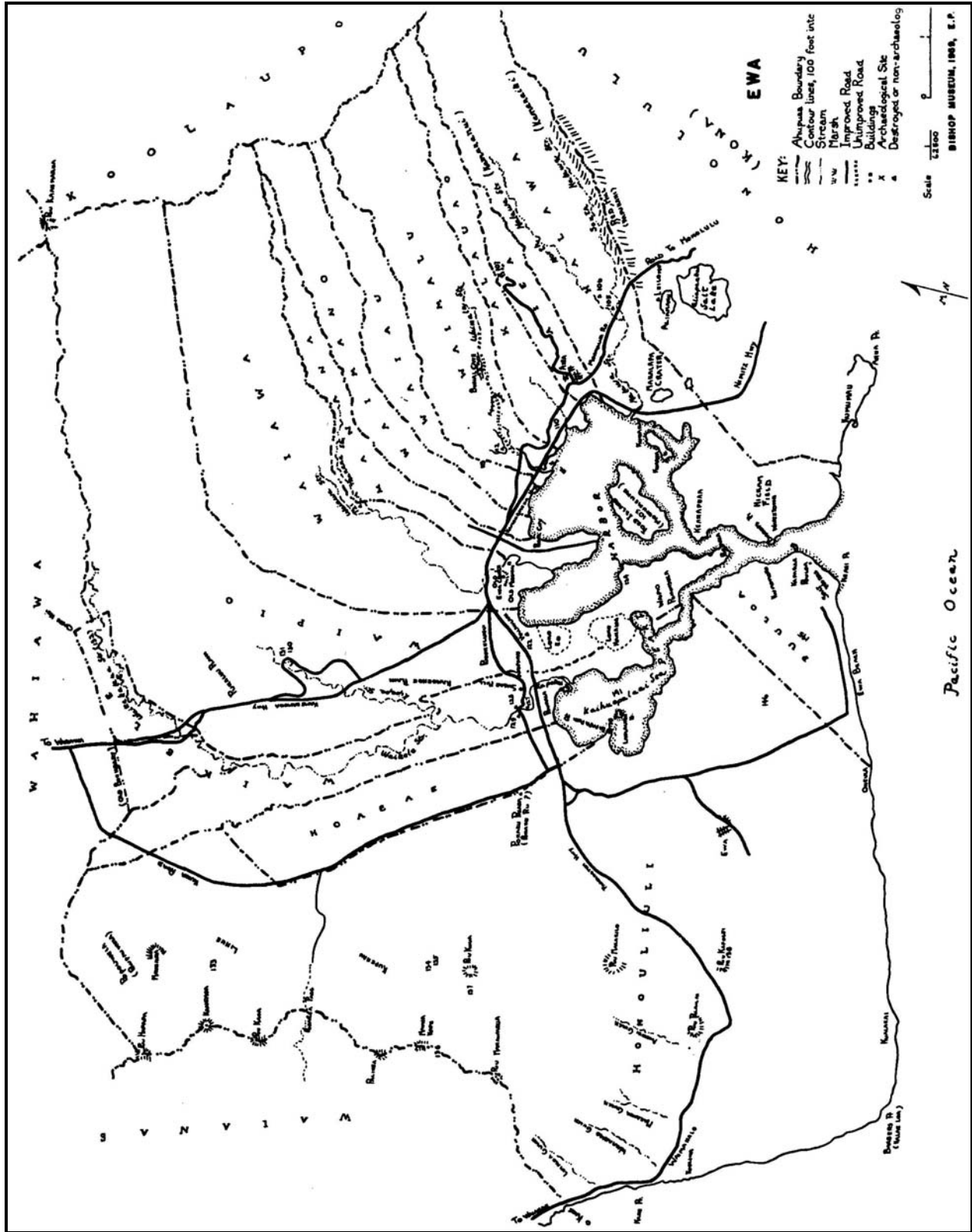


Figure 2. Ahupua`a of Ewa. (from Sterling and Summers 1978).

3.0 ARCHIVAL RESEARCH SUMMARY

Numerous historical and cultural background studies as well as archaeological investigations have been conducted in the `Ewa Plains. Yet, aside from archaeological reports, few reports comment on lifeways, past or present, of `Ewa's western periphery. The earliest writings and oral traditions about western `Ewa agree with the archaeology that the landscape and standard of living was marginal (Lewis 1970; Barrerra 1975; Sinoto 1976, 1978; Sterling and Summer 1978; Davis 1979; Miller 1993; Hammatt and Folk 1981; Hammatt *et al* 1994; Davis 1995).

3.1 ARCHAEOLOGICAL BACKGROUND

The first serious archaeological investigations in the Barbers Point area were conducted in 1970 by Ernest Lewis and a group of volunteers who worked for five Sundays surveying approximately 500 acres of land and test excavating a sample of the sites (Lewis 1970). This survey area was bordered by the Oahu Railroad to the north, Malakole Rd. to the south and west, and Kalaeloa Blvd. to the east. This survey area encompassed the proposed building site for the Imperium Bio-Diesel Plant. The project resulted in recording five house sites, one large stone enclosure, and numerous walls. In addition they noted the presence of hundreds of mounds, or *ahu*, and hundreds of sinkholes, some of which appeared to be deliberately filled. Lewis concludes that this area, though seemingly marginal at best, was indeed settled and developed by Hawaiians previous to the arrival of Europeans. Further, he adds that there is great archaeological potential in the area to shed light on ways in which native Hawaiians adapted to such harsh conditions specifically by looking at subsistence patterns and innovations as well as evidence of possible trade for natural resources. Lewis recommended further archaeological investigation to help elucidate the nature of human adaptation in marginal environments.

In the fall of 1975, 900 acres were archaeologically surveyed in the Barber's Point Harbor area by William Barrera (Barrera 1975). The inland portion of the project area was previously surveyed by Lewis (1970). The *makai* portion of Barrera's survey area resulted in recording 24 archaeological sites, 12 of which were previously unrecorded (T-1 through T 15). Of the new sites, Barrera found 3 additional house sites, over 50 mounds, 2 C-shape shelters, 1 L-shape shelter, 1 rectangular enclosure, a 15m by 1.2 m wall, and a limestone sink. The results of his survey prompted Barrera to recommend more intensive surveying in both inland and *makai* areas of the project.

In 1976, Aki Sinoto of the Bishop Museum conducted a surface survey of the proposed Barbers Point Deep Draft Harbor (Sinoto 1976). His survey documented nearly 100 house sites, walled shelters, mounds, cairns, caves, modified sinkholes, and other man made features, which were dated to the late prehistoric and possibly to the early historic period. Sinoto also conducted a series of test excavations as well as more extensive excavations in a house site near the quarry. Based on the discovery of extinct avifauna in the area, Sinoto suggested that the area was archaeologically significant enough to warrant further investigations or alternatively preservation.

In 1978, Sinoto excavated habitation sites, modified sinkholes, unmodified sinkholes, and associated features in the Deep Draft Harbor project area (Sinoto 1978). His excavations yielded abundant artifacts and ecofacts, including basalt flakes, a basalt adz, an adz chip, a basalt hammerstone, a piece of ground hematite, ten pieces of volcanic glass, a modified bird bone, two coral abraders, and a bone fishhook fragment. Within the midden, Sinoto's team recovered coastal mollusks, crustaceans, and echinoid species, as well as bones from fish, rat, bird, and even trace amounts of human bone. A late 17th Century date, based on hydration dating of volcanic glass, was given to the habitation site B6-70. Sinoto also discussed several trends of pre-Contact land use in the Barber's Point area based on his archaeological findings. One such example was that natural elements of the land, such as outcrops enclosing low-lying spots were used as building foundations and features. Sinoto also found that habitation structures were oriented to block the northeast trade winds. He was also able to see a pattern of midden discard that more typically scattered to the leeward periphery of occupation floors. From these and other archaeological observations, Sinoto was able to shed significant light on the lifeways of prehistoric populations on the `Ewa plane. However, he was unable to explain the connection between avifaunal extinctions and these early inhabitants.

In 1982, Bert Davis from the Bishop Museum conducted extensive excavations in the area known as Stockpile III, which included the area that is being proposed for the Imperium Bio-Diesel Plant (Davis 1995). Using a multi-disciplinary approach, Davis set out to explain the dynamics between ecological change in the subject area and humans (prehistoric and/or historic). Davis investigated over 70 archaeological and paleontological features in his 177 acre study area, from which he recovered artifactual, soil, pollen, and faunal samples. The site complexes most closely located to the proposed site of the Imperium Bio-Diesel Plant are sites 2707, 2708, and 2711, which consist of numerous sinkholes, mounds, C-shaped walls, etc. These features functioned for a number of habitation and gardening activities, and a small number of the sinkholes were used for human burial interments. At the conclusion of Davis' work, this area was used for the massive stockpiling of dredge materials for the excavation of the Barbers Point Deep Draft Harbor. It appears that over 50% of the Imperium Bio-Diesel Plant project area is located within the boundaries of the Stockpile III area.

In 1988, Lynn Miller conducted data recovery excavations in two previously recorded sites located in west Barber's Point/Campbell Industrial Park in an area that was slated for building a container storage facility (Miller 1993). Between the two sites, 20 features were analyzed, consisting of four enclosures, two sinkhole caves, one gardening area, one *ahu*, one historic structure, and eleven modified and unmodified sinkholes. Excavations recovered an assortment of pre-Contact and post-Contact materials including datable charcoal, extinct bird bones, as well as one human burial found in a sinkhole. In addition, C-14 dating yielded results that suggest human settlement of the area took place sometime between A.D. 800 and 1800. Furthermore, based on architectural and other material remains, Miller suggests that the area was subject to more intense, though sporadic, use by pre-Contact Hawaiians than previously believed.

In 1994, archaeologists from Cultural Surveys of Hawaii conducted a 56.5 acre survey on the James Campbell Estate just *mauka* of the Barber's Point Deep Draft Harbor and northeast of the

limestone/coral quarry (Hammatt et al. 1994). During this survey, 37 archaeological sites associated with habitation were found which included 68 individual features. The authors state that the sites represented activities ranging from temporary or seasonal habitation to agriculture as well as various historic activities. Additionally, the authors suggest that the subject sinkholes were probably spatially associated with habitation structures and possibly functioned as mulch planting containers as well as depositories for the remains of extinct avifauna.

3.1.1 Proposed Pipeline Easement Areas

In 1979, Aki Sinoto surveyed an 80 acre parcel for the U.S. Army bordering Malakole Rd. on the north and positioned about 1200 feet west of Kalaeloa Blvd., where dredged materials from the Deep Draft Harbor were slated to be dumped. The study area adjoins the eastern boundary of the areas previously surveyed by Sinoto in 1977 and by Archaeological Research Center Hawai'i in 1978 (Sinoto 1979). The major objective for Sinoto's survey was to locate and identify cultural features and paleontological sites existing in the subject area, assess the significance of the remains, and determine the level of preservation appropriate, if any. According to Sinoto (1979), forty sites, representing 12 different feature types were found in the survey area. The general categories of sites are described as: complexes, which are comprised of multiple structural forms with functional association and spatial continuity; discrete structural forms that include walls, enclosures, platforms, *ahu*, C-shapes, L-shapes, U-shapes, and open filled/paved areas; modified natural features, which are modified sinkholes and depressions; and remnant features described as features in poor conditions. Sinoto deduces that these sites, found sporadically throughout the southern portion of the site, are a continuation of sites found in previous surveys to the west. While he states that the attributes of these sites are no different than those found in the west, the sites represent the marginal portion of a larger complex. The sites located within the northwest proposed Imperium Bio-Diesel Plant easement are: 50-Oa-B6-173 (now site 9670) which is a modified sink with a small wall; 50-Oa-B6-174 (now site 9671) described as an *ahu*; and 50-Oa-B6-188 (now site 9685) which is a modified depression. The current status of these sites is unknown though they are presumed destroyed because of all of the construction activity that has taken place in this area.

Archaeological/paleontological investigations and subsequent salvage work were performed in 1981 by Hallet Hammatt and William Folk in Kalaeloa along the north side Malakole Road, in the area known as Stockpile Area III. The areas along Malakole Rd. and "Powerline Road" are significant, as they are included in or around the proposed project pipeline easements and contain a number of salvaged archaeological and paleontological sites (sites 2624, 9669, 2712, 2723, 2777, 2780, 2781, & 2784). These sites are comprised of various structures and sinkholes for or related to seasonal habitation. Site 2624 was a non-cultural, oval sink complex. Site 9669 was a large, unmodified, wide mouthed, 1.5 meter deep cave-shaped sink containing numerous land snail remains and bird bones associated with cultural midden over 30 cm deep. Site 2712, was an enclosure with avifaunal and land snail remains in association with cultural material with numerous sinkholes nearby containing good soil deposits. Site 2723 can be described as a partially collapsed "L-shaped" wall surrounded by numerous filled and unfilled sinks. Site 2777 was a square, 4 by 4 meter enclosure constructed mainly of limestone slabs, rocks, and boulders, with a wet sink in its immediate vicinity. Sites 2780 & 2781 are alignments of limestone boulders, that Hammatt and Folk (1981) label as possibly the remnants of a recent squatter's shack. Site 2784, was described as a natural solution sink with a 2 by 4 meter opening

and a 1 meter depth, probably associated with sites 2780 & 2781. These sites were salvaged or recorded, and destroyed in the process. Ultimately, of 138 sites, 88 were tested and 26 were excavated (Hammatt and Folk 1981).

Hamilton Ahlo and Robert Hommon surveyed a 28 acre parcel of land, then owned by the Campbell Estate, in 1983 located directly between the Standard Oil Refinery to the north, Hanua St. to the east, and a lot (TMK 9-1-26:12) that was vacant at the time. This survey was performed for the proposed Solid Waste Processing and Resource Recovery Facility. Ahlo and Hommon (1983), discovered eight possible sites that were deemed tentative, due to the lack of archaeological and paleontological data found during this investigation. These potential sites, labeled T-1 through T-8, were located between the proposed pipeline alignment and the alternative pipeline alignment (Figure 1), west of the Standard Oil Refinery. The sites included a series of dry sinkholes, a sinkhole with standing water at base, a filled sinkhole, rectangular pits with no known origin or function, and a charcoal bearing soil deposit. Ahlo and Hommon recommended that subsurface testing be conducted to determine if the possible sites were indeed archaeological sites.

In 1984, Hommon and Ahlo performed a series of test excavations in sites recorded in 1983. The authors excavated six of the eight possible sites identified and found no significant archaeological or paleontological materials. Hommon and Ahlo (1984) admit that there had been extensive modern bulldozing activities in the area and that any archaeological materials that may have been associated with the sinkholes were destroyed or removed. The authors recommended no further investigations in the area and no need for monitoring during the construction of the proposed project.

A 552 acre parcel was archaeologically assessed in 1989 by Hallatt Hammatt and David Shideler for the proposed Kapolei Business/Industrial Park, located in the immediate vicinity of the proposed Imperium Bio-Diesel Plant northern pipeline easements. The irregular, "Z" shaped parcel lies directly between the Oahu Railroad tracks and Malakole Rd., with southern portions extending westward as far as the bend in Malakole Rd. and eastwards over 3000 feet past Kalaeloa Blvd. While the northern portion of the site spans over 7000 feet along the railroad from Makaiwa Gulch to just 1000 feet shy of Kalaeloa Blvd., the width in the center of the site is only an average of about 2500 feet. In their report, Hammatt and Shideler (1989) affirm that since the 1970's many archaeological investigations have been performed in the subject area, yet disclose that there were still a number of areas within the project boundary of archaeological and paleontological concern. Their goal was to locate, identify, and assess remaining archaeological and/or paleontological sites and areas for potential sites, review past studies and associated sites in their project area, identify potential impacts of future developments on sites, and to make recommendations for the above mentioned issues. Of particular interest to the current project is the "Malakole Sinkhole Area," which runs along the west side of "Powerline Road" and north of Malakole Road. This 8 acre sinkhole area has over 100 sinks with openings exceeding 1 meter and combined contain a plethora of prehistoric avifaunal remains. While Hammatt and Shideler (1989) the surface in this area has been extensively "chain dragged" and bulldozed, the authors maintain that sinkhole sites are still relatively intact or are simply filled with rubble, and therefore, still scientifically significant. Preservation has been recommended for the resources within this area.

3.2 TRADITIONAL ORAL HISTORY

Most oral history accounts focus on the eastern periphery of `Ewa, primarily in the region surrounding West Loch. Lewis (1970) admits that the eastern end of Honouliuli and the upland areas were full of history, but little was mentioned about the west side by native Hawaiians or early European travelers. Of the oral histories, two categories of stories are observable: those of mythical nature and those more mundane.

Most recorded oral traditions of realistic nature address the general area of west Ewa. Merely a mile to the northwest of the project area, Fornander (1913-1920), as quoted by Lewis (1970), mentions that the area now known as Ko Olina was noted as the favored vacationing place of Chief Kakuhihewa, a *moi* of ancient times. In Waimanalo, just to the north of Ko Olina, it is rumored that there dwelt the descendants of albinos, or *ka po`e kekea*, whose features were not like other Hawaiians (Kamakau 1991). It is also said that Pu`u Kapolei, a dormant cinder cone about three miles northeast of the project area, was the landmark used to mark the end of Makali`i, or the Kau season, and the beginning of the Ho`oilo season, when young sprouts emerged from the ground (Kamakau 1976; Sterling and Summers 1978).

Some ancient tales illustrate the pre-European contact world view of Hawaiians, where myth and fact intermingle. Kamakau (1964) described western `Ewa as being the home of wandering spirits with no holdings, who ate spiders and moths for sustenance. Sterling and Summers (1978) report a story where two 'strange' women who lived in Kualakai (just 2 miles southeast of the project area) went out to gather seaweed and shellfish, but failed to return home before the morning light and were turned into a pillar of stone. Pu`u Kapolei, was at the center of several local ancient myths and chronicles. One such myth was about Kamaunuanoho, the grandmother of the pig-god, Kamapua`a, who was supplanted at Pu`u Kapolei to exact tribute from the commoners of the area (Sterling and Summers 1978). Another story coming from the south shore area tells of a young 2 ½ foot tall boy, Namakaokapaoo, who killed his stepfather and threw his head five miles away before conquering O`ahu's king and his warriors, replacing the king with his mother as ruler (Beckwith 1970).

3.3 HISTORICAL BACKGROUND

At the time Vancouver arrived at `Ewa in 1793, the written account of the area begins. Apparently, the lands of west `Ewa garnered little comment in early written history save for those of derogatory nature. According to Sterling and Summers, Vancouver (1798), commented on the conditions of the area between Waianae and Ko`olau Mountains:

This tract of land was of some extent but did not seem to be populous, nor to possess any great degree of natural fertility; although we were told that a little distance from the sea, the soil is rich, and all necessaries of life are abundantly produced (Sterling and Summers 1978: 31).

Vancouver's crewmen commented further on the condition of the few canoes that came out to greet them from west `Ewa, calling them "small and indifferent" and "furnished with little for

barter” (Vancouver 1798 as cited by Lewis 1970: 6). Later, Vancouver wrote of the relatively dismal condition of west Honouliuli coast, stating:

From these shores we were visited by some of the natives, in the most wretched canoes I had ever yet seen amongst the South-sea islanders; they corresponded however with the appearance of the country, which from the commencement of the high land to the westward of Opooroah (Puuloa), was composed of one barren rocky waste, nearly destitute of verdure, cultivation or inhabitants, with little variation all the way to the west point of the island (Vancouver 1798 as cited by Lewis 1970: 6).

Kalaeloa, the general area west of Barber’s Point Deep Draft Harbor, is where Captain Henry Barber’s brig, *Arthur*, went aground in 1796. Sterling and Summers (1978) mention that some of the ships cargo was salvaged by locals, but much of it was returned to Barber’s crew after John Young, representing Kamehameha I, intervened (Kamakau 1961). Edwin Hall, Hawaiian Minister of Finance, described Barber’s Point area as a “barren, desolate plain” in the early 1800s after traversing much of the island of O`ahu (Hall as quoted in Lewis 1970: 8). The first missionary to build a church in `Ewa, noted that the people were generally of ill health and over-taxed by O`ahu’s chiefs (Lewis 1970). Though focusing more on the eastern portion of `Ewa, accounts of a spike in native population growth was seen, followed by a severe drop, to near extinction, as a result of European diseases in the mid 1800s (Kamakau 1961).

Later, during the “Great Mahele” of 1848, the entire *ahupua`a* of Honouliuli was awarded to the high chiefess, M.W. Kekauonohi, whose death in 1851 transferred her lands to her husband, Levi Haalelea. Western Honouliuli was then sold to J.H. Coney after Haalelea’s death, who in turn sold the 42,000 acres for \$95,000 to James Campbell in 1877 for cattle ranching. A light-house was erected at Barbers Point in 1888, and a few years later, Campbell leased his lands, from Pearl Harbor to Waimanalo, to the Oahu Railway and Land Company for the next 50 years, who extended the railway from Pearl Harbor to Waianae (Lewis 1970).

Mr. B.F. Dillingham, by irrigating with underground water, started the 11,000 acre Ewa Plantation Company in 1890, initially planting 775 acres of sugarcane at Honouliuli and Ewa (Campbell 1994). During that period, cattle were still ranched in the margins of the cane fields, though a descendant of the ranch manager claimed that fishermen squatters lived in shanties by the beach and traded fish for taro at `Ewa. The same informant reported that there was also a shrimp pond in the Barbers Point area (Lewis 1970).

4.0 ORAL INTERVIEWS

The purpose for oral interviews is to acquire information from local knowledgeable individuals about contemporary cultural use of the subject property that could be adversely affected by the proposed project. In occasions when appropriate cultural informants have already commented on areas in question, they may authorize the use of previous testimonies to stand for what they would state in a similar interview. Hence, the interviews are comprised of both oral testimony and testimony originally provided in earlier interviews and commentaries, with or without amendments.

Concentrated attempts were made to identify and locate persons knowledgeable about traditional practices that took place in the past or that are currently taking place in the area potentially impacted by the project. Below is a listing of persons who were contacted and where attempts to contact persons were made. Only two interviews were secured and one authorized the use of a prior statement on the matter. However, eleven individuals were contacted. Five individuals spoken to had refused to participate, though, referred other individuals as more appropriate interviewees. Two of the eleven potential interviewees failed to return phone calls. Summaries of the resulting interviews follow.

Name	Affiliation	Contacted	Project Area Familiarity	Comments
Kai Markell	Office of Hawaiian Affairs (OHA)	Yes	No	Referrals
Jesse Yorck	OHA	Yes	No	Referrals
Shad Kane	`Ewa Resident	Yes	Yes	Interviewed
NettieTiffany	`Ewa Resident; <i>Kupuna</i>	Yes	Yes	Failed to return calls
Pearlyn Fukuba	`Ewa Resident	Yes	No	Referrals
Maeda Timson	`Ewa Resident; Kapolei Neighborhood Board	Yes	No	Referrals
Kawika McKeague	Oahu Burial Council	Yes	Yes	Consented use of previous testimony
Arline Eaton	`Ewa Resident; <i>Kupuna</i>	Yes	Yes	Interviewed
Judith Flanders	Campbell Estates	No	-	Numbers disconnected
Clyde Namu`o	OHA	Yes	No	Requested appropriate cultural informants ; received letter with referrals
Micah Kane	Department of Hawaiian Homelands	No	-	Was given email address by main office; emailed request

Table 1. List of Cultural Informants with contact history.

The following people were recommended by respected members of the `Ewa community as individuals knowledgeable on the western `Ewa Plain.

Kai Markell is employed by the Office of Hawaiian Affairs (OHA) as an advocate for Hawaiian lands, cultural and historic preservation, and burial protection. Mr. Markell was only able to refer Pacific Legacy to Nettie Tiffany, Shad Kane, and Arline Eaton.

Jesse Yorck is a Native Rights policy advocate for OHA. Jesse Yorck advised Pacific Legacy to write a pre-consultation to Clyde Namu`o requesting appropriate cultural informants for area.

Shad Kane is a longtime Makakilo resident and retired Lieutenant from the Kapolei Police Department who has served as president of Ahahui Siwila Hawaii O Kapolei Hawaiian Civic Club and is hailed as resident historian for the *ahupua`a* of Honouliuli. Shad Kane agreed to participate in an interview on January 16, 2007, and approved the use of his previous testimony on the subject given to Pacific Legacy in April 2002.

Nettie Tiffany is a *kupuna* and member of the O`ahu Burial Council. Ms. Tiffany, also known as "Auntie Nettie," grew up in Lanikohonua, what is now the Ko`Olina resort complex. Ms. Tiffany currently works for James Campbell Company, LLC., but performs blessings for the local community. Ms. Tiffany was unable to return phone calls, hence, unavailable for comment.

Pearlyn Fukuba is a lifelong `Ewa resident, current Department of Land & Natural Resources (DLNR) Division of Boating and Ocean Recreation administrator, and former DLNR spokeswoman. Ms. Fukuba also coordinates the annual Ewa Beach Limu Festival. Pearlyn Fukuba suggested in a phone conversation to contact Theresia McMurdo of James Campbell Company, LLC, as well as trying to contact persons in DLNR, Division of Land Management. Ms. Fukuba admitted that she was not familiar with area.

Maeda Timson is the chairwoman of the Makakilo/Kapolei/Honokai Hale Neighborhood Board and longtime Kapolei resident. Ms. Timson advised Pacific Legacy to contact Pearlyn Fukuba and Shad Kane. She stated that she was not knowledgeable on the area's current cultural significance.

Kawika McKeague was raised in Makakilo, west `Ewa *mauka*, and is currently Vice Chair of the O`ahu Island Burial Council due to his solid understanding of Native Hawaiian culture and burial practices. Mr. McKeague authorized Pacific Legacy with the use of his previous testimony, from an unrelated report (in preparation), concerning cultural practices in `Ewa, and stated that he had no further input.

Arline Eaton was born Arline Wainaha Pu`ulei Brede in 1927 and raised in the Pu`uloa *ahupua`a*. Ms. Eaton is a fourth generation resident of `Ewa and states that her grandfather told her that their family was the first to inhabit the area. Because her Aunt and Uncle, Mr. & Mrs. Fred Robbins, operated the Barbers Point Light House during her childhood, Ms. Eaton claims to have frequented Kalaeloa often with her friends to swim, play, fish, as well as gather seaweeds and plants. Ms. Eaton is currently the resident Hawaiian Studies teacher, or *kupuna*,

for Iroquois Point Elementary. Arline agreed to participate in an interview, which took place in the afternoon of January 18, 2007.

Judith Flanders, grew up in west `Ewa and is a descendant of James Campbell, one of the largest and wealthiest landowners in Hawaiian history. Ms. Flanders was on the James and Abigail Campbell Foundation Board of Directors. Additionally, Ms. Flanders is a co-founder and Chairwoman for The Iliahi Foundation of Hawai'i, an organization whose aim is to help restore the native flora of Hawai'i. Contact numbers provided for Ms. Flanders were all disconnected, thus, she was unavailable for comment.

Clyde Namu`o is the OHA administrator responsible for selecting cultural informants for Cultural Impact Assessments for the Island of O`ahu. Mr. Namu`o provided a list of individuals to contact: Micah Kane, Nettie Tiffany, and Tom Lenchanko.

Micah Kane was appointed Director of the Department of Hawaiian Home Lands in 2003 by Governor Linda Lingle. Kane previously served as Chairman of the Hawaii Republican Party from 2002 until 2003. Kane was also government affairs liaison with the Building Industry Association of Hawaii. Mr. Kane was called and emailed, but ultimately unavailable for comment.

4.1 KUPUNA TESTIMONIES

Two of the requested cultural informants agreed to participate in an interview regarding their knowledge of western `Ewa's cultural past and present: Arline Eaton and Shad Kane.

4.1.1 Arline Eaton

Ms. Eaton was interviewed by Kimberly Mooney of Pacific Legacy on Thursday afternoon, January 18, 2007, at "Zippy's" restaurant in `Ewa off of Ft. Weaver Rd.

Born to one of the original historic families in southeast `Ewa, or Pu'uloa, as Arline Wainaha Pu'ulei Brede in 1927, Ms. Eaton knows the `Ewa Plain intimately. According to Ms. Eaton, her father, Papa Brede, informed her that during the reign of Kamehameha II or III the Dowsett family purchased Pu'uloa from the king. Soon afterwards, Arline's family established a home in Kupaka: the area within present day Iroquois Point to Campbell High School and from `Ewa Beach almost to Oneula Beach. Ms. Eaton recalls her original Pu'uloa home being a "little grass shack" that predated nearly all others in the area. When she was of school age, Ms. Eaton spent her weekdays in Kalihi, where she attended Kamehameha School. Ms. Eaton recalls being paddled by canoe to school in Kalihi and back to Pu'uloa along Mamala Bay. Further, Ms. Eaton spoke about early days on the 'Ewa Plain when the area was marshy and people traveled from area to area in small boats.

Since her adoptive parents as well as Aunt and Uncle, Mr. & Mrs. Fred Robbins, operated the Barbers Point Lighthouse, Arline recalls spending much of the free time of her youth exploring, gathering *limu* and plants, swimming, and fishing with her friends in the Kalaeloa/Barbers Point area. Ms. Eaton stated that she would travel over eight miles along the coast to get to the lighthouse and that along the way, she would collect all kinds of *limu*, such as *`ele `ele*, *kohu*,

manauea, *lipoa*, and *wawae`iole*, as well as skin dive to catch fish and collect shellfish – all of which were eaten raw. Arline further stated that the shores of west `Ewa were so full of *limu*, it was once called “House of Limu,” yet, she never took more than she and her family could use. Sadly, Ms. Eaton added that *limu* is now rarely seen in the area. Of the seafood she remembered gathering, she said that lobster, crab, and fish were always in abundance on the coast and that she ate freshwater shellfish from the inland ponds. In addition, she recalled that when she was no longer considered a child, she could only collect lobster during certain periods (of which she did not explain). Looking back, Ms. Eaton also remembered gathering *hihia wai*, an edible, freshwater swamp fern, from inland ponds that contained freshwater springs. In regards to inland vegetation, she remembers collecting a “round, spiny fruit” she called *wai wi*, and *lilikoi* to eat. Ms. Eaton also picked red and yellow *lehua* flowers for leis, but remembered her elders telling her that if she picked too much it would rain, as these flowers were to be reserved for the *ali`i*.

When asked about what stories she remembered about the inland area north of Barbers Point lighthouse, she said that family members and friends referred to the area as being ghostly and warned her of wandering spirits. Ms. Eaton admitted that she paid no mind to the rumors and ancient beliefs, stating that, “I did not worry because God watched over me...” and that the region held many fond childhood memories. Additionally, she remembered Kapo, the goddess of fertility, sorcery, and dark powers who can assume any shape at will, being associated with west `Ewa.

Arline reminisced about the solitude and freedom she enjoyed while living off the lands of Kalaeloa, as she never had to worry about the potential danger of strangers. To her knowledge, during her childhood there were no inhabitants around the project location, which is just 2 miles north of the Barbers Point Lighthouse. Ms. Eaton did remember workers from `Ewa Plantation setting up temporary fishing camps on the beach of the area that is now occupied by Camp Malakole and the oil refinery. Arline also stated that her uncle, Sam Amalu, who was the lighthouse keeper before the Robbins, remembered the area only as ranch and cane fields.

When asked how Ms. Eaton felt about the proposed development of the Imperium Bio-Diesel Plant, she voiced neither strong opposition nor approval. Ms. Eaton simply stated that she knew of no cultural activities going on in the immediate area of the proposed building site.

4.1.2 Shad Kane

Mr. Kane was interviewed by Kimberly Mooney of Pacific Legacy on Tuesday morning, January 16, 2007, at the State of Hawaii Department of Transportation office at Kalaeloa Barbers Point Harbor. The harbor office is located under a thousand feet to the west of the proposed Imperium Bio-Diesel Plant. While Mr. Kane admitted to living in Makakilo for only 33 years, he has done a lot of archival research and received oral histories from local *kupuna* on the cultural history of west `Ewa. Additionally, he did remember some details about Kalaeloa/Barbers Point area from family trips between Wahiawa and Waianae along Farrington Hwy.

Mr. Kane was born to Hattie and Tazoni Kane in Honolulu on February 23, 1945. Although Mr. Kane was primarily raised on the Pearl City Peninsula, his family frequently traveled through `Ewa along what is now Farrington Hwy to visit family and friends who resided in Waianae.

He recalled that along the way, his father referred to the lands and coast of Kalaeloa/Barbers Point as *kapu*, or prohibited. Shad admitted that his father never expanded on why he defined those lands as *kapu*, but he guessed that it was in close proximity to the favorite vacationing spot of the high chief Kakuhihewa and therefore off-limits to commoners.

During the January 16, 2007 interview, Shad Kane authorized Pacific Legacy to use statements pertaining to west `Ewa that he'd given in a previous interview with Pacific Legacy for a Cultural Impact Assessment on `Ewa Gentry Makai in April 2002. In this interview, Mr. Kane said he believed that the `Ewa inter-coastal plain "remained fairly desolate during the pre and early post-contact years..." which he attributed to the "...marginal environment, and ancient-traditional oral histories that identify the area as the barren place for mischievous wandering spirits" (Kane as quoted by LeSuer & Cleghorn 2002). Further, Kane states that *wailua*, or the body's dream spirit, according to Hawaiian tradition, has two facets: good and bad. When a person behaves badly in life, his or her *wailua* is seen as bad by their *`aumakua*, or ancestral spirits and personal gods. Therefore, the *wailua* is banished to wander in a local *ao kuewa*, the "realm of the earthly wandering homeless and mischievous spirits," one of which is the `Ewa Plain (LeSuer & Cleghorn 2002). Mr. Kane added that he saw numerous unexplainable circumstances in his many years as an `Ewa policeman, causing him to consider the authenticity of the ancient belief (LeSuer & Cleghorn 2002). Mr. Kane did mention that he was responsible for naming the Department of Hawaiian Home Lands 52-acre subdivision in Kapolei, *Kaupe`a*, meaning "crisscrossing and intermingling" in Hawaiian, which was the traditional name of the area - being the locality of wandering spirits.

When asked if Mr. Kane thought that the proposed building of the Imperium Bio-Diesel Plant would be detrimental to the area's current cultural use, he voiced that he is generally concerned about any development of these lands due to the potential archaeological significance they may still have.

4.2 KNOWLEDGEABLE CULTURAL PRACTITIONER TESTIMONY

4.2.1 Kawika McKeague

Mr. McKeague permitted Pacific Legacy to use statements he gave in an unrelated consultation on `Ewa's cultural history to stand for his testimony on the cultural significance of `Ewa. The previous comments given by Mr. McKeague that are used in this report specifically address: "common concerns shared by other practitioners or *kama'aina* of the area..." regarding "...critical needs that need to be incorporated into project design of Makaiwa and Kapolei Industrial" (email from McKeague to Pacific Legacy 2007). While the development project mentioned by Mr. McKeague is unrelated to the project of this report, Makaiwa is the name of the gulch located about 1 mile north of Barbers Point Deep Draft Harbor and Kapolei Industrial refers to the newer industrial complex located just north of Campbell Industrial Park along Kalaeloa Blvd. On the above mentioned concerns, Mr. McKeague states:

- 1) Spiritual transcendence imbued into physical landscape- there is fine line of existence and being within the worlds of the ethereal and "reality" within the entire Honouliuli ahupua'a. This fine line between two worlds of knowing, perceiving, and attaining life essence creates a cultural/spiritual foundation for

this area to provide the means for moments of revelation through various sensories. These ho'ike reveal themselves through 'ike papalua, secondary sight/knowledge, hihi'o, akaku, and ho'ike na ka po.

Even the name of the ahupua'a is suggestive of the deep well of knowledge and understanding that comes from the time of Po. Some of the supporting elements to this line of thought of extrasensory "enlightenment" to delve into different plains of being and existence include:

- a) Kapo'ulakina'u- (Kapo of the red streaked with dark) the female akua that provides inspiration and insight only through one's dreams- her presence demarked by the ula rays of the setting sun, which also belongs to Hina/Papa/Haumea;
- b) the area of Kaupe'a- the plains of the ao auana, where unsettled souls wander and dwell
- c) Hoakalei- area near White Plains Beach- where it [is] said that Hi'iaka receives vision of the death of Hopoe and the burning groves of lehua on Hawai'i island
- d) Pu'uomakakilo- any term with kilo- indicative of being able to read ho'ailona, second sighters, if you will
- e) Mo'olelo of Kamapua'a- fortells or gives Kamaunaaniho the ho'ailona that will reveal his death at Pu'uokapolei- the smelling [of] burning bristles-

2) Sensory exploits of the female persona- you look at the natural landscape and you begin to understand some of the place names are related to physical, emotional, and spiritual cycles that are a natural part of a wahine's passage through and during childbirth. There's multiple loaded kaona in these place names but there is commonality again in sensory experiences that sustain the cyclic nature between life and death, ignorance and enlightenment, po to ao-

- a) Pu'umanawahua- discomfort of the stomach, nausea; to suffer great grief; also jealousy
- b) Pu'ukapua'i- to cause to flow, to bubble, gurgle; to vomit; to appear, as a color; variation on the work kapua'i also means to tread
- c) Pu'umo'opuna- grandchild; offspring; relative or descendant two generations later
- d) Puuku'ua- to release; let go; discharge
- e) Pu'upoulihale- again the reference to uli- any dark color, richness of vegetation, of seed banks; also female akua of certain sorcery; short for 'ouli- study of omens; also the name for the developmental stage of a fetus, as the body begins to form. Pouli can mean darkness, sometimes ignorance (modern mental ascription to the night []) but a more traditional line of thinking could be that of Po, of knowledge beyond the sensory experiences of ao, of being awake, in the light; the knowledge that stems from such a time of antiquity.
- f) Akupu- to sprout; germinate; supernatural
- g) Awanui gulch- could reference the "large passage", indicative of birthing passage or "outburst" (alluding to Papahanaumoku/Haumea's birth of the island- geologically one of the main outvents of Wai'anae volcanic eruption);

h) Pohakea- where Pele receives the cloud omens; where Kauhi kills Kahalaopuna who is [resuscitated] by her pueo 'aumakua. I've been taught that name ascribed is Poha a Kea- the bursting forth (as thunder) of Kea (or Wakea)- presence of all the childbearing qualities and emotions; the ability of a woman to bring life into the world; of Papa to give birth to the islands, Wakea's presence must be the balance. However, some traditions cite that Papa and Lua mated to birth O'ahu in Papa's jealousy of Wakea and Ho'okukalani's relationship. In Pele and Hi'iaka epic, Hi'iaka [undergoes] a long period of visions and mo'olelo/oli are iterated (so much so Emerson's says there's too much going on that he purposefully does not include it in his account- there is another account which I can give you reference if you would like).

i) Palehua- I disagree with Pukui; I don't believe it's only meaning is the lehua enclosure; I see two other words prominent- pale and hua, the idea that this place is where the hua is protected or perhaps in another meaning one is protected by hua, by jealousy

i) Palikea- the cliff of Kea (Wakea)- he is detached from the processes of the childbearing activities that are evident with the form of these pu'u- this distinguished "setting aside" of place for Kea further support that the mountainscape down to Pu'uokapolei is female, is lifebearing, is transcending between this life and others yet to be or that have passed before.

j) Palailai- I disagree with Pukui; I don't believe it's the "young of the lai fish"- my hale is on the northeast corner of its kahua- I believe it's to "experience or be in a state of being calm and clear"- again sensory; having clear vision or thought as something is born in thought through experience

k) Mauna Kapu- I know some say this is [in] regards to Kakuhihewa's kapu. Could be- my mana'o is that this point clearly defines what is Wakea and what is Papa, my mana'o only...Papa giving birth- woman giving birth-probably the strongest period where Haumea thrives and is more "powerful" or omniscient than Wakea- kapu had to be established to protect both male/female sources of identity.

l) Makaiwa- I think it's a shortened version of-Maka a aiwa, as in the face (essence) of complete mystery, incomprehensible (as in caught in a wake between two worlds- again transitional, balancing between two worlds)

This is part of my mo'olelo- I have other concerns mauka regarding places we were instructed not to go, certain valleys (makaiwa gulch- told was resting places for kupuna), west side of pu'uopalailai. I've seen pueo and 'io as low as the timberline level. I've seen various species of pheasants. I've seen 'ilima papa, 'a'ali'i, growing in such huge size (huge petals, huge pods)- life grows here, even with little rain. I've been told of wahi kanu that were move[d] or disturbed during ranching days by Campbell.

Will there be project impacts? Yes

How to mitigate? could go on for days- complete survey work; higher yields for preservation of tangible features; respect for visual linkages between pu'u points and open spaces for practitioner to connect- perhaps a commitment to have a

halau (lack of a better word for cultural center) for [practitioners] to access for resources, communication to kupuna; programmatic development within this center and within adjacent schools- support for technology advancement with cultural learning in nearby charter schools; reforestation efforts; keep physical design of built spaces consistent with natural landscape in terms of shape, color, motifs, themes, housing names, street names, etc. (email from McKeague to Pacific Legacy 2007).

What Mr. McKeague appears to intend is the reclamation and/or recognition of traditional and religious aspects of west `Ewa by challenging current place name definitions with his more spiritual interpretations of what they mean.

5.0 DISCUSSION

Based on the current state of the property, being a dumping ground of coral and modern refuse in the heart of one of Hawaii's largest industrial parks, the lack of evidence supporting contemporary cultural use of the project area is not surprising.

By looking at the previous research done on the area archaeologically, ethnographically, and by reading historical accounts, the area of Kalaeloa/Barbers Point Deep Draft Harbor appears to have a rich pre- and post- European contact history. Although west `Ewa never supported a large population, the amount of archaeological inquiries performed in the area is relatively extensive. The archaeological significance of the area has a reoccurring theme about early `Ewa people's relationship and impact on the sensitive, pristine environment. Recorded ancient myths about the area convey a foreboding sense and permeate the land with mystery. Oral past accounts from prehistory somewhat avoid the subject area. Historical accounts given by early Europeans regarded the area as harsh and barren, often echoed in the way they viewed the inhabitants: unrefined and nameless. Later in history, the land was made useful and lucrative, by western standards, by completely altering the terrain and disregarding any ties that Hawaiians may have had with the area. In retrospect, the survival of humans in such a unique and harsh landscape appears to have intrigued both scholars for decades and Native Hawaiians for centuries – both communities working with ephemeral facts to reach for an explanation using their own traditional approach. Yet, given the varied history and current state of the project area, it is difficult to picture any current cultural significance it may have.

Interestingly, the three interviewees had relatively different views on the past and present cultural significance of the project area. Ms. Eaton voiced no concerns over the proposed project, but had a personal and cultural affiliation with the area, which was derived from her own experiences growing up. Mr. Kane was not raised in the subject area, yet acknowledges an archaeological significance of the area, to which he deems valuable to contemporary cultural practice. Mr. McKeague, who is not considered a *kupuna*, but grew up in `Ewa and currently practices Hawaiian traditions in west `Ewa, feels that the general region in question is imbued with spiritual essence and folklore, which he claims are clear in the traditional place names. While he was unavailable for additional comments about the Imperium Bio-Diesel Plant project, his statement suggests he sees west `Ewa as spiritually significant. However, he offers no examples of current cultural activities that take place in the area.

In conclusion, based on the archival research as well as contemporary testimonies, it does not appear that the proposed development will have any adverse effect on current traditional and/or cultural activities.

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APPENDIX

Oral History Study Personal Release of Interview Records

PACIFIC LEGACY, INC.
 ORAL HISTORY STUDY
 PERSONAL RELEASE OF INTERVIEW RECORDS

Project: Imperium Bio Diesel Plant

Date of Interview: 1/18/07

I, ARLINE W. EATON, have been interviewed by Kimi of Pacific Legacy, Inc. for the above referenced project. I agree that the interview information may be used in a report that may be made public.

Arline W. Eaton
 Interviewee Signature

1/18/07
 Date

Oral History Personal Release Form: Arline Eaton.

PACIFIC LEGACY, INC.
 ORAL HISTORY STUDY
 PERSONAL RELEASE OF INTERVIEW RECORDS

Project: IMPERIUM BIO-DIESEL PLANT CIA

Date of Interview: 16 JANUARY 2007

I, SHAD KANE, have been interviewed by KIMBERGY of Pacific Legacy, Inc. for the above referenced project. I agree that the interview information may be used in a report that may be made public.

Shad Kane
 Interviewee Signature

1/16/07
 Date

Oral History Personal Release Form: Shad Kane.

APPENDIX C

BOTANICAL, AVIAN, AND MAMMALIAN SURVEY

**A Survey of Botanical, Avian, and Mammalian
Resources, Imperium Renewable Bio-Diesel
Production Plant, 'Ewa District,
O'ahu, Hawai'i.**

DRAFT

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Introduction

Imperium Renewables Hawaii, LLC is proposing to develop a renewable energy bio-diesel plant on an approximately 15.15-acre site, identified as a portion of Tax Map Key (TMK): 9-1-14-24 located adjacent to the Barbers Point Deep Draft Harbor, 'Ewa District, Island of O'ahu (Figure 1). This report summarizes the findings of the botanical, avian and mammalian surveys that were conducted to determine the potential effects of the proposed development on biological resources present on the site, and within the general project area.

A primary goal of the surveys was to determine if there were any Federal or State of Hawai'i listed endangered, threatened, proposed, or candidate botanical, avian, or mammalian resources on, or in the immediate vicinity of the proposed project site. Federal and State of Hawai'i listed species status follows species identified in the following referenced documents (Division of Land and Natural Resources (DLNR) 1998, Federal Register 2005, U. S. Fish & Wildlife Service (USFWS) 2005, 2006). Fieldwork was conducted on January 15, 2006.

The avian phylogenetic order and nomenclature used in this report follows *The American Ornithologists' Union Checklist of North American Birds 7th Edition* (American Ornithologists' Union 1998), and the 42nd through the 47th supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005, 2006). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Naturalized flowering plant names follow *Manual of the Flowering Plants of Hawai'i* (Wagner et al. and Wagner and Herbst, 1990, 1999). Ornamental plant names follow *A Tropical Garden Flora: Plants Cultivated in the Hawaiian Islands and Other Tropical Places* (Staples and Herbst 2005). Place names follow *Place Names of Hawaii* (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on (Page 13).

General Site Description

The approximately 15.15-acre project site is owned by the State of Hawai'i Department of Transportation – Harbors Division (HDOT-HD), and will be leased to the developer, Imperium Renewables Hawaii, LLC to develop a renewable energy bio-diesel plant.

The project site is currently vacant land abutting the southeast side of the Barbers Point Deep Draft Harbor. The site has been used as a deposition site for dredge materials associated with the development of the harbor, and with subsequent coral mining activities. There are two large stockpiles of dredge material on the site separated by a flat area, which is level with the surrounding harbor infrastructure. The larger of the two stockpiles contains some 800,000 cubic-yards of material.

Figure 1 Imperium Hawaii Renewables Project Site

(Place Holder for Figure from Belt Collins)

Mammalian Survey Methods

All observations of mammalian species were of an incidental nature. With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'ōpe'ape'a as it is known locally, all terrestrial mammals currently found on the Island of O'ahu are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal signs. A running tally was kept of all vertebrate species observed and heard within the study area.

Mammalian Survey Results

No mammals were seen during the course of this survey, though scat and sign of domestic dog (*Canis f. familiaris*), was encountered at several locations within the project site. Dogs are an introduced species that are considered deleterious to Hawaiian native avian species.

Avian Survey Methods

Three avian count stations were sited equidistantly spaced across the project area. One six-minute point count was conducted at each station. Field observations were made using Leitz 10 X 42 binoculars to sight birds and by listening for vocalizations. Counts took place between 07:30 a.m. and 9:30 a.m., the peak of daily bird activity. Time not spent conducting station counts was used to search the area for species and habitats not detected during count sessions.

Avian Survey Results

A total of 113 individual birds of 12 different avian species, representing 12 separate families were recorded during station counts. An additional species, Ruddy Turnstone (*Arenaria interpres*), was recorded as an incidental observation while transiting between count stations (Table 1).

Of the 13 different avian species detected during time spent on the site, all but one are considered to be alien to the Hawaiian Islands (Table 1). Three Ruddy Turnstone were observed flying upslope from the shoreline across the site. Ruddy Turnstones are an indigenous migratory shorebird species, that nest in the High Arctic returning to Hawaii and the Tropical Pacific during the fall and winter months.

Avian diversity was relatively low, though densities of several species were relatively high. Three species: Common Waxbill (*Estrilda astrild*), House Finch (*Carpodacus mexicanus*), and Grey Francolin (*Francolinus pondicerianus*) accounted for 49% of the total number of individual birds recorded. Common Waxbills were the most frequently recorded species, accounting for

slightly more than 20% of the total number of individual birds recorded during station counts. We recorded an average of 38 birds per station count.

<i>Table 1 - Avian Species Detected, Imperium Hawai'i Site</i>			
<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
GALLIFORMES			
PHASIANIDAE - Pheasants & Partridges			
Phasianinae - Pheasants & Allies			
Gray Francolin	<i>Fracolinus pondicerianus</i>	A	4.67
CHARADRIIFORMES			
CHARADRIIDAE - Lapwings & Plovers			
Charadriinae - Plovers			
Pacific Golden-Plover	<i>Pluvialis fulva</i>	IM	0.67
SCOLOPACIDAE - Sandpipers, Phalaropes & Allies			
Scolopacinae - Sandpipers & Allies			
Ruddy Turnstone	<i>Arenaria interpres</i>	IM	I-3
COLUMBIFORMES			
COLUMBIDAE - Pigeons & Doves			
Spotted Dove	<i>Streptopelia chinensis</i>	A	1.33
Zebra Dove	<i>Geopelia striata</i>	A	1.00
PASSERIFORMES			
PYCNONOTIDAE - Bulbuls			
Red-vented Bulbul	<i>Pycnonotus cafer</i>	A	5.33
ZOSTEROPIDAE - White-Eyes			
Japanese White-eye	<i>Zosterops japonicus</i>	A	4.33
MIMIDAE - Mockingbirds & Thrushes			
Northern Mockingbird	<i>Mimus polyglottos</i>	A	0.33
STURNIDAE - Starlings			
Common Myna	<i>Acridotheres tristis</i>	A	3.33
CARDINALIDAE - Cardinals Saltators & Allies			
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	0.33
FRINGILLIDAE - Fringilline And Carduline Finches & Allies			
Carduelinae - Carduline Finches			
House Finch	<i>Carpodacus mexicanus</i>	A	6.00
PASSERIDAE - Old World Sparrows			
House Sparrow	<i>Passer domesticus</i>	A	2.67
ESTRILDIDAE - Estrildid Finches			
Estrildinae - Estrildine Finches			

<i>Common Name</i>	<i>Scientific Name</i>	<i>ST</i>	<i>RA</i>
Common Waxbill	<i>Estrilda astrild</i>	A	7.67

KEY TO TABLE 1

ST Status

IM Indigenous Migrant – a native migratory species that winters in Hawai‘i but breeds elsewhere

A Alien – introduced to the Hawaiian Islands by humans

RA Relative Abundance – Number of birds detected divided by the number of count stations (3)

I - Incidental observation, followed by the number of individuals recorded

Botanical Survey Methods

A pedestrian botanical survey was conducted on January 15, 2006 noting the occurrence and relative abundance of all species of plants observed. Wandering transects were used to cover the area. As the survey progressed, 11 waypoints (intermittent position locations) were entered into a hand-held GPS unit (Garmin *eTrex* “Vista”®). These 11 positions were later downloaded into a computer-mapping program (TOPO!®) and a map produced showing the general route of the survey. Figure 2 shows the results from the mapping program projected onto a satellite photograph of the area southeast of Barbers Point Deep Draft Harbor (waypoints shown as red dots and numbered). Because only waypoints of the botanists were recorded, the actual ground covered during the biological surveys was more extensive, in addition to the fact that the route taken by the botanist was more convoluted than shown.

This survey was conducted following a relatively wet period on O‘ahu. Consequently, most of the plants encountered (including annuals) were growing well and were in flower, making positive field identifications relatively easy. Nonetheless, a one-time survey cannot expect to list every plant species growing on a subject property. Some species are seasonal or opportunistic; while others might be present, but in such low numbers that they are simply not encountered.

This former agriculture land, once in sugar cane (Char & Associates, 1989), was extensively disturbed by dredging of the deep draft harbor in the 1970s and no remnants of the native coastal vegetation are now present. Around 5% of the site supports a *kiawe* (*Prosopis pallida*) and buffelgrass (*Cenchrus ciliaris*) lowland savannah. This narrow strip of vegetation typical of lowland leeward O‘ahu is present between the mounds along the southern boundary of the property (in the vicinity of a monitoring well).

A plant checklist (Table 2) was compiled from the field observations, with entries arranged alphabetically under family names. Included in the list are scientific name, common name, and status (whether native or not-native) of each species. In addition to identifying the plants present within the study site, qualitative estimates of plant abundance were made. These are coded in the table as explained in the Legend to Table 2 and apply to observations made during the present survey.

Figure 2. Imperium Hawaii Renewables Site, Botanical Survey Route with Recorded GPS Waypoints.



Satellite photograph of the land south of Barbers Point Harbor showing approximate project boundary (outlined in orange) and botanical survey route as a dashed, black line.

Botanical Survey Results

The project area is characterized by two distinct vegetation areas: 1) quarry and dredged material tailings and storage, 2) long abandoned agriculture lands now supporting a *kiawe* (*Prosopis pallida*) and buffelgrass (*Cenchrus ciliaris*) lowland savannah.

Dredged spoil and abandoned construction debris cover at least 75% of the property. These areas are characterized by extensive calcareous sediment deposits, with pioneer species growing over highly disturbed ground, extensive concrete, limestone boulder, and construction grubbing debris,

along with smoothed or graded areas for access comprise another roughly 20% of the site. Much of the parcel is covered by two mounds of dredged spoils that are some 122 ft (4 m) and 35 ft (15 m) high. The sides of the mounds are very steep and support little vegetation. The smaller, lower mound on the southwest is characterized by an uneven surface, a consequence of the process of depositing distinct loads of material in piles as the mound was created. The surface is covered mostly by tumbleweed (*Salsola tragus*). The higher mound has a somewhat more even, flat-topped surface and extends off the property towards the northeast. The remainder of the property not covered by these two large deposits of calcareous sediment is flat except for scattered mounds of construction debris, especially notable off the western base of the high mound. Numerous ruderal species occur across the property, but the conditions of disturbance have been stable for a sufficiently long period of time to enable woody shrubs (especially sourbush or *Pluchea caroliniensis*, koa haole or *Leucaena leucocephala*, and tree tobacco or *Nicotiana glauca*) to come to dominate much of the ground. There is some evidence of ephemeral flooding and ponding, mostly off the property to the south, creating special habitats that support plants such as California grass (*Urochloa mutica*) and sprangletop (*Leptochloa uninervia*; see David and Guinther, 2006b). Although the origin of the sediment mounds is dredging of Barbers Point Deep Draft Harbor, ephemeral pools no longer show evidence of salt encrustations upon drying out, but species of mat-forming, salt-tolerant plants such as 'akulikuli (*Sesuvium portulacastrum*) and kipukai (*Heliotropum currasavicum*) invade these playa-like flats as the surface water recedes.

Figure 3 Imperium Hawaii Renewables Project Site looking west.



Photograph taken January 15 of the Imperium Renewables site west of the larger of two spoil deposit mounds. The smaller mound is visible beyond an area of reddish soil.

Table 2 – Flora Listing, Imperium Renewables Hawai‘i Site

Species listed by family	Common name	Status	Occurrence
ACANTHACEAE			
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	Nat.	O2
AIZOACEAE			
<i>Sesuvium portulacastrum</i> (L.) L.	`akulikuli	Ind.	O
<i>Trianthema portulacastrum</i> L.	---	Nat.	U
AMARANTHACEAE			
<i>Achyranthes aspera</i> L.	---	Nat.	R
<i>Alternanthera pungens</i> Kunth	khaki weed	Nat.	R
ASTERACEAE (COMPOSITAE)			
<i>Bidens alba</i> (L.) DC	---	Nat.	U
<i>Dyssodia tenuiloba</i> (Candolle) Robinson	Dahlberg daisy	Nat.	R
<i>Emilia fosbergii</i> Nicolson	<i>pualele</i>	Nat.	C
<i>Flaveria trinerva</i> (Spreng.) C. Mohr	---	Nat.	C
<i>Lactuca serriola</i> L.	prickly lettuce	Nat.	O
<i>Pluchia carolinensis</i> (Jacq.) G. Don	sourbush	Nat.	A
<i>Pluchia x fosbergii</i> Cooperr. & Galang	---	Nat.	U
<i>Pluchea indica</i> (L.) Less.	Indian fleabane	Nat.	O2
<i>Sonchus oleraceus</i> L.	sow thistle	Nat.	O
<i>Tridax procumbens</i> L.	coat buttons	Nat.	U2
<i>Verbesina enceliodes</i> (Cav.) Benth. & Hook.	golden crown-beard	Nat.	C
BORAGINACEAE			
<i>Heliotropium currasavicum</i> L.	seaside heliotrope	Ind.	C
CHENOPODIACEAE			
<i>Atriplex semibaccata</i> R. Br.	Australian saltbush	Nat.	C
<i>Chenopodium murale</i> L.	`aheahea	Nat.	O
<i>Salsola tragus</i> L.	tumbleweed	Nat.	C3
CONVOLVULACEAE			
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	---	Nat.	U
<i>Jacquemontia ovalifolia</i> (Choisy) H. Hallier	<i>pa'u-o-Hi'iaka</i>	Ind.	R1
CUCURBITACEAE			
<i>Momordica charantia</i> L.	balsam pear	Nat.	R
EUPHORBIACEAE			
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat.	O
<i>Chamaesyce hypercifolia</i> (L.) Millsp.	graceful spurge	Nat.	U
<i>Chamaesyce hyssopifolia</i> (L.) Small	---	Nat.	R
<i>Ricinus communis</i> L.	castor bean	Nat.	U
FABACEAE			
<i>Acacia farnesiana</i> (L.) Willd.	<i>klu</i>	Nat.	U

Species listed by family	Common name	Status	Occurrence
<i>Desmanthus virgatus</i> (L.) Willd.	virgate mimosa	Nat.	O
<i>Leucaena leucocephala</i> (Lam.) deWit	koa haole	Nat.	A
<i>Macroptilium atropurpureum</i> (DC) Urb.	---	Nat.	O
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	kiawe	Nat.	C
MALVACEAE			
<i>Malva parviflora</i> L.	cheese weed	Nat.	U
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	Nat.	U
<i>Sida ciliaris</i> L.	---	Nat.	O2
<i>Sida fallax</i> Walp.	`ilima	Ind.	R2
<i>Sida spinosa</i> L.	prickly sida	Nat.	U
SOLANACEAE			
<i>Nicotiana glauca</i> R.C. Graham	tree tobacco	Nat.	C
<i>Solanum lycopersicum</i> var. <i>cerasiforme</i> (Dunal) Spooner, G Anderson, & Jansen	cherry tomato	Nat.	U
STERCULIACEAE			
<i>Waltheria indica</i> L.	`uhaloa	Ind.	O

MONOCOTYLEDONES

POACEAE			
<i>Cenchrus ciliaris</i> L.	buffelgrass	Nat.	AA
<i>Cenchrus echinatus</i> L.	sandbur	Nat.	R
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat.	A
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat.	O
<i>Panicum maximum</i> Jacq.	Guinea grass	Nat.	O
<i>Sporobolus</i> cf. <i>diander</i> (Retz.) P. Beauv.	Indian dropseed	Nat.	AA

Legend to Table 2

STATUS = distributional status for the Hawaiian Islands:	
ind. =	indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
nat. =	naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
ABUNDANCE = occurrence ratings for plants by area:	
R - Rare	seen in only one or perhaps two locations.
U - Uncommon-	seen at most in several locations
O - Occasional	seen with some regularity
C - Common	observed numerous times during the survey
A - Abundant	found in large numbers; may be locally dominant.
AA - Very abundant	abundant and dominant; defining vegetation type.
Numbers following an occurrence rating indicate clusters within the survey area. The ratings above provide an estimate of the likelihood of encountering a species within the specified survey area; numbers modify this where abundance, where encountered, tends to be greater than the occurrence rating:	
1 -	several plants present
2 -	many plants present
3 -	locally abundant
NOTES:	None

Discussion

Mammalian Resources

A one-time survey cannot provide a total picture of the wildlife utilizing any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns throughout a year or, in fact, over a number of years. Coupling the results of a one-time survey with the results of previous surveys conducted in similar habitat within the general project area greatly enhances the understanding of the faunal makeup of site.

The findings of the mammalian survey are consistent with the findings of at least two other survey conducted on portions of the proposed project site (Bruner 1989, Guinther and David 2005) and with several others faunal surveys conducted on lands in the general vicinity of the subject property in the recent past (David, 2000, 2001, 2004, 2005a, 2005b, 2006, David and Guinther 2005, 2006a, 2006b).

Although no rodents were detected during the course of this survey, it is likely that roof rats (*Rattus r. rattus*), Norway rats (*Rattus norvegicus*), European house mice (*Mus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use resources within the general project area. All of these introduced rodents are deleterious to remaining native ecosystems and the native floral and faunal species that are dependant on them for their survival.

Avian Resources

The findings of the avian survey are consistent with the findings of at least two other survey conducted on portions of the proposed project site (Bruner 1989, Guinther and David 2005) and with several others faunal surveys conducted on lands in the general vicinity of the subject property in the recent past (David, 2000, 2001, 2004, 2005a, 2005b, 2006, David and Guinther 2005, 2006a, 2006b).

All but one of the 13-avian species detected during the course of this survey are alien to the Hawaiian Islands. The lone native species detected, Ruddy Turnstone was recorded as an incidental observation as three birds flew upslope above the site. Ruddy Turnstones, are a common indigenous migratory shorebird species that nests in the high Arctic in the late spring and summer, returning to Hawai'i and the Tropical Pacific during fall and winter months.

From an avian perspective there is nothing unique about the habitat present on the subject property, and none of the habitat present on the site is important habitat for any listed avian or mammalian species currently known from the Island of O'ahu.

Botanical Resources

A one-time survey cannot provide a total picture of the botanical makeup of any given area. Certain species will not be detected for one reason or another. Seasonal variations in populations coupled with seasonal usage and availability of resources will cause different usage patterns

throughout a year or, in fact, over a number of years. However, this January 2007 survey can be expected to correspond with the greatest number of plant species likely to be growing on the site and the best time of expression of any native species present on the site.

No ferns or fern allies were observed during the plant survey. The dry climate and reasonably well-drained calcareous soils are not conducive to supporting most fern species found in Hawai'i. The flora of the project area is comprised of flowering plants and overwhelmingly dominated by alien plant species. A total of 46 species of plants are listed in Table 2. Although this is a relatively small number compared with previous recent surveys in the same general area (David and Guinther, 2005, 2006) that yielded 79 species (7.6% natives) and 73 species (13.7% natives), respectively. The difference is due to the small area of the Imperium Renewables Site with limited variation in environments present on the site, some 95% of which appears to have been highly disturbed since the late 1970s.

Only 5 (11%) of the species recorded on the Imperium Renewables site were known to occur in the Hawaiian Islands before the arrival of James Cook in 1778. All five are regarded as indigenous species; by which is meant they are native to both Hawai'i and elsewhere. No endemic species were observed on the property. If we consider the abundance estimates for these five native species, seaside heliotrope or *kipukai*, *'uhaloa*, and *'akulikuli* were present in numbers greater than an uncommon rating. Thus, in terms of biomass as well as number of species, native plants are a mostly minor component of the vegetation, and an 11% native species is typical or perhaps on the high side for developed coastal O'ahu properties.

Conclusions

Faunal Resources

The results of the faunal survey indicate that there are no special concerns or legal constraints related to faunal resources within the project site. It is not expected that the modification of the habitat currently found on the site or the construction of the proposed plant will have a negative impact on any avian or mammalian species currently listed as endangered, threatened, or that are currently proposed for listing under either federal or State of Hawai'i endangered species statutes (DLNR, 1998, Federal Register, 1999, 2005).

Botanical Resources

The results of the botanical survey indicate there are no special concerns or legal constraints related to botanical resources in the project site. Although the 'Ewa Plain is known to harbor several rare and, in some cases, federally listed species of Hawaiian native plants (see Char and Balakrishnan, 1979), these species are no longer present in the highly disturbed quarry and dredged spoil disposal areas around Barbers Point Deep Draft Harbor. No plant species listed as endangered, threatened, or that are currently proposed for listing under either federal or State of Hawai'i endangered species statutes are known from the project site (DLNR, 1998, Federal Register, 1999, 2005).

Glossary

Alien - Introduced to Hawai'i by humans

Crepuscular – Twilight hours

Endangered – Listed and protected under the ESA as an endangered species

Endemic – Native and unique to the Hawaiian Islands

Incidental observation – A species not counted during station counts, but seen within the project area.

Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally

Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles

Threatened - Listed and protected under the ESA as a threatened species

DLNR – Hawaii State Department of Land & Natural Resources

TMK – Tax Map Key

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