Mr. Gary Hooser, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

Dear Mr. Hooser:

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT (EA) FOR THE COMMUNITY PLAN AMENDMENT (CPA), DISTRICT BOUNDARY AMENDMENT (DBA), AND CHANGE IN ZONING (CIZ) FOR THE PU'UNENE HEAVY INDUSTRIAL SUBDIVISION, LOCATED APPROXIMATELY ONE (1) MILE SOUTHEAST OF THE INTERSECTION OF MOKULELE HIGHWAY, MEHAMEHA LOOP, AND KAMA'AINA ROAD, ISLAND OF MAUI, HAWAII; TMK: (2) 3-8-008:019 (CPA 2012/0002) (CIZ 2012/0005) (EA 2012/0001)

The Maui Planning Commission has reviewed the Final EA prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 11-200, Hawaii Administrative Rules (HAR), for the subject project at its November 27, 2012, regular meeting, and has accepted the Final EA and has issued a Finding of No Significant Impact (FONSI). Please publish the Final EA in the next available Office of Environmental Quality Control (OEQC) Environmental Notice.

We have attached a completed OEQC Publication Form, one (1) hard copy of the Final EA, and one (1) CD copy of the Final EA in PDF format for your review.

Should you need further clarification, please contact Staff Planner Kurt Wollenhaupt at kurt.wollenhaupt@mauicounty.gov or at (808) 270-1789.

Sincerely,

CLAYTON I. YOSHIDA, AICP  
Planning Program Administrator

for  
WILLIAM SPENCE  
Planning Director
Attachments
xc: Kurt F. Wollenhaupt, Staff Planner (PDF)
    Glenn Tadaki, Chris Hart & Partners, Inc.
    EA Project File
    Project File
    General File
WRS:CIY:KFW:rm
K:WP_DOCS\PLANNING\Cpa\2012\0002_Pu'uneneHeavyIndustrial\FINALEQC_transLtr.doc
Project Name: Pu`unene Heavy Industrial Subdivision
Island: Maui
District: Wailuku
TMK: (2) 3-8-008: 019
Permits: Chapter 343 Environmental Review; District Boundary Amendment; Community Plan Amendment; Change in Zoning; Work to Perform in the State Highway Right-of-Way; Well Drilling and Pump Installation Permits; Public Water System Approval; Wastewater System Approval; NPDES; Grubbing and Grading Permits, Construction Plans Approval; Final Subdivision Approval

Approving Agency: Maui Planning Commission
c/o: Maui Planning Department
250 S. High Street
Wailuku, HI 96793
Contact: Kurt Wollenhaupt (808) 270-8205

Applicant: CMBY 2011 Investment, LLC
P.O. Box 220
Kihei, HI 96753
Contact: Blanca Lafolette (808) 874-5263

Consultant: Chris Hart & Partners
115 N. Market Street
Wailuku, HI 96793
Contact: Glenn Tadaki (808) 242-195

Status: FEA-FONSI
Summary:

The proposed action will involve the subdivision of the subject parcel’s 86 acres to create a heavy industrial subdivision. Preliminarily, 66 acres would be set aside for up to 28 developable lots, while nine acres have been designated for drainage retention basins and 11 acres for internal roadways. The proposed subdivision is pending “M-3, Restricted Industrial District” zoning which encompasses industrial uses that are generally considered obnoxious or offensive because of odor, dust, smoke, gas, noise, vibration, and the like, and are not allowed in any other zoning district. The subdivision’s water, wastewater, drainage, and roadway systems will be privately owned and maintained, as well as all common area landscaping and irrigation. Subdivision lot owners will be responsible for all improvements on and to their lots. Access from Mokulele Highway to the subject parcel will be furnished by existing and proposed access easements.
FINAL ENVIRONMENTAL ASSESSMENT

Prepared in Support of Requests for a
State Land Use District Boundary Amendment, Community Plan Amendment,
and Change in Zoning

PU’UNENE
HEAVY INDUSTRIAL SUBDIVISION

TMK: (2) 3-8-008: 019
Pu’unene, Maui, Hawai‘i

November 2012
FINAL ENVIRONMENTAL ASSESSMENT

Prepared in Support of Requests for a State Land Use District Boundary Amendment, Community Plan Amendment, and Change in Zoning

PU‘UNENE
HEAVY INDUSTRIAL SUBDIVISION

TMK: (2) 3-8-008: 019
Pu`unene, Maui, Hawai‘i

Prepared for:
CMBY 2011 INVESTMENT LLC
1300 N. Holopono Street, Suite 201
Kihei, Hawai‘i 96753

November 2012
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<tr>
<td>A&amp;B</td>
<td>Alexander &amp; Baldwin</td>
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<td>AIS</td>
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<td>GPM</td>
<td>Gallons per minute</td>
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<td>Hawai`i Army National Guard</td>
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<td>International Archaeological Research Institute, Inc.</td>
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<td>Institute of Transportation Engineers</td>
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<td>IWS</td>
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</tr>
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<td>KMCP</td>
<td>Kihei-Makena Community Plan</td>
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<tr>
<td>LOS</td>
<td>Level-of-Service</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>LSB</td>
<td>Land Study Bureau</td>
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<td>g/m³</td>
<td>Micrograms per cubic meter</td>
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<td>uM</td>
<td>Micro-molar</td>
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<td>MGD</td>
<td>Million gallons per day</td>
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<td>MIP</td>
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<tr>
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<td>Naval Air Station</td>
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<td>Pu`unene Airport Master Plan</td>
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<td>PD 10</td>
<td>Project District 10</td>
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<td>PER</td>
<td>Preliminary Engineering Report</td>
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<tr>
<td>PM</td>
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<td>PPT</td>
<td>Parts per thousand</td>
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<td>Resource Conservation and Recovery Act</td>
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<td>Reverse osmosis</td>
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<td>Tom Nance Water Resource Engineering</td>
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<td>V/C</td>
<td>Volume-to-capacity</td>
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<tr>
<td>VPH</td>
<td>Vehicles per hour</td>
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I. PROJECT OVERVIEW

A. OVERVIEW OF THE REQUEST

CMBY 2011 Investment, LLC (aka, CMBY), the owner of property identified by Tax Map Key (2) 3-8-008: 019, is requesting the necessary land use entitlements which would allow the property to be used for long-term heavy industrial purposes. Assuming the entitlements are granted, CMBY plans to subdivide the 86-acre parcel and create a heavy industrial subdivision. Given the unstable and unpredictable behavior of the global economy and economic effects, the actual number and size of the subdivision lots, and the timeframe for filing an application for subdivision approval will be heavily influenced by prevailing market conditions at the time CMBY is ready to proceed with development.

The subject parcel is located on the Central Maui plain in the vicinity of the Old Pu`unene Airport. The site lies approximately 1.0 mile southeast of the intersection of Mokulele Highway, Mehameha Loop, and Kama`aina Road. From this intersection, Kahului lies approximately 3.25 miles to the north, while North Kihei is about 3.75 miles to the south. Access from the highway to the site is provided by Kama`aina Road, South Firebreak Road, and Lower Kihei Road. See Figure 1, Regional Location Map, Figure 2, Aerial Location Map, and Figure 3, Parcel Location Map.

Access from Mokulele Highway to the subject property will be largely furnished by Easement 7, an existing 30-ft. wide access easement within the Kama`aina Road and South Firebreak Road rights-of-way. See Appendix D, Quitclaim Assignment of Partial Interest in Easement (Easement 7). However, since the southern terminus of Easement 7 lies near an irrigation reservoir by the north end of the subject parcel, the land owner has filed a Request for Use of State Lands with the State Department of Land and Natural Resources for a 56-ft. wide access easement (0.573 acre) at the south end of Easement 7 which would allow access to the subject parcel. The land owner is also requesting a 50-ft wide access easement (0.722 acre) along the Hawaiian Cement Access Road which would be part of an alternate access route along the north and east sides of the reservoir. See Appendix D-1, Request for Use
of State Lands (Amended). The primary and alternate access routes are shown in Figure 5, Proposed Land Development Plan.

The subject property is currently vacant and undeveloped. The parcel is located in the State Agricultural District and is designated for Agricultural uses by the Kihei-Makena Community Plan and Maui County zoning. See Appendix A, Zoning and Flood Confirmation, Figure 12, State Land Use Districts, Figure 14, Kihei-Makena Community Plan, and Figure 15, Maui County Zoning. In addition, the project site lies within the proposed Urban Growth Boundaries (UGB) for the draft Maui Island Plan and is designated for urban expansion by the Plan. See Figure 13, Directed Growth Map. The subject parcel does not fall within the limits of the Special Management Area (SMA) for the island of Maui. See Figure 16, Special Management Area.

In order to establish the appropriate underlying land use designations for the proposed heavy industrial subdivision, the land owner is seeking a Land Use Commission District Boundary Amendment (DBA) from the State Agricultural District to the State Urban District, a Community Plan Amendment (CPA) from Agriculture to Heavy Industrial, and a Change in Zoning (CIZ) from Agricultural to M-3, Restricted Industrial. The granting of CMBY’s request will also increase the limited inventory of lands that are currently available for purely heavy industrial use, as well as create new business and employment opportunities for island residents.

Since the proposed action will involve an amendment to a community plan and the use of State lands (proposed easements across State property), an environmental assessment (EA) has been prepared in accordance with Chapter 343, Hawai`i Revised Statutes (HRS) entitled Environmental Impact Statements and Title 11, Chapter 200, Hawai`i Administrative Rules (HAR) entitled Environmental Impact Statement Rules. Based on consultation with the Maui Planning Department and the State Land Use Commission, the Maui Planning Commission will serve as the approving agency for the environmental review process.

B. PROJECT PROFILE

District: Pu`unene District, Island of Maui

Tax Map Key (TMK): (2) 3-8-008: 019
Project Name: Pu`unene Heavy Industrial Subdivision

Location: Approximately 1.0 mile southeast of the intersection of Mokulele Highway, Mehameha Loop, and Kama`aina Road

Site Area: 86.03 acres

Land Owner/Applicant: CMBY 2011 Investment, LLC
P.O. Box 220
Kihei, HI 96753

Contact: Blanca Lafolette
Phone: (808) 874-5263
Fax: (808) 879-2557

Planning Consultant: Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Maui, HI 96793

Contact: Glenn Tadaki
Phone: (808) 242-1955
Fax: (808) 242-1956

Current Land Use Designations:
- State Land Use Classification – Agricultural
- Kihei-Makena Community Plan – Agriculture
- County Zoning – Agricultural

Flood Insurance Rate Map: Zone “X”, area of minimal flooding

Existing Land Uses: Vacant and undeveloped

Proposed Land Use: Heavy industrial subdivision

Site Access: Mokulele Highway, Kama`aina Road, South Firebreak Road, Lower Kihei Road

C. APPROVING AGENCY

Agency: Maui Planning Commission
c/o: Maui Planning Department
County of Maui
250 S. High Street
Wailuku, HI 96793
D. REQUIRED APPROVALS

The following permits and approvals will be needed prior to the implementation of the proposed action.

1. Environmental Review by the Maui Planning Commission
2. District Boundary Amendment from the State Land Use Commission
3. Community Plan Amendment from the Maui County Council
4. Change in Zoning from the Maui County Council
5. Work to Perform in the State Highway Right-of-Way from the State Dept. of Transportation
7. Public Water System Approval from the State Dept. of Health, Safe Drinking Water Branch
8. Individual Wastewater System Approval from the State Dept. of Health, Wastewater Branch
9. National Pollutant Discharge Elimination System Permit from the State Dept. of Health, Clean Water Branch
10. Grubbing and Grading Permits, Construction Plans Approval, and Final Subdivision Approval from the Maui Department of Public Works, Development Services Administration

E. EARLY CONSULTATION

As part of the early consultation process for the preparation of the Draft EA, letters requesting comments on the proposed action were sent to following parties.

CONSULTED PARTIES

Federal Agencies
1. Dept. of the Army, Corps of Engineers
2. Dept. of Agriculture, Natural Resources Conservation Service
3. Dept. of the Interior, Fish & Wildlife Service

State Agencies
1. Dept. of Agriculture
2. Dept. of Business, Economic Development & Tourism, Office of Planning
3. Dept. of Hawaiian Home Lands
4. Dept. of Health, Clean Air Branch
5. Dept. of Health, Clean Water Branch
6. Dept. of Health, Indoor Noise & Radiological Health Branch
7. Dept. of Health, Safe Drinking Water Branch
8. Dept. of Health, Solid & Hazardous Waste Branch
9. Dept. of Health, Wastewater Branch
10. Dept. of Health, Maui District Health Office
11. Dept. of Land & Natural Resources, Land Division
12. Dept. of Land & Natural Resources, Maui Land Division
13. Dept. of Land & Natural Resources, Historic Preservation Division
14. Dept. of Transportation
15. Dept. of Transportation, Maui Highways Division
16. Office of Hawaiian Affairs

County Agencies
1. Dept. of Environmental Management
2. Dept. of Fire & Public Safety
3. Dept. of Parks & Recreation
4. Dept. of Planning
5. Dept. of Police
6. Dept. of Public Works
7. Dept. of Transportation
8. Dept. of Water Supply

Others
1. A&B Properties, Inc.
2. Hawaiian Cement
3. Hawaiian Commercial & Sugar Company
4. Hawaiian Telcom
5. Maui Electric Company, Ltd.
6. Kihei Community Association
7. LeSea Broadcasting Corp.

A typical early consultation letter, as well as comment and response letters associated with this process is included in Appendix R, Early Consultation Letters. As indicated in the early consultation letter, a Request for Use of State Lands was filed with the State Department of Land and Natural Resources (DLNR) to request access easements for the subject property. See Appendix D-1, Request for Use of State Lands (Original). The Request for Use of State Lands has since been amended based on consultation with the DLNR. See Appendix D-1, Request for Use of State Lands (Amended). The Maui Planning Commission is serving as the approving agency for the environmental review process based on consultation with the State Land Use Commission and the Maui Planning Department.
II. DESCRIPTION OF THE PROPERTY AND PROPOSED ACTION

A. PROPERTY LOCATION

The subject parcel is approximately 86 acres and is identified by TMK (2) 3-8-008: 019.

The property is located about 1.0 mile southeast of the intersection of Kama`aina Road, Mehameha Loop, and Mokulele Highway, a divided, four-lane facility linking South and Central Maui. From this intersection, Kahului lies approximately 3.25 miles to the north, while North Kihei is about 3.75 miles to the south. Access from the highway to the site is provided by Kama`aina Road, South Firebreak Road, and Lower Kihei Road. See Figure 1, Regional Location Map, Figure 2, Aerial Location Map, Figure 3, Parcel Location Map, and Figure 4, Site Photographs and Reference Map.

B. EXISTING SITE CONDITIONS AND LAND USE

The subject parcel is owned by CMBY 2011 Investment, LLC and is vacant and undeveloped. See Appendix B, Topographic Survey Map and Figure 4, Site Photographs and Reference Map.

During World War II, the site was part of the Pu`unene Naval Air Station and was used for military purposes. In more recent times, the property was used for hog farming and scrap metal storage. No productive use or activity has occurred on the site since these activities were discontinued in 2007.

The subject parcel is in the State Agricultural District and is designated Agriculture by the Kihei-Makena Community Plan. The property is also zoned for Agricultural District use by the County of Maui. See Appendix A, Zoning and Flood Confirmation, Figure 12, State Land Use Districts, Figure 14, Kihei-Makena Community Plan, and Figure 15, Maui County Zoning.
The project site also lies within the proposed Urban Growth Boundaries for the draft Maui Island Plan and is designated for urban expansion by the Plan. See Figure 13, Directed Growth Map. The subject parcel does not fall within the limits of the Special Management Area for the island of Maui. See Figure 16, Special Management Area.

C. REASONS JUSTIFYING THE REQUEST

On the island of Maui, about 489 acres of land has been zoned for heavy industrial use. In Central Maui, approximately 442 acres have been zoned for this purpose. Much of this heavy industrial zoned land has already been built upon or is being used as work or storage yards. The minimal amount of land that is available is located in areas that are considered unsuitable for heavy industrial use due to proximity impacts to adjacent residential and commercial development. In this case, the highest and best use of this land is for business use, which is currently allowed by heavy industrial zoning.

There has not been any purely heavy industrial development in Central Maui for over a decade. During this period, the focus has been on the light industrial market with an emphasis on commercial retail/office use.

With the exception of the proposed project, no heavy industrial projects are proposed on Maui at this time. With the limited supply of heavy industrial land that is currently available, the proposed heavy industrial subdivision is expected to attract a significant amount of interest. Since there is no residential or commercial development in the vicinity of the site, the proposed project is ideally situated for heavy industrial use and its centralized location provides convenient access to Kahului Harbor and the Kahului Airport.

The subject property lies within the proposed Urban Growth Boundaries for the draft Maui Island Plan and is located in proximity to existing heavy industrial uses at the Central Maui Baseyard and the Hawaiian Cement Quarry. The project site is also located in the vicinity of Project District 10 (Old Pu‘unene Airport), a 561-acre recreational and industrial expansion area included in the Kihei-Makena Community Plan which is intended to meet future recreational needs and provide areas for industrial activities whose locations are better suited away from developed urban areas. Within the Project District 10 lies the 222-acre Pu‘unene Airport Master Plan.
area which is currently in the process of being updated by the County of Maui to provide space for future public and recreational uses. See Figure 7, Puʻunene Airport Master Plan - Concept Land Uses.

The proposed project is expected to alleviate the pent-up demand for purely heavy industrial land and provide individuals and businesses with the opportunity to purchase lots and build new facilities or expand their current operations.

D. DESCRIPTION OF THE PROPOSED ACTION

1. **Request for Land Use Entitlements**

The subject property encompasses 86 acres and is identified by TMK (2) 3-8-008: 019. The property lies within the proposed Urban Growth Boundaries for the draft Maui Island Plan and is designated for urban expansion by the Plan. See Figure 13, Directed Growth Map. The subject parcel does not fall within the limits of the Special Management Area for the island of Maui. See Figure 16, Special Management Area.

The land owner, CMBY 2011 Investment, LLC (aka, CMBY), is requesting the following land use entitlements which would allow the site to be utilized for heavy industrial purposes: 1) a Land Use Commission District Boundary Amendment (DBA) from the State Agricultural District to the State Urban District; 2) a Community Plan Amendment (CPA) from Agriculture to Heavy Industrial; and 3) a Change in Zoning (CIZ) from Agricultural to M-3, Restricted Industrial. The State Land Use Commission (SLUC) is the decision-making body for the DBA, while the Maui County Council will serve as the decision-making authority for the CPA and CIZ.

On September 21, 2012, the Maui County Council approved a bill for M-3, Restricted Industrial District zoning. The bill was signed by the Mayor on September 24, 2012 and was designated Ordinance No. 3977. It should be noted that CMBY’s application for the CIZ was initially prepared on the basis of seeking a zoning change from Agricultural to M-2, Heavy Industrial. However, with the recent adoption of M-3, Restricted Industrial zoning, the CIZ application has been amended to request a change to M-3 zoning.
Generally, *M-3, Restricted Industrial* zoning encompasses those uses that involve the manufacture, processing, storage, or treatment of goods from raw materials. The intent of *M-3* zoning is to provide for manufacturing and nuisance industries and exclude retail and office uses. Some of the uses permitted under *M-3* zoning include: canneries; factories; manufacturing facilities; major utility facilities; landfills, lumber yards; machine shops; rock quarries; and material recycling/processing facilities. The minimum lot size under *M-3* zoning is 10,000 square feet, while the minimum lot width is 75 feet and the maximum building height is 90 feet. Side and rear setbacks are zero feet or the same as the adjoining zoning category whichever is greater. See Appendix C, *M-3 Restricted Industrial Zoning Regulations*.

A Petition for the DBA will be filed with the SLUC after the publication of the Final EA and Finding of No Significant Impact (FONSI). A consolidated application for the CPA and CIZ was filed with the County of Maui on April 16, 2012 and is being held in abeyance until the processing of the DBA has been completed. Assuming the DBA is granted; the Maui Planning Commission will review the CPA and CIZ and provide their recommendations to the Maui County Council which will then proceed to take action on the land use requests. The approval of the DBA, CPA, and CIZ will provide the land owner with the necessary entitlements to develop and utilize the subject property for heavy industrial purposes.

2. **Proposed Action**

In light of the uncertain volatile nature of the global economy, the actual number and size of the subdivision lots, and the timeframe for filing an application for subdivision approval, will be heavily influenced by prevailing market conditions at the time CMBY is ready to proceed with development.

The proposed land development plan for the proposed heavy industrial subdivision currently calls for subdividing the 86-acre subject parcel to provide 28 developable lots on 66 acres of land including 10 lots ranging in size from 0.5-acre to 1-acre, five lots ranging from over 1-acre to 2-acres in size, and the remaining 13 lots ranging from over 2-acres to 20-acres in size. Preliminarily, about 9 acres will be set aside for a series of drainage retention basins along the western edge of the parcel, while approximately 11 acres have been designated for the subdivision’s internal roadway system. See Figure 5, *Proposed Land Development Plan* and Figure 5A, *Conceptual*.
Site Plan. In addition, subdivision street trees will be planted in accordance with Chapter 12.24 of the Maui County Code (Landscape Planting and Beautification). See Figure 5B, Conceptual Landscape Site Plan. Due to the unpredictable nature of the global economy, the preceding plans are subject to change based on market conditions at the time of actual development.

Access from Mokulele Highway to the subject property will be largely furnished by Easement 7, an existing 30-ft. wide access easement within the Kama`aina Road and South Firebreak Road rights-of-way. See Appendix D, Quitclaim Assignment of Partial Interest in Easement (Easement 7). However, since the southern terminus of Easement 7 lies near an irrigation reservoir by the north end of the subject parcel, the land owner has filed a Request for Use of State Lands with the State Department of Land and Natural Resources for a 56-ft. wide access easement (0.573 acre) at the south end of Easement 7 which would allow access to the subject parcel. The land owner is also requesting a 50-ft wide access easement (0.722 acre) along the Hawaiian Cement Access Road which would be part of an alternate access route along the north and east sides of the reservoir. See Appendix D-1, Request for Use of State Lands (Amended). The primary and alternate access routes are shown in Figure 5, Proposed Land Development Plan.

Subdivision improvements to be provided by the land owner and improvements that will be the responsibility of individual lot owners are noted below.

1. The subdivision’s water system will be privately owned and maintained by an association of lot owners. The private water system will include drinking and non-drinking water wells, booster pumps, and a reverse osmosis purification system, as well as water transmission lines, manholes, and laterals to each lot. The drinking water well will provide water for domestic use, while the non-drinking water well will provide water for irrigation and fire protection.

As lots within the subdivision are developed, each lot owner will be responsible for tying in to the subdivision’s water system by connecting to the lateral on their lot. No additional wells will be permitted.

2. As noted in the Draft EA, the subdivision’s master wastewater system originally included sewer transmission lines, manholes, and laterals which would convey wastewater flows to a central leach field. Lot owners would be responsible for installing an individual wastewater system (IWS) on their lots and connecting to the master system which would be privately owned and maintained by the Lot Owner’s Association.
However, in commenting on the Draft EA, the State Department of Health (DOH) indicated that it will not allow multiple IWS to discharge into a central leach field and that a separate leach field must be provided for each IWS. See June 19, 2012 letter – Appendix S, Draft EA Comment Period.

As a result, the wastewater treatment plan for the project has been modified to call for the installation of an IWS consisting of an aerobic treatment unit and leach field for each lot. As indicated by the DOH, this type of IWS can be used within 1,000 feet of drinking water sources and wells. The cost and installation of the IWS will be borne by individual lot owners as they develop their lots in the future.

3. The subdivision’s drainage system will be privately owned and maintained by the Lot Owner’s Association. The private drainage system will include storm water retention basins and storm water transmission lines, manholes, and laterals to each lot. The retention basins will be located along the western edge of the project site.

As lots within the subdivision are developed, each lot owner will be responsible for tying in to the subdivision’s drainage system by connecting to the lateral on their lot. Depending on the type of industrial activity on each lot, the lot owner may be required to install appropriate filtering devices to ensure that groundwater is not impacted by pollutants contained in runoff.

4. The external roadways providing access to the subdivision and the internal roads within the subdivision shall utilize flexible design standards as provided by Section 18.32.030 of the Maui County Code. The subdivision’s internal roadways will be privately owned and maintained by the Lot Owner’s Association.

As lots within the subdivision are developed, each lot owner will be responsible for installing a driveway to connect to the subdivision road fronting their parcel.

5. Electrical, telephone, and CATV lines will be extended to the subdivision from the nearest available service connection. Underground utility lines will be installed within the subdivision’s streets and extended to each lot via utility boxes.

As lots within the subdivision are developed, each lot owner will be responsible for their own power, phone, and CATV service by hooking up to the utility boxes on their lot.

6. Landscaping and irrigation for subdivision common areas will be privately owned and maintained by an association of lot owners. Underground irrigation lines will be installed within the subdivision’s streets and service laterals will be provided for each lot.

As lots within the subdivision are developed, each lot owner will be responsible for their own landscaping and for tying into the subdivision’s irrigation system by connecting to the lateral on their lot.
In addition to its common area landscaping and irrigation system, the subdivision’s water, wastewater, drainage, and internal roadway systems will be privately owned and maintained by the Lot Owner’s Association. The proposed subdivision improvements shall conform to, or be consistent with, all applicable Federal, State, and County regulations. Provisions for compliance shall be set forth in the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision.

All lot owners and all buildings and accessory structures that are built within the subdivision will be required to comply with the CC&Rs and the Design Guidelines for the subdivision, a coordinated set of documents that will enforce the design, development, and land use standards for the Pu‘unene Heavy Industrial Subdivision.

The land owner and the Maui Department of Environmental Management (DEM) have had meetings to discuss the possibility of establishing a construction and demolition (C&D) landfill within the proposed subdivision since an existing privately-owned C&D facility at Ma‘alaea is nearing capacity and has approximately two years of remaining space. Due diligence work to assess the feasibility of proceeding with the C&D landfill (a permitted use under M-3 zoning) is currently underway. Should plans for the C&D landfill move forward for implementation, the design, construction, operation, and maintenance of the facility will comply with all applicable regulatory and environmental rules and regulations for its development.

It is important to note that final lot sizes in the proposed heavy industrial subdivision shall be determined by the types of land uses that are proposed in the subdivision and the forecasted demand for the lots based on prevailing market projections approximately six months prior to filing an application for preliminary subdivision approval with the County’s Development Services Administration.

The preliminary sales price for subdivision lots is projected to be $20 per square foot in 2011 dollars. Final sales prices will be based upon market conditions at the time final subdivision approval is granted, and would reflect any conditions which may be imposed by the SLUC or the County of Maui as a result of the entitlement process.

In 2011, it was estimated that the land use and subdivision approval process could take approximately four to five years. As such, subdivision construction could begin in 2016 or commence as early 2015. Preliminary subdivision construction costs are
projected to be $20 million in 2011 dollars, while the forecasted construction period is about 30 months.

The subsequent lot build-out period for the subdivision is expected to last approximately 10 years. An annual average of 65 direct and indirect Maui jobs is projected during the subdivision's construction period, while an annual average of 142 direct and indirect Maui jobs is forecasted for the subdivision's lot build-out phase.

E. ALTERNATIVES

1. No Action Alternative

*Analysis:* Under the “No Action” alternative, the current agricultural land use classification and physical condition of the subject parcel would be maintained and the property would continue to be under utilized in terms of its potential highest and best use. Since no development would occur under this alternative, the present physical and man-made environment would not be affected and no new or additional demands for public services and infrastructure would be required. Because the “No Action” alternative would preclude the development of the site for heavy industrial use, the availability of land for purely heavy industrial purposes would continue to be in very short supply. As such, the “No Action” alternative is not a viable option and was dropped from consideration.

2. Deferred Action Alternative

*Analysis:* Deferring development until some point in the future is a variation of the “No Action” alternative as existing conditions would be temporarily maintained. However, future market conditions (poor economy, high interest rates, increased labor and material costs) could affect the feasibility and timing of proceeding with the project and is therefore not practicable. Accordingly, the “Deferred Action” alternative was deemed unfeasible as it does not address the current shortage of heavy industrial-zoned land on Maui.
3. **Alternative Locations**

*Analysis:* In Central Maui, approximately 442 acres has been zoned for heavy industrial use. Aside from the HC&S sugar mill in Pu`unene and the future power generation plant site for Maui Electric Company, the remaining 337 acres, is situated around Kahului Harbor and the Kahului Airport. These lands are used for harbor and airport facilities and operations and are not considered to be available to the market. Other heavy industrial areas in Central Maui include the Wakea Industrial Subdivision, Airport Industrial Subdivision, as well as portions of The Millyard and Maui (Kahului) Industrial Subdivision. In addition to the area around Hobron Avenue and near the corner of Kahului Beach Road and Ka`ahumanu Avenue, the land underlying the Queen Ka`ahumanu Center, Maui Mall, and the former Maui Land and Pineapple Company cannery is zoned for heavy industrial use. Most of these areas have been improved with commercial and light industrial uses or are reserved for future development.

The market availability of lands suitable for heavy industrial development is very limited. The existing inventory of heavy industrial-zoned land that is available for sale consists of 16 acres at five sites in Kahului and two locations in Wailuku. The seven sites are located in areas with existing public water, sewer, drainage, and roadway systems. However, these sites are all located in areas deemed unsuitable for heavy industrial uses as adjacent residential and commercial development would likely object to the operational effects (*e.g.*, noise, odor, dust) associated with heavy industrial activities.

With the exception of the subject parcel, there are no other suitable sites that are currently available for the development of a purely heavy industrial subdivision.

4. **Alternative Land Uses**

*Analysis:* Although it may be possible to reclassify the subject property for a different type of land use (*e.g.*, residential, commercial) or combination of land uses, such a change would be inconsistent with existing and planned future land uses in the area and would also alter the rural and agricultural-industrial
character of the project site and surrounding area. Depending on the type and intensity of the land use, it could have beneficial effects, affect the environment, and place greater demands on public services and infrastructure. For example, the use of the site for commercial purposes could produce economic benefits in terms of job creation and commercial growth but could also generate short and long-term impacts attributable to increased traffic, water use, and storm water runoff.

In addition to addressing the need for heavy industrial space on Maui, the proposed project is consistent with existing and planned heavy industrial land uses in the vicinity such as the Central Maui Baseyard, Hawaiian Cement Quarry, Project District 10 (Old Pu`unene Airport area) and the draft Maui Island Plan.

In light of the foregoing, reclassifying the subject property for a different land use or a combination of different land uses was not deemed feasible.

5. **Design Alternative**

**Analysis:** During the preliminary planning and design phase of the project, the applicant considered various criteria to create and evaluate different layouts for the proposed subdivision. For example, the locations of some of the smaller subdivision lots and the alignment of the subdivision’s internal roadways have evolved from that of an earlier site plan. See Figure 6, Earlier Concept Land Plan.

The site planning and design process examined existing topography, soils, drainage patterns, and infrastructure. Spatial relationships, land use, engineering, and infrastructure requirements, lot density, sizes and configurations, traffic and access considerations, and development costs and marketability were examined during this process as well. While there are other plans that could be examined, the proposed subdivision layout is considered the most viable in terms of meeting the applicant’s plans for the heavy industrial use of the site while addressing regulatory and infrastructure requirements for the project.
Under current County zoning, the minimum size requirement for an M-3, Restricted Industrial lot is 10,000 square feet. For example, if 66 acres of the subject parcel’s 86 acres were subdivided into 10,000 square foot lots, a total of 287 lots would be created. If the 66 acres were subdivided into 0.5-acre lots, a total of 132 lots would result. Smaller lot sizes would result in greater site density as the number of lots within the subdivision would increase. A higher density development could increase traffic and trigger the need for additional public services and infrastructure improvements. A potential benefit of having smaller albeit a greater number of lots is that there would be more opportunities to purchase fee simple, heavy industrial land due to the corresponding increase in inventory.

Conversely, increasing lot sizes would produce fewer but larger lots. A potential benefit of having larger lots is that site density would be reduced and demands upon infrastructure and public services would be minimized. However, a lower density development would also require that certain fixed development costs (e.g., design, planning, and engineering studies; off-site infrastructure costs), be amortized over fewer lots which would increase the cost of a lot and its selling price.

6. Agricultural Use

Analysis: The 86 acres comprising the subject parcel represents only 0.0002 percent of all lands in the State Agricultural District on the island of Maui. The soils underlying the property are poorly textured and extremely rocky or stony. This land has an overall productivity rating of “E” (the lowest) and the site is Unclassified (residual land) by the Agricultural Lands of Importance to the State of Hawai‘i. The poor soil quality and low productivity rating of the property preclude any feasible agricultural development on the site. Agricultural activities that have occurred on the site in the past include sugar cane cultivation by former land owner HC&S and hog farming by former lessee Maui Factors. No agricultural use has occurred on the site since 2007.

If sugar cane cultivation or a similar agricultural activity were to continue on the site, potential impacts typically associated with this type of use include noise, dust, and smoke from planting and harvesting operations. Given its
seasonal nature, and the property’s remote location and distance from the closest residential development, the potential effects of this kind of farming activity on the surrounding area are temporary in nature and are not considered to be adverse.

Since the subject parcel is not being used for agriculture, no agricultural jobs or revenues will be affected by the development of the proposed project. In addition, although the proposed project would reclassify agricultural lands for heavy industrial use, the businesses in the proposed subdivision are expected to generate a significant, ongoing revenue stream which would benefit the State and County through job creation; additional direct and indirect sales expenditures; and increased tax revenues and fees.

In light of the foregoing, the proposed project will not have an adverse impact on agriculture nor will it have a negative effect on the inventory of agricultural lands that are available for agricultural activities. In addition, when considering the highest and best use of the property in context of the limited supply and latent demand for land that is available for purely heavy industrial purposes, the “Agricultural Use” alternative is not a viable option and was dropped from consideration.

7. Preferred Alternative

Analysis: The proposed project addresses the need for heavy industrial space in Central Maui and is also consistent with existing and planned heavy industrial land uses in the area. For example, the Kihei-Makena Community Plan description of Project District 10 (Old Pu‘unene Airport area) states that “approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use.” The subject parcel is also included within the proposed Urban Growth Boundaries for the draft Maui Island Plan (MIP). The MIP notes that the proposed heavy industrial use of the property is “compatible with surrounding agricultural operations” and “represents a logical expansion of industrial land use in the area” and that the “area’s location, midway between Kihei and Kahului, makes it an ideal site to serve the island’s long term heavy industrial needs.”
Currently, the proposed project is the only heavy industrial development planned on Maui. In addition to being well received, it is expected to alleviate the pent-up demand for purely heavy industrial land and provide individuals and businesses with the opportunity to purchase fee simple lots and build new facilities or expand their current operations. Furthermore, the development of the proposed subdivision is expected to generate significant expenditures by the land owner, as well as by secondary owners and those involved in the separate development of the heavy industrial lots. These investments are expected to have a beneficial impact upon both State and County economies on a broad scale and in a multitude of ways.

Since future lot owners will determine the heavy industrial use on their lots, specific activities that would occur within the subdivision are presently unknown. However, because heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions for the proposed subdivision will require that all lot owners prepare and implement Best Management Practices and emergency response plans that are specific to the heavy industrial use on their lots. In addition, project-specific mitigation measures, and mandatory compliance with all applicable regulatory requirements will help minimize potential short and long-term environmental impacts.
III. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES

A. PHYSICAL ENVIRONMENT

1. Surrounding Land Uses

*Existing Conditions.* The subject parcel is bounded by Project District 10 (PD 10) and the Pu`unene Airport Master Plan (PAMP) area on the west, and lands which are designated for Agricultural uses (by the State and County) to the north, east, and south. HC&S sugar cane fields border the parcel on the north, east, and south, while the Hawaiian Cement facility lies approximately 0.2 mile to the east of the site. Existing uses within PD 10 include the Maui Raceway Park (drag strip) and other recreational motor sport facilities, a facility for radio-controlled model airplanes, and the Hawaii Army National Guard (HANG) armory.

The subject parcel is located in an area characterized by sugar cane cultivation, as well as industrial, recreational, and public/quasi-public uses. Industrial uses in the area include the Hawaiian Cement Quarry, 0.2 mile to east, and the Central Maui Baseyard, 1.3 miles to the north. Recreational uses include the Maui Raceway Park, 0.4 mile to the west, while public/quasi-public uses include the HANG Armory, 0.7 mile to the west, and the Maui Humane Society, 1.1 miles to the northwest.

There is no residential development in the immediate vicinity of the proposed project. The closest residential areas are in Kihei, 2.3 miles to the south; Ma`alaea, 3.6 miles to the southwest; Kahului, 4.0 miles to the north; and Pukalani, 6.4 miles to the east.

*Potential Impacts and Mitigation Measures.* The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development.

In 1995, the County of Maui prepared a Pu`unene Airport Master Plan (PAMP) for 222 acres of land in the vicinity of the Old Pu`unene Airport. The land for this area was provided by the State of Hawaii for public and recreational purposes and was
transferred to the County of Maui via Executive Order 4024 in November 2003. The PAMP area lies within PD 10 and is currently in the process of being updated to provide space for future public and recreational purposes. See Figure 7, Pu`unene Airport Master Plan – Concept Land Uses.

As noted in the Kihei-Makena Community Plan (1998), PD 10 encompasses 561 acres and was established with the purpose of creating a master-planned, expansion area which would meet future recreational (motor sports) needs and provide space for industrial activities (including government facilities) whose locations are better suited away from urban areas. See Figure 14, Kihei-Makena Community Plan.

The subject property is located within the proposed Urban Growth Boundaries (UGB) for the draft Maui Island Plan (MIP). The subject parcel, the PAMP area, and PD 10 all fall within the proposed UGB for the draft MIP and are designated for urban expansion by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan.

Approximately 939 acres of land surrounding the subject parcel have been included in the Pulehunui Master Plan (August 2012), a cooperative land use and infrastructure development planning document that has been prepared for the DHHL and DLNR for the future development of their lands in the adjacent area. See Figure 7A, Areas of Potential Future Development. The master plan envisions land uses that support commercial and industrial uses alongside quasi-public and open space areas.

Within this area, the State Department of Hawaiian Home Lands (DHHL owns approximately 184 acres of land bordered by Mehameha Loop which is designated for future commercial development. The DHHL also owns 646 acres to the south of the subject parcel – TMK (2) 3-8-008: 034 – of which 100 acres has been included in the Pulehunui Master Plan. Although Parcel 34 is zoned for agricultural homestead lots by the DHHL, the site is neither conducive for residential use or farm dwellings because of prevailing dust and wind conditions. As part of the Pulehunui Master Plan, the DHHL is planning to develop a wastewater treatment plant on the 100-acre portion of Parcel 34 (personal communication with Julie Ann Cachola - DHHL, July 26, 2012).
The State Department of Public Safety’s (PSD) plans for the future development of the Maui Prison (aka, Maui Regional Public Safety Complex), which is proposed within PD 10, have been delayed due to the lack of government funding and the absence of infrastructure (*i.e.*, water, sewer) to support this project. In May 2012, the County of Maui recommended that the future Prison be moved from its proposed location near Mokulele Highway to a new site (on DLNR lands) approximately one mile east of the highway (personal communication with Julie Ann Cachola - DHHL, July 26, 2012).

The implementation of the Pulehunui Master Plan will be a long-term process that will involve three phases and take at least 20 years.

The closest residential projects that are planned or approved for future development are in North Kihei, approximately 2.3 miles south of the project site. A&B Properties is proposing to develop a 600-unit residential subdivision on approximately 94 acres of land in North Kihei. Maui County Council action on the land use entitlements for this project is currently pending. In March 2011, the Maui County Council approved Kaiwahine Village, a 120-unit multi-family housing project abutting the Hale Pi`ilani Subdivision. Construction of this project has yet to commence. See Figure 7A, Areas of Potential Future Development.

As previously noted, existing heavy industrial uses in the project area include the Hawaiian Cement Quarry and the Central Maui Baseyard while future industrial uses include those uses established for PD 10. As indicated by the Kihei-Makena Community Plan (1998), “The objective of this project district is to establish a master planned recreational and industrial (emphasis added) expansion area to meet future recreational needs and to provide areas for industrial (emphasis added) activities, including government facilities, whose locations are better suited away from urban areas. In its description of PD 10, the Community Plan also states that “Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use.”

The subject parcel is located within the proposed UGB for the draft MIP which indicates that the subject parcel is “compatible with surrounding agricultural operations” and “represents a logical expansion of industrial land use in the area” and
that the “area’s location, midway between Kihei and Kahului, makes it an ideal site to serve the island’s long term heavy industrial land use needs.”

The subject parcel is ideally situated for heavy industrial activities given existing and future land uses in the area, its separation and distance from residential and commercial development, its convenient and centralized location for customers and suppliers, and its proximity to transportation facilities at Kahului Harbor and the Kahului Airport. In addition, the use of the subject parcel for heavy industrial purposes is consistent with existing heavy industrial uses in the area and is compatible with land uses for the site that are set forth by the draft MIP and the Community Plan.

In light of the foregoing, the proposed project is not expected to have an adverse effect upon surrounding land uses.

2. Climate, Topography and Soils

*Existing Conditions.* In Hawaii, the annual and daily variation of temperature depends to a large degree on elevation above sea level, location and distance inland, and exposure to the trade winds. Average temperatures at locations near sea level generally are warmer than those at higher elevations. Areas exposed to the trade winds tend to have the least temperature variation, while inland and leeward areas often have the most. Historical data from the project area indicates that the average daily minimum and maximum temperatures for this area of Maui are 63°F and 86°F, respectively.

Maui lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. Because the project area is located in the valley between Haleakala and the West Maui Mountains and the valley is unobstructed to the north, it receives relatively good ventilation much of the time from the northeast trade winds which tend to be channeled through the valley by the terrain. The monthly mean wind speed and prevailing wind direction statistics for Kahului Airport indicate that ventilation is good throughout the year with monthly mean speeds ranging from about 11 to 15 miles per hour. Wind speeds in summer tend to be strongest. The monthly prevailing wind direction year round is from the northeast.
Rainfall in Hawaii is highly variable depending on elevation and on location with respect to the trade wind. The climate of the project area is relatively dry. Historical records from the project area show that this area of Maui averages about only 13 inches of precipitation per year, with the summer months being the driest.

The subject parcel slopes in an easterly to westerly direction with on site elevations ranging from 140 feet above mean sea level (amsl) to 120 feet amsl with an average slope of 1.8 percent. See Appendix B, Topographic Survey Map.

The Waiakoa-Keahua-Molokaʻi soils are associated with the subject parcel. These soils are found on low uplands and are characterized by moderately deep and deep, nearly level to moderately steep, well-drained soils that have a moderately fine textured subsoil.

According to the Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (1972), prepared by the United States Department of Agriculture, the following soil series are primarily associated with the subject parcel. See Figure 8, Soil Classifications.

- Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2). This series is similar to Waiakoa very stony silty clay loam, 3 to 7 percent slopes which is found on smooth, low uplands that are gently sloping to moderately steep except that WID2 is eroded and stones cover 3 to 15 percent of the surface. Runoff is medium and the erosion hazard is severe. This soil is used for pasture and wildlife habitat.

- Alae cobbly sandy loam, 0 to 3 percent slopes (AcB). This series consists of excessively drained soils on alluvial fans on the island of Maui. They are nearly level to gently sloping. Most areas have cobblestones on the surface. On this soil, runoff is slow and the erosion hazard is slight. This soil is used for sugar cane and pasture.

**Potential Impacts and Mitigation Measures.** Site work for the subdivision’s basic infrastructure (e.g. water, drainage, roadways) is expected to be minimal and will be the responsibility of the land owner. As lots within the subdivision are developed, each lot owner will be responsible for the grubbing and grading on their lots. Modifications to the existing landform will unavoidably occur as a result of this work and is not expected to result in any adverse impacts. To the extent possible, earthwork will be kept to a minimum and cut and fill quantities will be balanced to reduce site work costs and maintain existing drainage patterns. In addition, erosion
control measures and Best Management Practices will be implemented in accordance with the Maui County grading ordinance to minimize soil loss and sedimentation during construction.

Provisions for the development of subdivision lots, including conformance with all applicable government requirements, shall be set forth in the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision and maintained by the association of subdivision lot owners.

The proposed project is not expected to result in any adverse long-term impacts which would affect the landform.

3. Water Bodies

Existing Conditions. An HC&S irrigation reservoir (Reservoir 90) lies along Lower Kihei Road, just north of, and across the street from, the subject parcel. An earthen embankment dam (State Dam ID MA-0089) regulated by the State Department of Land and Natural Resources (DLNR) holds the irrigation water within the reservoir. The dam is approximately 19 feet tall and 1,250 feet long and is considered small based on dam size criteria – less than 1,000 acre/feet of storage and less than 40 feet in height. A Limited Visual Dam Safety Inspection Summary Report for the dam was prepared by the U.S. Army Corps of Engineers (USACE) and the DLNR in May 2006 based on an inspection the previous month. The report indicated that “There is no immediate threat to the safety of the dam”.

Aside from the reservoir, the closest water bodies in the vicinity are the Pacific Ocean and the Kealia Pond National Wildlife Refuge which are located to the southwest of the subject property. The wildlife refuge encompasses 691 acres and is one of the few natural wetlands in Hawai`i. Kealia Pond serves as a settling basin for a 56 square mile watershed that experiences seasonal intermittent flooding during winter months and drier conditions during the summer. During certain times of the year, the refuge supports a large number of the endangered A`eo or Hawaiian Stilt (Himantopus mexicanus knudseni) population (U.S. Fish & Wildlife Service, March 2010). At its closest point, the subject parcel is approximately 1.75 miles from Kealia Pond and about 2.25 miles from the ocean.
During the early consultation phase for the preparation of the Draft EA, the Corps of Engineers indicated that a Department of the Army (DA) Permit must be obtained prior to undertaking any construction, dredging or other activity that affects or occurs in, over, or under navigable waters of the United States pursuant to Section 10 of the Rivers and Harbors Act of 1899. USACE also indicated that a DA Permit must be obtained (prior to construction) for the placement or discharge of dredged and/or fill material into waters of the U.S. (including wetlands) pursuant to Section 404 of the Clean Water Act of 1972. For non-tidal waters, the lateral limits of the Corps jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands. See Appendix R, Early Consultation Letters.

**Potential Impacts and Mitigation Measures.** There are no wetlands, streams, ponds, or other water bodies on the subject parcel. The HC&S irrigation reservoir to the north of the site will not be affected by the proposed project. Runoff within the subdivision will be conveyed to a series of retention basins along the western edge of the site. The drainage system for the subdivision will be designed to accommodate the incremental increase in runoff generated by the development of the entire site and is designed to have no adverse effect on adjacent and downstream properties.

In a letter dated June 19, 2012, USACE indicated that the proposed project will not require a Department of the Army permit since it does not involve any navigable waters of the U.S. subject to the Corp’s jurisdiction pursuant to Section 10 nor would it involve the placement and/or discharge of dredged and/or fill material into waters of the U.S. (including wetlands) pursuant to Section 404. See Appendix S, Draft EA Comment Period.

4. **Natural Hazards**

**Existing Conditions.** The Federal Emergency Management Agency’s flood insurance rate map for this part of the island (Panel Number 1500030580E dated September 25, 2009), indicates that the subject property is situated in Flood Zone “X” which represents areas of minimal flooding. See Figure 9, Flood Insurance Rate Map. In addition, the evacuation maps prepared by the Maui County Civil Defense Agency reveal that the project site does not lie in an area which is subject to tsunami evacuation. The closest Civil Defense warning siren in the area is located about two miles to the southwest near the intersection of North Kihei Road and South Kihei.
Seismic hazards are events related to ground shaking events such as landslides, ground cracks, rock falls, and tsunamis. A system of classifying these hazards has been developed by engineers, seismologists, and architects on the basis of the expected strength of ground shaking and the probability of the shaking occurring within a specified time. The results were included in the Uniform Building Code seismic provisions which contains six seismic zones ranging from 0 (no chance of severe shaking in a 50-year interval) to 4 (10 percent chance of severe shaking within a 50-year interval). The shaking is quantified in terms of g-force, the gravitational acceleration of the earth.

Based on a re-evaluation of seismic hazards by the United States Geological Service in 1992, the seismic hazard for Maui County falls within Zone 2B, indicating that in any given year within a 50-year period (average building life span), there is a 10 percent chance that 1/5 the force of gravity (ground acceleration) during an earthquake will be exceeded.

**Potential Impacts and Mitigation Measures.** Pursuant to recommendations made by the State Civil Defense agency in their review of the Draft EA (See August 2, 2012 letter – Appendix S, Draft EA Comment Period), the applicant will work with the agency to install one omni-directional 121 db(c) siren to provide coverage for the project area.

The subject parcel lies in a low risk flood hazard area and is located well beyond the boundaries of the tsunami evacuation zones for this part of the island. The proposed project will not alter any parameters for defining flood hazard areas or tsunami evacuation zones nor will it contribute toward inland or coastal flooding or impact downstream and adjacent properties. The potential for seismic damage is minimal because of the 10 percent probability that 1/5 of the ground acceleration rate will be exceeded during an earthquake.

5. Flora

**Existing Conditions.** LeGrande Biological Surveys, Inc. carried out a botanical field survey of the project area in August 2011. The primary objectives of the field survey
were to:

1. Inventory the flora;

2. Provide a general description of the vegetation on the project site;

3. Search for threatened and endangered species as well as species of concern; and

4. Provide recommendations regarding potential impacts to the biological resources of the area in regard to the proposed development of the survey area.

In addition to the subject parcel, two proposed access easements were surveyed during field work. The findings of the field survey were presented in a Botanical Resource Assessment. See Appendix E, Flora Survey.

The subject parcel is characterized by Dry Kiawe/Buffelgrass vegetation. A total of 50 plant species were observed within the survey area of which 44 species, or 88 percent, are alien (introduced) and 6 species, or 12 percent, are indigenous (native to the Hawaiian Islands and elsewhere).

The following summary describes the plants that were observed in these areas.

**Subject Parcel.** The dominant onsite vegetation is a kiawe (*Prosopis pallida*)/buffelgrass (*Cenchrus ciliaris*) grassland with a koa haole (*Leucaena leucocephala*) scrub transition between the southern boundary of the property. The northern section appears to have been recently graded with large boulder piles near the gate entrance. Several other weedy native species were scattered throughout the property including: Jimson weed (*Datura stramorium*), cheese weed (*Malva parviflora*), Lion’s ear (*Leonotis nepetifolia*), hairy spurge (*Chamaesyce hirta*), *Amaranthus* sp., and golden crownbeard (*Verbesina encelioides*). The few native species that were observed within the survey area include three indigenous species: ilima (*Sida fallax*), popolo (*Solanum americanum*), and uhaloa (*Waltheria indica*).

**State Easements.** This area encompasses proposed access easements along Kama`aina Road (State owned), South Firebreak Road (State & privately owned), and Lower Kihei Road (privately owned), as well as adjacent sugar cane fields and an HC&S irrigation reservoir. Dominant roadside weeds are buffel grass and koa haole.
shrubs. Others species scattered along the roadside and reservoir embankment include partridge pea (*Chamaecrista nictitans* subsp. *patellaria var. glabrata*), swollen finger grass (*Chloris barbata*), castor bean (*Ricinus communis*), manienie (*Cynodon dactylon*), kaliko (*Euphorbia heterophylla*), graceful spurge (*Chamaesyce hypericifolia*), obscure morning glory (*Ipomoea obscura*), and smooth rattlepod (*Crotalaria pallida*).

**Reservoir Easement.** This area encompasses a proposed alternate access easement along the north and east sides of the irrigation reservoir. Monkeypod (*Samanea saman*) and Siris (*Albizia lebbeck*) are the dominant tree species around the east boundary of the easement mixed with a Koa haole scrub. At the north end of the reservoir a portion of the easement crosses over a drainage canal. Large Java plum (*Syzygium cumini*) trees dominate the area around the canal. During the survey, `auku`u (Black-crowned night heron) were observed in the Java plum trees. Several other plant species were noted in the area including two indigenous species: milo (*Thespesia populnea*) and hala (*Pandanus tectorius*), as well as Guinea grass (*Panicum maximum*), and banana (*Musa* sp).

As the easement heads north from the subject parcel it crosses a road leading to the Hawaiian Cement Plant and then heads west into sugar cane fields. A drainage ditch near the area where the easement turns west (past the reservoir) contains some plant species that are usually found near standing or running water. They included one native species `ae`ae (*Bacopa monnieri*) and several non-native species such as water morning glory (*Ipomoea aquatic*), kalo (*Colocasia esculenta*), false daisy (*Eclipta prostrata*), and vasey grass (*Paspalum urvillei*).

**Potential Impacts and Mitigation Measures.** Federal and State listed species status follows the *Federal Register* (2002) and the U.S. Fish and Wildlife Service’s (USFWS), *Listed and Candidate Species* (2008). None of the plants observed during the field survey is a threatened or endangered species or a species of concern. The survey area has been impacted over time by agricultural and vehicular use and its biological resources have been altered from its native state. The three essential criteria for defining a Federally recognized wetland are: hydrophytic vegetation, hydric soils, and wetland hydrology. No wetlands were encountered during the botanical field survey and none of the criteria for defining a wetland were present.
within the project site.

During the early consultation process for the preparation of the Draft EA, the USFWS commented that host plants for the endangered Blackburn’s Sphinx Moth (BSM) may breed and feed within the project area. Their recommendation to carry out the plant survey during or after the rainy season was noted. Host plants such as the introduced tree tobacco were observed very infrequently during the survey. Only a few small plants were seen over the entire subject property. Surrounding areas in Kihei and along the highway in Pu‘unene had an abundance of tree tobacco during the same dates as the survey was carried out. The area encompassed by our survey does not appear to be an optimum area for BSM host plants. As such, the botanical resource assessment opines that a follow up survey in the spring is not warranted under the circumstances.

A survey of arthropods in the project area was conducted by Robert W. Hobdy on July 16, 2012. See Appendix F-1, Arthropod Study. The report documenting the findings of the survey indicates that no rare or endangered inserts were observed including the endangered Blackburn’s sphinx moth (Manduca blackburni). In addition, none of the moth’s preferred host plants, the tree tobacco (Nicotiana glauca) were found, and no adult moths, eggs or larvae were seen.

The proposed alternate access easement on the north and east sides of the irrigation reservoir borders the reservoir for much of its length. If this alternate alignment is selected, a buffer between the reservoir and roadway easement during construction would protect the emergent native vegetation and any native waterfowl present at the reservoir.

The proposed project is not expected to have a significant negative impact upon the botanical resources of the site or the general region.

6. Fauna

**Existing Conditions.** Phillip Bruner conducted a faunal field survey of the project area in July 2011. The goals of the field survey were to:

1. Document the species of birds and mammals observed on or near the property.
2. Devote special attention to documenting the presence and/or possible use this area by native and migratory species particularly those that are listed as threatened or endangered.

The findings of the field survey were set forth in an Avifaunal and Feral Mammal Survey. See Appendix F, Faunal Survey.

Native (Indigenous) Land Birds. No native land birds were observed during the field survey. The only species that might occur in this area on rare occasions is the *Pueo* or Hawaiian Short-eared Owl (*Asio flammeus sandwichensis*). The State of Hawai`i lists the *Pueo* as endangered on Oahu but not on Maui. The *Pueo* nests on the ground in high, dense grass and forages over an array of habitats including forest, grasslands, and agricultural fields.

Native (Indigenous) Water Birds. During the field survey, an average of 16 *Auku`u* or Black-crowned Night Heron were observed around the HC&S irrigation reservoir although none were seen on the subject parcel. The *Auku`u*, which is neither threatened nor endangered, forages on a wide variety of prey and frequents wetland habitats.

Migratory Shore Birds. Migratory shore birds winter in Hawai`i between August and April and spend the rest of the year at their breeding grounds in the arctic and subarctic. The only species that could potentially occur in the area would be the *Kolea* or Pacific Golden Plover (*Pluvialis fulva*), which is neither threatened nor endangered. *Kolea* forage for insects on lawns and other habitats in Hawai`i and can be seen on cane haul roads and agricultural fields. A few *Kolea* are likely to occur in the area during August to April. No other migratory shore birds are likely to occur in the area.

Alien (Introduced) Birds. The survey area contains the usual array of alien species seen on similar property in Central Maui. These species, which are neither threatened or endangered, include the following: Cattle Egret (*Bubulcus ibis*), Gray Francolin (*Francolinus pondicerianus*), Black Francolin (*Francolinus francolinus*), Ring-necked Pheasant (*Phasianus colchicus*), Spotted Dove (*Streptopelis chinensis*), Zebra Dove (*Geopilia striata*), Barn Owl (*Tyto alba*), Japanese White-eye (*Zosterops japonicus*), Common Myna (*Acridotheres tristis*), Northern Cardinal (*Cardinales...*
Mammals. The only feral mammal observed during the field survey was the Small Indian Mongoose (*Herpestes javanicus*). Rats (*Rattus spp.*) and Mice (*Mus musculus*) are likely to occur on the site along with feral cats (*Felis catus*). Using an ultrasound detection device, an evening search of the property did not detect the presence of the endangered Hawaiian Hoary Bat, which roosts solitarily in trees. The bats forage for flying insects in a wide range of habitats including forests, agricultural lands, and urban areas, as well as over bays and ponds.

Arthropods: In response to comments from the State Land Use Commission (See July 2, 1012 letter – Appendix S, Draft EA Comment Period), Robert W. Hobdy conducted a survey to inventory all arthropod species in the project area. See Appendix F-1, Arthropod Study. A total of 15 arthropods were recorded, representing seven Orders of spiders and insects. No rare or endangered inserts were observed including the endangered Blackburn’s sphinx moth (*Manduca blackburni*). None of the moth’s preferred host plants, the tree tobacco (*Nicotiana glauca*) were found, and no adult moths, eggs or larvae were seen.

**Potential Impacts and Mitigation Measures.** The typical assemblage of non-native birds and mammals were observed during the field survey. No threatened or endangered avian species were observed or expected given the existing resources on the site.

At least two endangered water birds (*Koloa, Alaekeʻo*) utilize the nearby HC&S irrigation reservoir. These water birds did not respond to any traffic noise from South Firebreak Road and Lower Kihei Road which borders the reservoir to the west and south. An embankment and the vegetation around reservoir visually shields and buffers the birds from human disturbance. It should also be noted that water birds might fly over the subject parcel or utilize the proposed drainage basins along the west side of the site as they travel between various water bodies within the region including the adjacent irrigation reservoir and the Kealia Pond National Wildlife Refuge.
The Kolea or Pacific Golden Plover, which is neither threatened nor endangered, is the only potential migratory shorebird that might forage along roads and clearings in the Pu`unene area.

There are no known published sightings of the Hawaiian Hoary Bat in the project area. However, since the bat forages over a wide variety of habitats, it is possible that a sighting in the area could occur on rare occasion. The Faunal Survey notes that F. J. Bonaccorso, who has conducted extensive research on the bat, has recommended that trees in a project area not be cut or disturbed between the months of April and August if there is any evidence that bats occur in the area. During this period, the young flightless bats are left in the tree while their mother forages for food. In accordance with recommendations provided by the U.S. Fish & Wildlife Service in their review of the Draft EA (See August 21, 2012 e-mail – Appendix S, Draft EA Comment Period), the cutting or trimming of trees and woody shrubs over 15 feet in height shall be avoided from June 1 through September 15 to mitigate potential impacts to the Hawaiian Hoary Bat.

As a follow-up to the land owner’s response to their early consultation comments (See August 3, 2011 letter – Appendix R, Early Consultation Letters), the USFWS provided supplemental comments via telephone (personal communication with Ian Bordenave, September 27, 2011). Mr. Bordenave indicated that the endangered Nene or Hawaiian goose has been observed in the area around Mokulele Highway and that the Nene is drawn to grass seedlings in hydro-mulched areas that are being developed. He recommended holding a pre-construction meeting to inform workers about how to detect the presence of Nene and how to avoid them and/or their nesting sites. He also indicated that John Medeiros from the Forestry Division of the State Department of Land and Natural Resources can be called upon for assistance and that the USFWS will identify the exact number of days for a survey to determine if the Nene is using the project site for foraging, loafing, or nesting.

In following up on comments from the State Office of Planning, (See July 9, 2012 letter – Appendix S, Draft EA Comment Period), Robert W. Hobdy conducted a survey of the project area on July 16, 2012 to assess its potential for providing habitat for Nene even if only incidental or temporary in nature. See Appendix F-2, Nene (Hawaiian Goose) Survey. The report documenting the findings of the survey notes
that the subject parcel is not irrigated and is located in one of the driest regions on Maui. This area experiences long, hot and dry summers during which the grasses and herbaceous plants become seared and withered. Even in a substantial wet season, the vegetation is tough and the greenery is fleeting. The report finds that nothing in this environment would equate to preferred habitat for *Nene* or attract them to feed or breed here. The fact that no *Nene* was observed during the survey was an expected outcome, consistent with the existing environmental resources.

Exterior lighting will be appropriately shielded or directed downward to minimize impacts to any migratory seabirds which may become disoriented when traversing the project area.

In light of the foregoing, the proposed project is not expected to have an adverse effect upon fauna in the project area.

7. Noise

*Existing Conditions*. The level of ambient noise is an important indicator of environmental quality. In an urban setting, industrial and construction activities, as well as aircraft and automotive traffic can result in adverse noise impacts. In a rural environment, traffic noise, surrounding land uses, and construction activities can impact noise levels based on their proximity to noise-sensitive development. Chronically high noise levels can impact personal health and the ambience and aesthetic appeal of an area.

Noise in the project area is attributable to aircraft traversing the area, vehicles along Mokulele Highway, truck traffic between the highway and the Hawaiian Cement Quarry, and sugar cane planting and harvesting operations in the vicinity.

An Acoustic Study for the proposed project was prepared by Y. Ebisu & Associates in November 2011. See Appendix H, Noise Study. The primary purpose of the study was to ascertain and assess present and future traffic noise conditions in the project area. Potential noise impacts from onsite activities and short-term construction noise were also examined and recommendations for minimizing noise impacts were provided.
The subject parcel is located in an area characterized by sugar cane cultivation, as well as industrial, recreational, and public/quasi-public uses. Industrial uses in the area include the Hawaiian Cement Quarry, 0.2 mile to east, and the Central Maui Baseyard, 1.3 miles to the north. Recreational uses include the Maui Raceway Park, 0.4 mile to the west, while public/quasi-public uses include the Hawai‘i National Guard Armory, 0.7 mile to the west, and the Maui Humane Society, 1.1 miles to the northwest.

There is no residential development in the immediate vicinity of the proposed project. The closest residential areas are in Kihei, 2.3 miles to the south; Ma`alaea, 3.6 miles to the southwest; Kahului, 4.0 miles to the north; and Pukalani, 6.4 miles to the east.

Federal noise standards were used to calculate traffic noise levels along the roads serving the subject parcel. The noise descriptor used to assess environmental noise is the Day-Night Average Sound Level (DNL).

In the project area, traffic noise levels along Mokulele Highway are expected to increase by approximately 1.3 to 1.4 DNL by 2015 as a result of project and non-project traffic. Project traffic will result in an increase of 0.3 to 0.4 DNL, while non-project traffic is expected to contribute 1.0 DNL.

During the same timeframe, traffic noise levels along the roads serving the subject property (Kama`aina Road, South Firebreak Road) are expected to increase to 6.4 DNL due to project-generated traffic.

**Potential Impacts and Mitigation Measures.** While no significant increase in traffic noise levels along Mokulele Highway is expected as a result of project and non-project traffic by 2015, an increase of 6.4 DNL in project-generated traffic is expected to occur along the roads serving the subject parcel. However, due to the absence of noise-sensitive development along these roads, the 6.4 DNL increase is not expected to result in any adverse noise impacts.

As previously noted, the nearest residential noise receptors are in Kihei (2.3 miles), Ma`alaea (3.6 miles), Kahului (4.0 miles), and Pukalani (6.4 miles). In order to predict worst case subdivision noise emissions at the closest residential receptors, it was assumed that each lot within the subdivision would continuously emit 70 dBA. The
results of the noise modeling indicated that worst case noise levels could fall between 3 and 29 dBA which is well below the 45 dBA at the closest residential receptors. Based on these noise modeling efforts, adverse noise impacts from onsite noise sources are not anticipated.

Predicted worst-case emissions from operating equipment within the proposed subdivision are not expected to exceed noise impact thresholds at the nearest noise-sensitive areas. During construction, no adverse noise impacts are anticipated due to the absence of noise-sensitive development in the neighborhood, as well as the physical separation and distance between the subject parcel and

Because construction activities may be audible within the project site and nearby properties, the quality of the acoustic environment may be temporarily affected if sound level thresholds are exceeded during construction. Construction vehicles, machinery, and equipment, such as tractor-trailers, front-end loaders, excavators, bulldozers, dump trucks, graders, generators, jackhammers, and power tools are the dominant noise sources during the construction phase.

Measures to reduce construction noise to inaudible levels will not be practical in all cases. However, proper equipment maintenance, the use of sound-dampening equipment, and limiting construction activities to daylight working hours will help minimize noise impacts.

Under existing State noise regulations, the maximum sound level for agricultural and industrial-zoned land is 70 dBA. The abbreviation dBA represents a sound pressure level with an A-weighting filter. In measuring sound, an A-weighting filter is commonly used to emphasize frequencies where the human ear is most sensitive. The A-weighting curve has been widely adopted for environmental noise measurement and is standard in many sound level meters.

The development of the proposed project will comply with all applicable regulations pertaining to noise including Chapter 11-46, HAR (Community Noise Control). Should noise from construction activities or industrial activities exceed the 70 dBA threshold set by the State Department of Health (DOH), a Community Noise Permit will be obtained from the Department’s Indoor & Radiological Health Branch in accordance with Chapter 11-46, HAR.
Because future lot owners will determine the heavy industrial use on their lots, specific activities that would occur within the subdivision are presently unknown. Notwithstanding this, since heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will require that all lot owners prepare and implement Best Management Practices (BMPs) and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also stipulate that lot owners must comply with all applicable Federal, State, and County laws including Chapter 11-46, HAR. An association of subdivision lot owners shall be formed and will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In the State of Hawai`i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit is granted, specific terms of compliance are set forth to ensure that the permitted use will not adversely affect the environment. Failure to comply with the terms of the permit could result in enforcement action including penalties or revocation of the permit.

In light of the foregoing, the proposed project is not expected to result in any adverse noise impacts.

8. Air Quality

**Existing Conditions.** Maui lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. Because the project area is located in the valley between Haleakala and the West Maui Mountains and the valley is unobstructed to the north, it receives relatively good ventilation much of the time from the northeast trade winds which tend to be channeled through the valley by the terrain. Local winds such as land/sea breezes and/or upslope/down slope winds also influence the wind pattern for the area when the trade winds are weak or absent. At night, winds are often drainage winds that move down slope and out to sea. During winter, occasional strong winds from the south or southwest occur in association with the passage of winter storm systems. The monthly
mean wind speed and prevailing wind direction statistics for Kahului Airport indicate that ventilation is good throughout the year with monthly mean speeds ranging from about 11 to 15 miles per hour. Wind data from Kahului are at least semi-representative of winds at the project site. Wind speeds in summer tend to be strongest. The monthly prevailing wind direction year round is from the northeast.

Air quality refers to the presence or absence of pollutants in the atmosphere. It is the combined result of natural conditions (e.g. dust from wind erosion) and emissions from a variety of pollution sources (e.g. automobiles, power-generating plants).

The air quality in the Central Maui region is relatively good. Non-point source vehicle emissions do not generate a significant or high concentration of pollutants, as prevailing winds help to disperse emissions quickly. The Central Maui region is currently in attainment of all Federal and State air quality standards.

An Air Quality Study (AQS) for the proposed project was prepared by B.D. Neal & Associates in November 2011. See Appendix H, Air Quality Study. The AQS examined potential short- and long-term air quality impacts that could occur as a result of construction activities and the proposed heavy industrial use of the site. Measures to minimize potential air quality impacts were proffered where possible and appropriate.

Air quality in the immediate project area is primarily affected by pollutants from vehicular, industrial, natural, and/or agricultural sources. Most of the man-made particulate and sulfur oxides emissions on Maui originate from point sources, such as power plants and other fuel-burning industries. Nitrogen oxides emissions are roughly equally divided between point sources and area sources (mostly motor vehicle traffic). The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic, sugar cane burning), while hydrocarbons are emitted mainly from point sources.

The major source of air pollution in the project area is associated with agricultural operations. There are also a small number of industrial sources within a few miles of the site, and air pollution emissions occur from automobile traffic using Mokulele Highway to the west of the project site. Emissions from these sources consist primarily of particulate, carbon monoxide and nitrogen oxides. Volcanic emissions from distant
natural sources on the Big Island also affect the air quality at times during *kona* wind conditions. By the time the volcanic emissions reach the project area, they consist mostly of fine particulate sulfate.

Two size fractions of particulate matter (PM) were measured at the Department of Health’s (DOH) monitoring station in Kihei. Particulate matter less than 10 microns diameter (PM-10) and particulate matter less than 2.5 microns diameter (PM-2.5). Annual second-highest 24-hour PM-10 concentrations (which are most relevant to the air quality standards) ranged from 60 to 119 micrograms per cubic meter (g/m³) between 2005 and 2008. Average annual concentrations ranged from 20 to 26 g/m³.

The annual 24-hour 98th percentile PM-2.5 particulate concentrations (which are most relevant to the air quality standards) ranged from 8 to 16 g/m³ between 2005 and 2009. Average annual concentrations ranged from 4 to 6 g/m³.

Given the limited air pollution sources in the area, it is likely that air pollution concentrations are near natural background levels most of the time, except possibly for locations adjacent to agricultural operations or near traffic-congested intersections.

**Potential Impacts and Mitigation Measures.** The existing air quality in the project area is predominantly good. Brush fires and agricultural tilling operations have occasionally resulted in the recording of relatively high particulate concentrations at the DOH air quality monitoring station in Kihei.

In the short term, air quality will be temporarily affected by fugitive dust from construction activities. If uncontrolled, estimated fugitive dust emissions could amount to 1.2 tons per acre per month depending on rainfall.

In accordance with Chapter 11-60.1, HAR entitled *Pollution Control* and Section 11-60.1-33, HAR pertaining to *Fugitive Dust*, appropriate dust control measures will be implemented during construction to minimize the effects of fugitive dust. Examples of such measures include but are not limited to the following:

1. To control dust, active work areas and any temporary unpaved work roads will be watered at least twice daily on days without rainfall.
2. The use of wind screens and/or limiting the area that is disturbed at any given time will help contain fugitive dust emissions.

3. Mulching or chemical soil stabilizers will be used on disturbed, inactive areas of the site to help control wind-generated erosion.

4. Dirt-hauling trucks will be covered when traveling on roadways to prevent windborne particulates.

5. A routine road cleaning and/or tire washing program will help reduce fugitive dust emissions from trucks tracking dirt onto paved roadways in the project area.

6. Establishing landscape plantings early on during the construction phase will help dust control.

7. Monitoring dust at the project boundary during construction will be considered as a means to evaluate the effectiveness of the project’s dust control program. Adjustments will then be made if necessary.

8. During construction, onsite construction equipment, vehicles used by construction workers, and trucks traveling to and from the project will be the primary source of vehicle emissions (carbon monoxide, nitrogen oxides). Increased emissions resulting from traffic disruptions attributable to construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel onto the site during off-peak traffic hours.

To the extent possible, non-drinking water will be used for dust control during construction activities.

From a long-term perspective, project-related motor vehicle emissions should have a negligible effect on air quality in the project area and worst-case concentrations of carbon monoxide should remain within State and Federal ambient air quality standards. As noted in the AQS, implementing any mitigation measures for long-term, traffic-related air quality impacts is probably unnecessary and unwarranted.

As previously noted, the project area is located in the valley formed by Haleakala and the West Maui Mountains. Since the valley is unobstructed to the north, it receives relatively good ventilation much of the time from the northeast trade winds which tend to be channeled through the valley by the terrain. Adverse air quality impacts to existing land uses in the area (Maui Humane Society, Maui Raceway Park, Hawai`i National Guard Armory) are not anticipated as these facilities do not lie directly downwind of the project site and the prevailing trade winds would help to quickly disperse any airborne particulates.
The development of the proposed project will comply with all applicable regulations for the control of air pollution, including Chapter 11-60, HAR (Air Pollution Control).

Since heavy industrial uses will be determined by future lot owners, specific activities that would occur within the subdivision are presently unknown. Nonetheless, because heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will require that all lot owners prepare and implement Best Management Practices (BMPs) and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also stipulate that lot owners must comply with all applicable Federal, State, and County laws including Chapter 11-60, HAR. An association of subdivision lot owners shall be formed and will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts.

In light of the foregoing, the proposed project is not expected to result in any adverse air quality impacts.

9. Archaeological/Historic Resources

**Existing Conditions.** Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey (AIS) of the subject parcel and the alignment for the alternate access road. Field work for the inventory survey was undertaken in June 2011. **See Appendix I, Archaeological Inventory Survey.** A large portion of the project area had been previously surveyed by International Archaeological Research Institute, Inc. (IARI) in 1999 as part of an AIS for the area. The 1999 IARI inventory survey identified two archaeological sites within the project area including a section associated with the former Naval Air Station (NAS) Pu‘unene – State Site 50-50-09-4164 – and a post-World War II cattle ranching site – State Site 50-50-09-4801. In addition to leading to the relocation of these two sites, the SCS survey assessed the
presence/absence of features within both sites and identified previously undocumented features within each site.

A majority of the historic features within the project area have been heavily impacted by modern mechanical clearing and ensuing debris removal. In general, most of the features that comprise State Site 50-50-09-4164 were mechanically impacted, abandoned, and neglected. The historic features associated with State Site 50-50-09-4801 were abandoned and neglected, but not mechanically impacted. Archival research has indicated the northern half of the subject parcel had been utilized for hog farming and scrap metal storage site, while the southern half of the property remained fallow.

A total of 15 previously unrecorded features, interpreted as either NAS Pu`unene-related or post-war cattle ranching-related features, were recorded by the SCS survey. Of the 15 newly recorded features, three features were located in the post-war cattle ranching area around State Site 50-50-09-4801, while the remaining 12 features were located in the former NAS Pu`unene area (Housing Area A) around State Site 50-50-09-4164.

To supplement their surface pedestrian survey, a total of 20 stratigraphic trenches were mechanically excavated by SCS. Only one stratigraphic trench (ST-6) revealed the presence of subsurface architecture at Facility 177 (SCS Site T-25). The feature was initially utilized as a military storehouse and converted for animal husbandry purposes.

**Potential Impacts and Mitigation Measures.** The 2011 SCS inventory survey recorded 15 new features associated with State Site 50-50-09-4164 and State Site 50-50-09-4801 which are significant under Criterion D for their information content. State Site 50-50-09-4164 has also been assessed as significant under Criterion A, as it has yielded information important to the history of Maui. These 15 features have been recorded and subsumed under the existing State site numbers.

Since two inventory surveys of the project area have already been conducted (IARII-1999, SCS-2011), it seems unlikely that any new information would be gleaned from further archaeological investigation. As such, the SCS inventory survey recommends no further archaeological work for the larger portion of the project area. Because the
alignment for the alternate access road was only subject to a pedestrian survey, archaeological monitoring is recommended since the archaeological features that were documented on the east and west sides of the alternate access road could be impacted by ground-altering construction activities.

The SCS inventory survey of the project area was approved by the State Historic Preservation Division (SHPD) on June 18, 2012. See Appendix I-1, SHPD Approval of Inventory Survey.

SCS prepared an Archaeological Monitoring Plan (AMP) for the proposed project in October 2011. See Appendix J, Archaeological Monitoring Plan.

The AMP is varied in that full-time archaeological monitoring will be conducted if the alternate access road is constructed. For the remainder of the project area, intermittent monitoring is recommended since two inventory surveys of the area have already been conducted (IARI-1999, SCS-2011) and the area has been subject to intensive ground-altering activities in the past with minimal probability that subsurface deposits would be located.

The AMP has been prepared in accordance with Chapter 13-279, Hawai‘i Administrative Rules (Rules Governing Standards for Archaeological Monitoring Studies and Reports).

Key provisions set forth in the AMP for the proposed project include the following:

1. A qualified archaeologist intimately familiar with the project area and the results of previous archaeological work conducted in the Pu‘unene area will intermittently monitor subsurface construction activities in the proposed project area. Full-time Monitoring is only recommended should the alternate road access be created. During Monitoring, one archaeologist will be required per each piece of ground altering machinery in use. No land altering activities will occur on the parcel until this AMP has been accepted by the SHPD. If significant deposits or features are identified and additional field personnel are required, the archaeological consultants conducting the Monitoring will notify the contractor or representatives thereof before additional personnel are brought to the site.

2. If features or cultural deposits are identified during Monitoring, the on-site archaeologist will have the authority to temporarily suspend construction activities at the significant location so that the cultural feature(s) or deposit(s) may be fully evaluated and appropriate treatment of the cultural deposit(s) is
conducted. SHPD will be contacted to establish feature significance and potential mitigation procedures.

3. Control stratigraphy in association with subsurface cultural deposits will be noted and photographed, particularly those containing significant quantities or qualities of cultural materials. If deemed significant by SHPD and the contracting archaeologist, these deposits will be sampled, as determined by the same.

4. In the unlikely event that human remains are encountered, all work in the immediate area of the find will cease; the area will be secured from further activity until burial protocol has been completed. The SHPD island archaeologist and SHPD Cultural Historian will both be immediately identified as to the inadvertent discovery of human remains on the property. Notification of the inadvertent discovery will also be made to the Maui/Lanai Island Burial Council by the SHPD Maui staff or the contracting archaeologist.

5. To ensure that contractors and the construction crew are aware of this AMP and possible site types to be encountered on the parcel, a brief coordination meeting will be held between the construction team and monitoring archaeologist prior to initiation of the project. The construction crew will also be informed as to the possibility that human burials could be encountered and how they should proceed if they observe such remains.

6. The archaeologist will provide all coordination with the contractor, SHPD, and any other groups involved in the project. The archaeologist will coordinate all Monitoring and sampling activities with the safety officers for the contractors to ensure that proper safety regulations and protective measures meet compliance. Close coordination will also be maintained with construction representatives in order to adequately inform personnel of the possibility that open archaeological units or trenches may occur in the project area.

In a letter dated August 24, 2012, the SHPD approved the monitoring plan for the proposed project. See Appendix J-1, SHPD Approval of Monitoring Plan.

An archaeological monitoring report will be prepared and submitted to the SHPD within 180 days after the completion of fieldwork. If any cultural features or deposits are identified during fieldwork, the sites will be evaluated for historical significance and assessed under State and Federal significance criteria.

In light of the foregoing, the proposed project is not expected to have an adverse effect on archaeological or historic resources.

10. Cultural Resources

Existing Conditions. In September 2011, Scientific Consultant Services, Inc. (SCS)
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prepared a Cultural Impact Assessment (CIA) for the proposed project. See Appendix K, Cultural Impact Assessment. Enacted by the State Legislature in 2000, Act 50 requires that an assessment of cultural practices be included in environmental assessments and environmental impact statements, and that the potential impacts a proposed action may have in an area where cultural activities are currently, or were previously practiced, be considered during project planning. The purpose of the CIA was to identify any extant areas where cultural activities are currently, or were previously conducted within a project site or area, and evaluate the effect a project may have on cultural resources, practices or beliefs; the potential to isolate cultural resources, practices or beliefs from their setting; and the potential for introducing elements which may alter the setting in which cultural practices take place. The CIA was prepared in accordance with the suggested methodology and content protocol set forth in Office of Environmental Quality Control’s Guidelines for Assessing Cultural Impacts (1997).

As noted in the CIA, the project area is located in the lands of Pulehu Nui which translated literally means “large pūlehu” but since pulehu means “broiled” it might refer to the degree of broiling one could receive from the sun in this area (Pukui et al, 1974).

The ahupua`a of Pulehu Nui extended across the Kula plain up through Makawao, to the edge of Haleakala and would have included fruitful sections and not just arid plains. The word “kula” meant “open country or plain” according to Handy and Handy (1972), and was often used to differentiate between dry or kula land and wet-taro land. The height and size of Haleakala to the east prevents moisture from reaching its southern and western flanks, causing desert-like conditions throughout the region. As noted by Handy and Handy, “This is an essential characteristic of Kula, the central plain of Maui which is practically devoid of streams. Kula was always an arid region, throughout its long, low seashore, vast stony kula lands, and broad uplands.”

As the sugar industry developed in the mid-1800s, more and more land was leased or purchased for this profitable endeavor. Since the availability of water was an issue, the Hamakua Ditch Company was formed 1876, and within two years, was bringing water from the streams of Haleakala to four plantations in East Maui (Dorrance and Morgan, 2000).
With the success of the Hamakua Ditch, Claus Spreckles formed the Hawaiian Commercial & Sugar (HC&S) Company and decided to construct a ditch system in East Maui (above the Hamakua Ditch) for his newly acquired land (Wilcox 1996). Spreckles’ Haiku Ditch extended 30 miles, from Honomanu Stream to the Kihei boundary and the water was used to irrigate his cane lands in the Central Maui plains. Presently, the Haiku Ditch ends at the HC&S reservoir abutting the project area to the north.

After the annexation of Hawai`i in 1898, some of the sugar planters on Maui, including Alexander and Baldwin (A&B), combined their operations to form the Maui Agricultural Company, a co-partnership that initially encompassed seven plantations and two mills. In 1904, five new plantations became part of the Maui Agricultural Company, one of which included the Makawao Plantation Company, which encompassed the section of Pulehu Nui containing the project area. In 1948, Maui Agricultural Company merged with HC&S (Dorrance and Morgan, 2000).

In 1937, a portion of the cane fields to the west of the project area was turned into a civil airfield for the Territory of Hawai`i, as the airfield at Ma`alaea had become too small. Two years later, Inter-Island Airways began service to Maui, landing at the Pu`unene Airport.

In 1940, with the threat of a world war looming on the horizon, the U.S. Navy began using the Pu`unene Airport, along with a small Army Air Corps support base, at the airfield. At this time, the air station was being used to support Squadron VU-3, which towed targets and operated drones for the Pacific Fleet. In 1942, shortly after the United States entered World War II, the project area and other land in the vicinity of the airport was condemned pursuant to a Declaration of Taking that was filed with the U.S. District Court for the Territory of Hawaii. As a result, the Pu`unene Airport was expanded and commissioned as Naval Air Station (NAS) Maui. In addition to lengthening and widening the runways, the Navy added flight simulators (Link trainers) and changed its name to NAS Pu`unene. By 1945, the base supported over 3,300 personnel and 271 aircraft, and encompassed 2,202 acres, two paved runways, taxiways, ramps, hangers, and auxiliary buildings. A total of 106 squadrons and carrier groups passed through NAS Pu`unene during WW II.
In 1947, the U.S. Navy returned the Pu`unene Airport to the Territory of Hawai`i. The airfield was apparently used as the official inter-island Airport for Maui until at least 1952 when the Kahului Airport became available for civil use. However, the Maui/Pu`unēnē airstrip, as it was known, serviced crop-dusters and other smaller aircraft and was not abandoned as a landing strip until sometime between 1961 and 1977. Some former military facilities such as bunkers, revetments, and other remnants still exist today. The land comprising NAS Pu`unene was sold back to HC&S by the State of Hawai`i except for 222 acres which were transferred to the County of Maui for public and recreational purposes under Executive Order 4024.

Existing recreational uses within this 222-acre area include facilities for drag racing, dirt bike racing, go-kart racing, autocross racing, oval (dirt) track racing, and an area for flying radio-controlled model aircraft.

In recent times, the northern half of the subject parcel had been used for hog farming and as a scrap metal storage site, while the southern half of the property remained fallow.

**Potential Impacts and Mitigation Measures.** The preparation of the CIA involved archival and documentary research, as well as consultation with agencies, organizations, and individuals having knowledge of the project area and its cultural resources, practices. As part of the CIA process, SCS consulted with the State Historic Preservation Division – History and Culture Branch and Maui Cultural Branch; the Office of Hawaiian Affairs (OHA) – Oahu and Maui Branches; the Maui Planning Department; the Maui County Cultural Resources Commission; the Central Maui Hawaiian Civic Club; Hale Mahaolu and Kimokeo Kapahuleua. A Cultural Impact Assessment Notice was also published in *The Honolulu Star-Advertiser* and *The Maui News*, on July 20, 21, and 24, 2011, and the August issue of the OHA newspaper (*Ka Wai Ola*).

Long time Maui resident Hugh Starr was also consulted and provided copies of reference documents and a map pertaining to the World War II use of the area. In addition, OHA did not have any CIA referrals but provided some project-related comments which were provided to the land owner. See Appendix K, Cultural Impact Assessment. None of the other consulted parties provided any referrals or
information about potential cultural resources or cultural activities occurring in the project area.

The project area has not been used for traditional or historic cultural purposes within recent times and in light of the historical and cultural research that has been conducted for the CIA, it is reasonable to conclude that the exercise of native Hawaiian rights (or any ethnic group) related to gathering, access or other customary activities will not be affected by the development of the proposed project. In addition, since no cultural activities were identified within the project area, no adverse effects are anticipated.

In light of the foregoing, the proposed project is not expected to have an adverse effect upon cultural resources.

11. Scenic and Open Space Resources

**Existing Conditions.** The subject parcel slopes in an east to west direction with elevations on the site ranging from 140 feet above mean sea level (amsl) to 120 feet amsl with an average slope of 1.8 percent. Sugar cane fields border the site on its east and south, while the undeveloped lands of Project District 10 and the Pu‘unene Airport Master Plan area lie to the west. To the north of the property are Lower Kihei Road, an HC&S irrigation reservoir, and sugar cane fields.

As viewed from the subject parcel, Haleakala lies to the east of the site, while the West Maui Mountains can be seen to the west. The Pacific Ocean and the island of Kaho‘olawe are visible to the southwest.

The subject property does not contain any natural or man-made scenic features. The site is not located within any important mauka or makai view corridors along Mokulele Highway. Due to its distance from the highway the project site cannot be seen from surrounding areas.

**Potential Impacts and Mitigation Measures.** While the visual character of the project area will be modified by the proposed project, it will not have an adverse effect upon scenic resources or view corridors due to its distance from Mokulele Highway and other public roadways in the area.
The maximum building height under M-3, *Restricted Industrial* zoning is 90 feet. Landscaping around the perimeter of the proposed subdivision will help integrate the project with its surroundings. All lot owners and all buildings and accessory structures that are built within the subdivision will be required to comply with the Covenants, Conditions, and Restrictions and the Design Guidelines for the subdivision, a coordinated set of documents that will enforce the design, development, and land use standards for the Pu`unene Heavy Industrial Subdivision.

Due to its distance from Mokulele Highway and residential areas in Kahului, Kihei, and Upcountry, the proposed project will not have an adverse visual impact.

While the proposed drainage swale along the west side of the subject parcel constitutes an area of open space, there are no parks, utility easements, shoreline areas, and wetlands on the property which would contribute to the establishment of an open space framework for the area.

### 12. Hazardous Materials

**Existing Conditions.** A Phase I Environmental Site Assessment (ESA) of the subject property was conducted by EnviroServices & Training Center (ETC) in March 2011. See Appendix L, *Phase I Environmental Site Assessment and Supplemental Data.*

The Phase I ESA notes that the subject parcel was previously used as a piggery and an unpermitted solid waste management facility. Until its sale in March 2011, the subject property had been owned by A&B Properties, Inc. (A&B) who formerly leased the property to Maui Factors, Inc., who in turn subleased the site to Larry Poffenroth.

The subject property was formerly used as a piggery for over 25 years. As part of an agreement with Maui Factors, Mr. Poffenroth took over piggery operations around 1995 and is believed to have begun solid waste management activities on the property shortly thereafter. The solid waste management activities occurred without the knowledge or consent of A&B. Initially, Mr. Poffenroth’s solid waste management activities were limited to scrap metal storage and processing, however, he subsequently expanded and began accepting green waste, construction/demolition waste, and other miscellaneous waste streams. In November 1998, the State
Department of Health (DOH), Solid Waste and Hazardous Materials Branch instructed Mr. Poffenroth to halt all salvage operations on the property. Large amounts of food waste were brought in as hog feed, which resulted in discarded empty food packaging materials being spread throughout much of the north part of the property. In late 2007, A&B was finally able to evict Mr. Poffenroth and all the remaining pigs were subsequently removed in 2008. Immediately following the eviction, A&B began solid waste cleanup activities and completed the clean up in February 2011. Based on the former usage of the subject parcel, several specific potential sources of contamination were identified during previous site inspections.

Historic maps and documents provided by A&B indicated that the subject property was part of the former Pu`unene Naval Air Station (NAS) and that a machine gun range used to be located in or around the southernmost part of the property. Earth revetments, presumably in the impact zone of the range, were located near the southern boundary of the property. Residual heavy metals are common contaminants associated with former military firing ranges and are considered a historical recognized environmental condition (REC). While the earth revetments no longer exist there is evidence that the soil in the impact zone has been excavated in the past. Based on information provided by A&B and the DOH, the potential presence of residual contamination from this historical REC cannot be dismissed and is therefore considered a current REC on the property.

ETC conducted a site reconnaissance survey of the subject property in early 2011 to identify the use and/or storage of hazardous materials. With the exception of an existing radio tower and appurtenant structures, no visible structures were observed although several building remnants (concrete slabs) and a non-drinking water well were located on the site. Limited quantities of cathode ray tubes, batteries, and other waste were found inside a metal storage bin located in the northwestern sector of the property. According to A&B, the materials were being prepared for shipment and proper disposal. The storage bin was placed on a concrete slab and no releases were observed in the vicinity of the bin.

The Phase I ESA found no evidence of RECs associated with the subject property except for:
The potential presence of residual contaminants associated with former solid waste management activities on the subject property.

The potential presence of residual contamination associated with the historic use of the southernmost part of the property as a machine gun range.

**Potential Impacts and Mitigation Measures.** As part of the planned cleanup of the subject parcel, A&B contracted with ETC to prepare a *Site Investigation Report* to determine whether surface soils were impacted by past solid waste management activities. See Appendix L, *Phase I Environmental Site Assessment and Supplemental Data*. The data obtained during this investigation was used to determine whether additional investigation and/or corrective actions are warranted, based on the decision rules developed in the Phase I ESA.

The contaminants of potential concern (COPC) that were identified by the site investigation were eight Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), total petroleum hydrocarbons as diesel, total petroleum hydrocarbons as oil (TPH-O), polynuclear aromatic hydrocarbons, and polychlorinated biphenyls. The media targeted by this site investigation was surface soil.

In order to assess the impacts associated with the former solid waste operations, decision units (DU) were established based on source locations. These source locations include: the shop area (DU1); vehicle and drum storage area (DU2); scrap metal processing area (DU3); miscellaneous scrap metal and debris (DU4); scrap metal stockpiles and transformer storage area (DU5); vehicle/tanker/television/monitors storage area (DU6); miscellaneous hazardous materials storage area (DU7); miscellaneous scrap metal with open areas (DU8); battery storage area (DU9); miscellaneous scrap metal pile (DU10); and the scrap metal and CRT storage area (DU11).

In March 2011, a total of 13 multi-increment soil samples (11 primary samples, two field replicate samples) were collected from the potential contaminant source locations. The samples were submitted to Torrent Laboratory, Inc. in Milpitas, California for select COPC. Analytical results from the initial site investigation activities for the Phase I ESA indicated that elevated concentrations of total petroleum hydrocarbons as oil (TPH-O) were reported for DU6 and DU12 (replicate of
DU3). Specifically, reported average concentration for DU6 (730 mg/kg) and the adjusted value (reported average concentration plus RSD) for DU12 (589 mg/kg) exceeded the State Department of Health (DOH) Environmental Action Level (EAL) of 500 mg/kg pertaining to gross contamination concerns associated with unrestricted land use. The adjusted value for DU6 (1,228 mg/kg) also exceeded the DOH EAL pertaining to leaching (1,000 mg/kg) concerns. Although the initial EAL was exceeded, the DOH EAL pertaining to direct exposure (2,300 mg/kg) concerns associated with unrestricted land use was not exceeded.

During discussions for the sale of the subject parcel property, A&B and CMBY agreed to a commercial/industrial land use limitation for the property. Therefore, gross contamination concerns associated with unrestricted land use would not be considered a significant environmental hazard for the site and was removed from consideration. An adjusted TPH-O value (1,228 mg/kg) was reported at a concentration exceeding the EAL pertaining to soil leaching EALs in DU6 only.

A previous groundwater investigation indicated that none of the regulated drinking water contaminants were identified at levels of concern. In addition, the DOH generally considers soil leaching EALs associated with petroleum-related constituents excessively conservative. For example, as noted in the DOH’s *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater* document (EHE Document), TPH-O is considered to be biodegradable and “can be expected to naturally degrade over time,” however, it is not accounted for in the model.

The model used is also based on a much higher rainfall than is received in Pu‘unene, Maui. In addition, the leaching EAL does not consider drinking water utility status (i.e. drinking water vs. non-drinking water) and as noted in the EHE Document, the leaching EAL is based on the California EPA Los Angles Regional Water Board proposed action level of 1,000 mg/kg which in fact applies to drinking water aquifers in which the distance above groundwater is less than 20 feet (CRWQCB, 1996).

Note that groundwater status of the subject property is considered to be non-drinking water and is anticipated at a depth greater than 100 feet. Based this information, soil leaching concerns associated with petroleum-related constituents do not appear to be a significant concern. Therefore, soil leaching would not be considered a significant

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environmental hazard for the site and was removed from consideration.

In addition to the DU6 findings, analytical results indicated that soil collected from DU11 contained an average total lead concentration of 830 mg/kg, which exceeds the initial AL of 200 mg/kg. The detected total lead concentration also exceeded the DOH EAL of 800 mg/kg pertaining to direct exposure concerns associated with commercial/industrial land use. Based on these findings, ETC proposed additional surface soil sampling within DU11. As a result, ETC returned to the subject parcel in August 2011 to collect a total of 10 multi-increment soil samples (eight primary samples, two field replicate samples) from DU11. The samples were submitted to TestAmerica – Honolulu in Aiea for analysis of total lead content.

Analytical results for the additional investigation of DU11 indicated that average total lead concentrations for all eight DUs were well below the project defined AL of 200 mg/kg. Based on these findings, ETC suspects that the deviation of these results from initial DU11 findings may have been caused by nuggets or discrete pieces of lead within the soil. Therefore, based on the analytical results of the additional sampling activities, ETC suspects that the initial results for DU11 may not necessarily reflect the average lead concentrations that are likely to be encountered throughout DU11. In addition, given the future commercial/industrial land use of the subject property coupled with the results of the additional sampling activities, potential plant uptake is not considered a concern. Therefore, based on the data, lead was removed from consideration as a contaminant of concern for the subject parcel.

Based on review of the data obtained from the site investigation and comparison of COPC concentrations to applicable DOH EALs pertaining to commercial/industrial land use, there appear to be no retained environmental hazards for the site. As such, no further action appears necessary to address concerns associated with the former solid waste operations on the subject property.

In December 2011, the current land owner commissioned Malama Environmental (MEV) to conduct project monitoring and review the environmental documentation prepared by ETC. The scope of MEV’s work consisted of the following tasks.

- Review of environmental documents compiled by ETC, including field work plans, sampling plans, Site Investigation Report and limited Phase II Report
by ETC.

- Review of field sample procedures by ETC.
- Conduct field sampling monitoring of ETC personnel.
- Review of sample preparations and chain of custody for the chosen laboratory.
- Review of the laboratory qualifications, analytical methods chosen, and quality assurance/quality controls.
- Review ETC’s conclusions.

The Site Investigation Report prepared by ETC in October 2011 will be submitted to the DOH requesting a “no further action” statement and final closure letter. Based on MEV’s site reconnaissance and review of ETC’s documentation, the former unpermitted solid waste requires no further sampling or environmental investigation for industrial/commercial land use. MEV concurs with this conclusion.

The Draft Phase II Limited Environmental Site Assessment (dated 11/16/11) at the former machine gun range will not be submitted to the DOH as it was meant to satisfy the former land owner (A & B) that there is no contamination along the southern boundary of the subject parcel. The work was conducted as a Phase II Environmental Site investigation for the property transaction in order to assess whether the subject property had been impacted by the former range and was considered a recognized environmental condition. It should be noted that if the surface and subsurface soil samples in the location of the former range were determined to be lead contaminated, ETC would have been instructed to notify and consult with the DOH.

In conclusion, the MEV review notes that it is evident that the former machine gun range has not caused any adverse environmental impacts to the subject parcel within the recommended soil fraction size of less than 2 millimeters and requires no further action or submission to the DOH.

In a letter dated January 9, 2012, the DOH indicated that no further action regarding the former solid waste activities that occurred on the site is required since the solid
waste has been removed from the subject property and that impacts associated with
the previous solid waste activities have been adequately addressed. See Appendix
L, Phase I Environmental Site Assessment and Supplemental Data.

Since heavy industrial uses within the proposed subdivision will be determined by
future lot owners, specific activities that would occur within the subdivision are
presently unknown. For example, spilled fluids or accidental releases could
accumulate over time if work areas are not properly cleaned and regularly
maintained. In outdoor areas, these fluids could be transported offsite during heavy
rainfall if there are no mitigation measures in place.

Because heavy industrial uses have the potential to affect the environment, the
Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will
require that all lot owners prepare and implement Best Management Practices
(BMPs) that are specific to the heavy industrial use on their lots.

For example, to minimize impacts to groundwater resources and adjacent and
downstream properties, provisions outlining the responsibility of lot owners for the
proper delivery, removal, storage, use, and handling of hazardous materials will be
included in the CC&Rs for the subdivision. Examples of such provisions include, but
are not limited to, the following.

- Lot owners must utilize appropriate measures to contain spills and prevent
  hazardous materials from leaching or draining into surface or subsurface
  drainage areas.

- Lot owners must utilize BMPs to minimize non-point source pollutants.

- Lot owners must implement BMPs to minimize surface and ground water
  contamination from onsite activities, including the delivery, removal, storage,
  use, and handling of industrial agents on their property and in common areas.

- The on site storage and/or disposal of hazardous materials (by lot owners)
  must be approved by the appropriate Federal, State, and/or County agencies
  prior to commencement.

Should a potentially hazardous material be accidentally released, all work in the
vicinity of the spill will halt immediately and the area will be vacated. First responders
and all appropriate government agencies will be promptly notified and the affected
area will be cordoned off. The release will then be contained and dealt with in
accordance with applicable Federal, State, and County regulations. Lot owners will be required to prepare Emergency Response Plans to address such occurrences if their activities involve the use of any hazardous materials.

In light of the foregoing, the proposed project is not expected to have an adverse effect on soils, groundwater resources, and surrounding properties.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population

*Existing Conditions.* The resident population in the State of Hawai‘i increased 9.3 percent from 1,108,229 in April 1990 to 1,211,537 in April 2000. During this same period, the resident population in Maui County increased 27.6 percent from 100,504 in April 1990 to 128,241 ten years later. The resident population on the island of Maui experienced similar gains as it grew from 91,361 in April 1990 to 117,644 the following year, an increase of increased 28.8 percent (State of Hawai‘i Data Book 2010).

The resident population in the Kihei-Makena Community Plan region is expected to grow from 22,870 in 2000 to 36,767 in 2030, an increase of nearly 61 percent. Similar growth is expected in the Wailuku-Kahului region as its population increases almost 63 percent from 41,503 in 2000 to 67,565 in 2030 (*Draft* Maui Island Plan, December 2009).

*Potential Impacts and Mitigation Measures.* The proposed project will not alter population and demographic characteristics neither is it expected to result in inconsistent population growth or will it have any disproportionate impacts upon housing and employment markets. Since the project does not include a housing component, it will not generate a new or secondary demand for housing and the associated increase in population.

2. Economy

*Existing Conditions.* With the possible exception of Kauai, Maui County is more dependent on tourism than any of Hawai‘i’s four counties. Hotel occupancy rates for Maui typically exceed other areas in the State with the exception of Waikiki. When
compared to other counties, Maui has a larger visitor industry relative to the size of its economy. Local government and businesses have worked very hard at cultivating Maui’s worldwide image as a premier vacation destination. In fact, Maui County is the only county that spends money to promote and support tourism.

The September 11, 2001 terrorist attacks on the United States had a drastic impact on Hawai‘i’s visitor industry. In 2001, Maui’s visitor count was 2,104,480. In 2002, the visitor count rebounded slightly to 2,139,427 as visitors slowly returned during the second half of the year. Although visitor totals from 2003 to 2007 showed positive gains, dismal economic conditions contributed to a 15.58 percent decline in visitor arrivals for 2008 and a 9.24 percent decline in 2009. Visitor arrivals in Hawaii and other destinations were severely impacted by the economic recession in the United States and abroad. In 2010, the visitor traffic increased 10.38 percent to 2,132,860 as signs of economic stability emerged. As U.S. and foreign markets recover from the current economic crisis, Maui is once again expected to be a favorite travel destination for mainland visitors.

Agriculture on Maui has been dominated by large operations like Maui Land & Pineapple Company (ML&P) and Alexander & Baldwin’s Hawaiian Commercial & Sugar Company (HC&S).

In 2007, ML&P shut down the canning portion of its pineapple operations to rely solely on the more profitable fresh fruit segment. Further downsizing occurred in 2008, which resulted in a work force reduction of over 200 employees. In December 2009, ML&P announced the shut down of its agricultural arm, citing continued annual losses. However, a new company, Hali‘imaile Pineapple Company, was formed shortly thereafter and immediately took over ML&P’s pineapple operations. HC&S survives as Hawaii’s only remaining sugar operation due in part to its economies of scale, its land configuration (a relatively compact and contiguous area in the isthmus of the Valley Isle), and its commitment and ability over the years to reinvest and upgrade plant and equipment.

The unemployment rate (not seasonally adjusted) for the State of Hawai‘i was 6.6 percent in November 2011 compared to 6.5 percent in November 2010. The unemployment rate for Maui County dropped to 7.7 percent in November 2011 from
8.2 percent in November 2010. During this same period, the unemployment rate for the island of Maui was 7.4 percent compared to 8.1 percent a year earlier. (State Department of Labor and Industrial Relations, December 2011).

A Market Study has been prepared for the proposed project by ACM Consultants, Inc. See Appendix M, Market Study. The objectives of the study were: (1) to define and delineate the market area; (2) to identify and analyze the current supply and demand conditions specific to the subject’s market; (3) identify, measure and forecast the effect of anticipated developments or other factors on future supply; and (4) forecast the effect of anticipated economic or other factors on future demand.

On the island of Maui, about 489 acres of land has been zoned for pre-existing M-2, Heavy Industrial uses, while in Central Maui, approximately 442 acres has been zoned for this purpose. The HC&S sugar mill in Pu‘unene occupies approximately 40 acres, while the future power generation plant site for Maui Electric Company encompasses about 65 acres. Of the remaining 337 acres, much of the heavy industrial land is situated around Kahului Harbor and the Kahului Airport. These lands are used for harbor and airport facilities and operations and were not considered available to the market.

Other heavy industrial areas in the Central Maui area include the Wakea Industrial Subdivision, Airport Industrial Subdivision, as well as portions of The Millyard and Maui (Kahului) Industrial Subdivision. The lands underlying Queen Ka`ahumanu Center, Maui Mall, and the former ML&P cannery are zoned for heavy industrial use, as well as the area around Hobron Avenue and two adjacent properties at the corner of Ka`ahumanu Avenue and Kahului Beach Road. Most of the land in Central Maui that is zoned for heavy industrial use has already been built upon or is being used as work or storage yards. The existing inventory of heavy industrial-zoned land for sale consists of 16 acres at five sites in Kahului and two locations in Wailuku. This land is located in areas that are considered unsuitable for heavy industrial use due to proximity impacts to adjacent residential and commercial development. In this case, the highest and best use of this land would be for commercial retail/office use, which is currently allowed by heavy industrial zoning.
There has not been any purely heavy industrial development in Central Maui for over a decade. During this period, the focus has been on the light industrial market as evidenced by the construction of Maui Business Park, Waiko Baseyard, Consolidated Baseyards, and the Maui Lani Village Center. The most recent development of heavy industrial land was for the Airport Triangle Subdivision, a project containing commercial retail/office centers and car dealerships. At present, the proposed project is the only heavy industrial development planned on Maui. As such, it is expected to alleviate the pent-up demand for purely heavy industrial land and provide individuals and businesses with the opportunity to purchase lots and build new facilities or expand their current operations.

Recently built subdivisions in Central Maui have focused on the light-industrial market and reflect significantly fast absorption rates. The 11 lots released by the developer of Waiko Baseyard in October 2005 totaled just over five acres and were absorbed within five months. This would indicate an absorption rate of 11.90 acres per year. The Consolidated Baseyards was completed in 2006, with 35 marketable lots totaling approximately 22 acres. There were 27 lots, totaling almost 16 acres, immediately sold between October and December 2006. The remaining eight lots, of approximately 6 acres, were sold in 2007. Overall monthly absorption averaged 1.6 acres, which would translate into about 19 acres per year.

The development of Waiko Baseyard and the Consolidated Baseyards occurred during the most recent peak in the real estate market as evidenced by their high absorption rates. Other projects which were brought to market during less robust times have experienced longer marketing periods. To account for the cyclical nature of the real estate market, all commercial/industrial subdivisions which were developed in Central Maui over the last 20 years were analyzed. A total of seven subdivisions were developed during this time. With the exception of the Maui Lani Village Center, which only began closing lots within the last two years, all other subdivisions have been successfully absorbed by the market. Over the last 20 years, approximately 174.74 acres of industrial land has been absorbed, which reflects a straight-line absorption rate of 8.74 acres per year.

**Potential Impacts and Mitigation Measures.** As previously noted, a Market Study has been prepared for the proposed project. See Appendix M, Market Study.
The following points summarize the supply for heavy industrial real estate in the Central Maui region at this time.

- When compared to the light industrial market segment, there is very little developable heavy industrial land in Central Maui;
- Available vacant land is located in areas that are not conducive to heavy industrial use, due to the proximity of residential and commercial developments;
- Supply has diminished because of continued conversion to higher-order commercial retail/office uses allowed by the pre-existing M-2, Heavy Industrial District’s “stacked” (or pyramid) zoning;
- Other than the Proposed Project, there are no other heavy industrial projects planned for Central Maui.

The following points summarize the demand for heavy industrial real estate in the Central Maui region at this time:

- The growth of Maui’s population has led to a greater need for light industrial goods and services providers; however, there has not been a coinciding creation of heavy industrial facilities to support light industrial users.
- Mortgage interest rates continue to be at all-time lows, which typically make real estate more affordable; however, there are few choices currently available within the heavy industrial market.
- The pent-up demand from heavy industrial users is expected to generate good interest for the proposed product.
- Potential businesses within the proposed subdivision are expected to be businesses that fabricate, process and manufacture materials needed by light industrial users and the general populace.

As noted in the Market Study, the proposed project is expected to be well received when considering current supply and demand considerations and other factors that are presently influencing the heavy industrial real estate market in Central Maui. The study also anticipates that the heavy industrial lots in the proposed subdivision can be sold within a 10-year period, which would translate into an absorption rate of approximately 6.6 acres per annum.

Economic impacts associated with development activities for the proposed project include the following.
1. **Construction of the Subdivision and Complete Build-Out.** It is assumed that the entitlement process will take approximately 4 to 5 years, with **subdivision construction** to begin in 2016. According to the land owner, **subdivision construction** costs are projected to be $20,000,000, while the forecasted construction time is approximately 30 months, with an average construction cost of $8,000,000 per year.

Based on an average lot size of 102,491 square feet, and an assumed building-to-land ratio of 30 percent, the average building size in the subdivision is projected to be about 31,000 square feet. Assuming the site work cost for each lot is approximately $307,000 and the building construction cost is $125 per square foot, the average development cost per building is forecasted to be $6,232,000 or $174,504,000 for 28 buildings. It is also assumed that complete **build out of the subdivision** would take about 10 years, resulting in an average cost of $17,504,000 per year. It is also assumed that the preceding costs are inclusive of all site work, roads, utilities, and landscaping and includes the cost of hiring various engineers (e.g., civil, mechanical, electrical, traffic) and consultants (soils, land use planning, archaeology, real estate appraiser).

2. **Indirect Sales.** Development and construction activities will also generate indirect sales, through the supply of goods and services to various construction companies and as a result of the "trickle down effect" to families of the employees. By the same token, the suppliers and their families will purchase goods and services from other companies thereby extending the cycle. This cause and effect scenario will continue repeating itself with some revenues eventually leaking out of Hawaii’s economy with each cycle.

Based on State economic multipliers, off-island indirect sales are projected to be about $5,920,000 per year during the **subdivision construction**, while Maui indirect sales are forecasted to be approximately $4,144,000 per year.

For the subsequent complete **build out of the subdivision**, off-island indirect sales are projected to be about $14,348,000 per year. Meanwhile, Maui indirect sales during this period are forecasted to be approximately $10,044,000 per year.

3. **Sales of the Heavy Industrial Lots.** The 28 lots will have a total net land area of about 65.88 acres or approximately 2,869,733 square feet of heavy industrial zoned land. With a preliminary assumption of $20.00 per square foot, lot sales are projected to generate gross sales revenue of about $57,395,000.

4. **Taxable Expenditures and Sales.** Sales generated by **subdivision construction** are projected to total $2,129,000 per year and are assumed to result from the personal spending by construction workers and indirect employees during this period. These sales are subject to the State’s General Excise Tax (GET) of 4.166 percent.
Intermediate sales, taxed at 0.5 percent, would result from construction expenditures and indirect sales related to subdivision construction, less personal spending by construction workers and indirect employees. As such, intermediate sales during subdivision construction are forecasted to be $15,935,000 per year. When added to final sales, taxable expenditures and sales would amount to $18,064,000 annually.

Final sales generated by the subsequent build out of the subdivision are projected to total $10,411,000 per year and are assumed to result from the sales of subdivision lots plus the personal spending by construction workers and indirect employees during this period. These sales are subject to the State’s GET of 4.166 percent.

Intermediate sales, taxed at 0.5 percent, would result from construction expenditures and indirect sales related to the build out of the subdivision less any personal spending by construction workers and indirect employees. As such, intermediate sales during the build out of the subdivision are forecasted to be $34,731,000 per year. When added to the final sales, taxable expenditures and sales would amount to $45,142,000 annually.

5. Profits Realized. Projected profit and risk premiums from subdivision construction are projected to be $2,206,000 per year, over the 30 month construction period. Meanwhile, forecasted profit and risk premiums from the complete build out of the subdivision are expected to total $5,387,000 per year over the 10-year period and factor in direct and indirect sales at all levels of business. For example, the land owner, general contractor, subcontractors, and goods and service providers all expect to make a profit for their efforts.

6. Direct and Indirect Employment. The design and entitlement process for the project creates new job opportunities for architects, engineers, surveyors, and land use planners. Site work and infrastructure development typically utilize heavy equipment operators, tractor-trailer drivers and utility personnel. Building construction and onsite improvements will require masons, painters, plumbers, roofers, carpenters, electricians, sheet metal workers, and drywall installers. Finish work will require landscapers, cabinet makers, carpet and tile installers, and interior decorators.

Construction employment will also provide hardware stores, building supply companies, equipment rental companies, and shipping, delivery, and warehousing companies with an opportunity to supplement their labor force. Construction laborers and their families will help support local goods and service providers and create or expand employment opportunities for other businesses in the community.

Based on State economic multipliers, direct jobs on Maui are projected to average 32 jobs annually, while indirect jobs are forecasted to average 33 jobs annually, resulting in an estimated annual average of 65 Maui jobs directly and indirectly tied to the subdivision construction. Meanwhile, indirect employment on Oahu could possibly add an average 17 jobs per year.
For the complete build out of the subdivision, 70 direct and 72 indirect Maui jobs are projected annually, resulting in an estimated annual average of 142 Maui jobs directly and indirectly tied to build out of the subdivision. Meanwhile, indirect employment on Oahu could possibly add an average of 38 jobs per year.

7. Direct and Indirect Payroll. Payroll directly related to subdivision construction is estimated to be $1,962,000 per annum based on statistics from the State Department of Labor and Industrial Relations (DLIR) and previously referenced job counts. It is assumed that most construction positions will be filled by Maui laborers. Indirect Maui payroll is projected to be $1,206,000 per year, while indirect Oahu payroll is forecasted to be $703,000 annually. Total direct and indirect payroll attributed to the subdivision construction is estimated to be $3,871,000 per year.

Payroll directly related to the complete build out of the subdivision is projected to be $4,292,000 per annum. Construction positions are expected to be filled by Maui laborers. Indirect Maui payroll is forecasted to be $2,632,000 per year, while indirect Oahu payroll is estimated to be $1,570,000 annually. Total direct and indirect payroll attributed to the build out of the subdivision is projected to be $8,494,000 per year.

8. Supported Population. Statistical information obtained from the DLIR indicates that 70 residents per year on Maui are expected to be supported by construction jobs related to subdivision construction, while 73 residents per year are expected to be supported through indirect jobs. About 36 Oahu residents are expected to be supported by indirect jobs created by the project. A total of 179 residents per year on Maui and Oahu are expected to be supported by subdivision construction.

About 154 residents per year on Maui are expected to be supported by construction jobs associated with the complete build out of the subdivision, while as many as 158 residents per year are expected to be supported through indirect jobs. Approximately 80 Oahu residents per year are expected to be supported by indirect jobs created by the project. A total of 392 residents per year on Maui and Oahu are expected to be supported by the build out of the subdivision.

9. Supported Households. Statistical information obtained from the DLIR indicates that as many as 24 households per year on Maui may be supported by construction jobs related to subdivision construction, while as many as 25 households per year may be supported through indirect jobs. As many as 12 Oahu households per year may be supported by indirect jobs created by subdivision construction. A total of 61 households per year on Maui and Oahu may be supported by subdivision construction.

About 52 households per year on Maui are expected to be supported by construction jobs associated with the complete build out of the subdivision,
while as many as 54 households are expected to be supported through indirect jobs. Approximately 26 Oahu households per year are expected to be supported by indirect jobs created by the build out of the subdivision. A total of 132 households on Maui and Oahu are expected to be supported by the build out of the subdivision.

Economic impacts at stabilization of the project include the following.

1. **Employment and Wages.** As previously noted, the average lot size in the proposed subdivision is expected to be 2.353 acres. With a floor area to lot area ratio of 30 percent, the average building in the subdivision is projected to be about 31,000 square feet. Assuming a ratio of 500 square feet per employee, the proposed subdivision is forecasted to have approximately 1,736 employees upon stabilization. Assuming an average annual wage of $38,025 per employee, the combined annual wages of the subdivision workforce is estimated to be $66,011,000.

2. **Gross Sales Revenue and Profit.** Given its proposed heavy industrial use, $250 gross sales revenue per square foot was assumed and applied to the total building area of the proposed subdivision. This resulted in estimated annual gross sales revenue of $217,000,000 for the subdivision. Assuming an average profit margin of 10 percent, the annual profit generated within the subdivision from the gross sales revenue was calculated to be $21,700,000 per year.

3. **Property Values.** Upon stabilization of the proposed subdivision, average property value is assumed to be $6,232,000, or $174,504,000 for the entire subdivision.

Public costs and benefits which would accrue to the County and State due to development activities for the proposed project include the following.

1. **County of Maui.**

   The County typically accumulates revenue from development projects in the form of permit and impact fees. Permit fees cover the County’s cost of providing services such as plans review, inspections, and public hearings, etc. Impact fees are more commonly associated with residential development; although as with commercial and industrial development, the amount of the fees is usually based on offsetting the anticipated additional cost and burden on County services and facilities. In either case, no net cost or benefit was considered at the County level.

   Cumulative expenditures typically include the County’s share of infrastructure costs for expanding or improving water, sewer, drainage, and roadway systems or providing parks and playgrounds if applicable. It is assumed that the land owner will bear the vast majority of these development costs.
2. **State of Hawaii**

The majority of the revenues that will accrue to the State will be in the form of various taxes, such as Conveyance Tax, Excise Tax, Corporate Income Tax, and Personal Income Tax. For purposes of the Market Study, a conveyance tax based on $0.20 per $100 of value has been utilized for lot sales. With an average lot value of approximately $2,357,000, the conveyance tax that would be due is about $132,000.

Excise tax is based on two rates, 4.166 percent for final sales and 0.5 percent for intermediate sales. Over the course of subdivision construction and the subsequent build out of the subdivision, the cumulative tax expectancy for final sales would amount to $4,559,000, while intermediate sales should equal $6,495,000.

Corporate Income Tax is realized on profits gained through subdivision construction and the subsequent build out of the subdivision which is projected to be $3,801,000. Meanwhile, personal income tax is forecasted to be $3,974,000. As such, cumulative revenues related to subdivision construction and the subsequent build out of the subdivision would amount to $14,401,000.

Cumulative expenses to the State are not expected. The primary access point to the proposed subdivision is at Mokulele Highway, a State roadway with a signalized intersection. Since heavy commercial truck traffic already exists in the area, it is assumed that there would not be a need to expand traffic control measures on Mokulele Highway. Notwithstanding this, it is assumed that the land owner will bear the vast majority of any required roadway improvement costs.

Public costs and benefits which would accrue to the County and State at stabilization of the project include the following.

1. **County of Maui**

Upon stabilization, benefits that would accrue to the County will be in the form of real property taxes. As previously noted, the net taxable value of 28 improved heavy industrial lots is determined to be about $165,895,000. The 2011 tax rate for industrial land (PITT Code 400) is $7.00 per $1,000 of assessed value. As such, the tax obligation for the 28 improved lots is calculated to be $1,161,000 per year.

The proposed project will be built on TMK (2) 3-8-008-019. According to the County’s Real Property Tax Division, the land owner currently pays approximately $3,000 per year in property taxes. This amount was deducted from its annual revenues at stabilization since the County will no longer receive this income. The resulting net real property tax revenue at stabilization is estimated to be about $1,158,000 annually.
The County’s annual costs at stabilization are for general services, public safety, and infrastructure maintenance. These expenditures are more commonly attributed to residential development; however, for purposes of the Market Study, proportionate per-capita annual expenditures were utilized and were based on the assumption that each employee is also a resident of Maui County. The Market Study notes that by using this methodology the results represent what is likely the high end of the annual cost expectancy to the County.

On a per-capita basis, the annual cost for services is projected to be about $2,779 per year, plus debt service of $226 per year. Assuming each employee spends about 20 percent of their time at the job site, the proportionate annual cost for County services is forecasted to be $556, with proportionate annual debt service of $45. The resulting net cost is estimated to be $1,043,000.

2. State of Hawaii

Upon stabilization, benefits that would accrue to the State would be through the receipt of Personal Income Tax, Excise Tax, and Corporate Income Tax as a result of the ongoing businesses. On an annual basis, personal income tax from (subdivision) employee wages would amount to $2,772,000, while excise tax on the gross sales revenue of the businesses is projected to be $9,040,000 per year. Corporate income tax as a result of the gross sales revenue of the businesses is forecasted to be $1,389,000 per year. Total annual revenues at stabilization are estimated to be $13,201,000.

Annual expenditures to the State were said to be from services to residents, and debt service attributed to general improvements. Proportionate per-capita annual expenditures were utilized, similar to the County cost analysis. The Market Study notes that by using this methodology, the results represent what is likely the high end of the annual cost expectancy to the State.

On a per-capita basis, the annual cost for services is projected to be about $7,442 per year, plus debt service of $359 per year. Assuming each employee spends approximately 20 percent of their time at the job site, the proportionate annual cost for County services is forecasted to be $1,488, with proportionate annual debt service of $72. The resulting net cost is estimated to be $2,708,000.

The development of the proposed subdivision is expected to generate significant expenditures by the land owner, as well as by secondary owners and those involved in the separate development of the heavy industrial lots. These investments are expected to have a beneficial impact upon both State and County economies on a broad scale and in a multitude of ways.
1. Site work and infrastructure construction for the proposed subdivision will immediately infuse capital into the County and State economies. Numerous consultants will be involved in the initial planning stages and the construction trades will benefit from the jobs created by the project.

2. Advertising for the proposed project and the marketing of the lots will benefit graphic artists, advertising companies, newspapers, real estate sales agents, escrow companies, etc.

3. Site work and the development of each individual lot (by secondary owners) will result in additional work for engineers, architects, material suppliers, equipment rentals and sales, landscaping companies, and other related industries.

4. The new buildings (by individual lot owners) will not only attract existing businesses but should also stimulate the generation of new businesses and employment growth. This will have an indirect affect on retail businesses, restaurants and service establishments as the expanded workforce purchases goods and services. This cause and effect scenario should pass through the entire community, causing a ripple effect and increase the amount of capital flowing through Maui.

5. Upkeep of the proposed subdivision and buildings will also translate into work for maintenance companies, painting companies, real estate management and leasing groups, etc.

6. During the development of the proposed subdivision, fiscal benefits to the State of Hawaii will be realized through the receipt of additional income tax, general excise tax, and conveyance tax associated with construction activities. Based on the assumptions contained in the Market Study, the cumulative benefits over the course of the development, which includes subdivision construction and subsequent build out of the subdivision, are anticipated to outweigh the public cost to the State.

7. Upon stabilization, fiscal benefits from the ongoing operation of the proposed subdivision will include increases in real estate taxes collected by the County of Maui, as well as additional income tax and general excise tax inflow for the State of Hawaii. Based on the assumptions contain in the Market Study, the resulting annual public benefits are expected to consistently outweigh annual public costs, at both the County and State levels.

In light of the foregoing, the proposed project will have a positive effect on the State and local economy and is not expected to have an adverse impact on market conditions in the State of Hawaiʻi and the County of Maui.

3. Agriculture

*Existing Conditions.* An assessment of agriculture on the island of Maui was prepared for the proposed project by ACM Consultants, Inc. See Appendix N,
Agricultural Impact Assessment. The purpose of the report was to analyze the local agricultural real estate market in an effort to determine general and specific effects arising from the development of the proposed project.

According to the State Land Use Commission, about 1,930,224 acres of the approximately 4,112,388 acres of land in Hawai‘i lies within the State Agricultural District. In the County of Maui, lands within the State Agricultural District encompass 402,354 acres.

The majority of agricultural land in Hawai‘i is owned by the State and private land owners. Corporations with historical ties to commercial sugar and pineapple cultivation, cattle ranching, and land trusts hold much of the privately-owned land. In its prime, commercial agriculture in Hawai‘i was dominated by field crops, such as sugar cane, pineapple and coffee. Rising global competition, higher operational and shipping costs, and increased fuel costs contributed to the loss of profitability and the decline of these industries.

Research of vacant, agricultural-zoned land has revealed that over 70 percent of this land in each County is owned by large landowners – those who control over 1,000 acres. In the County of Maui, there are 5,653 vacant, agricultural-zoned parcels encompassing 198,864 acres, with large landowners controlling 151,147 acres. The ratio of the acreage owned by large landowners to total acreage is 76 percent. Based on this research, it appears that of 1,218,005 acres of vacant, agricultural-zoned land, at least 875,352 acres are owned by 91 government entities and private land owners. Many of these large landowners choose to hold or lease their land rather than make it available for sale on market. While there are currently more than 71,000 vacant, agricultural-zoned parcels across the State, the available supply in each market is significantly less. Notwithstanding this, the present supply seems to be enough to satisfy demand as evidenced by the annual contraction of farm land.

Over the past 30 years, there has been a significant shift in the farming industry. The current trend for farms has shifted from large-scale commercial operations to smaller, more diverse crop production.

During the 20th century, agriculture on Maui had been dominated by Maui Land and
Pineapple Company (ML&P) and Hawaii Commercial and Sugar Company (HC&S). In 2007, ML&P shut down its canning factory to rely solely on the more profitable fresh fruit market. Downsizing of the plantation occurred in 2008, which resulted in the termination of over 200 employees. In December 2009, ML&P announced that it would be terminating pineapple cultivation citing continuing annual losses. Shortly thereafter, Hali`imaile Pineapple Company resumed cultivation after acquiring ML&P's pineapple operations.

HC&S survives as Hawai`i’s only remaining sugar operation due to several contributing factors: (1) its economy of scale, (2) its compact and contiguous location in the Central Maui isthmus, and (3) its commitment and ability to reinvest and upgrade its factory and equipment.

Land Capability Grouping (non-irrigated) data from the Natural Resources Conservation Services of the U.S. Department of Agriculture (USDA) indicates that the subject parcel has soil that basically consists of Subclass VIIIs with some parts designated Subclass VIs. Subclass VIIIs soils have very severe limitations due to their undesirable texture or because they are extremely rocky or stony. Also included in this group are land types that are steep, rocky, or stony. Subclass VIs soils have severe limitations because of stoniness or unfavorable texture. These soils are very stony, very rocky, extremely stony, or extremely rocky and have slopes of 0 to 35 percent.

The *Detailed Land Classification – Island of Maui* (1967) contains productivity ratings for land, which were prepared by the University of Hawaii’s Land Study Bureau (LSB). According to this document, about 66 percent of the land underlying the project site has an overall productivity rating of “E73”, while the remaining portion of the site has a rating of “E71”. On the LSB ratings scale, the letter “A” represents the highest class of productivity, while “E” reflects the lowest. See Figure 10, Soil Productivity Ratings. The State has established three classes of agriculturally important lands to the State of Hawai`i: (1) Prime agricultural land, (2) Unique agricultural land, and (3) Other important agricultural land.

Prime agricultural land is land best suited for the production of food, feed, forage, and fiber crops. Unique agricultural land is land other than prime agricultural land and is
used for the production of specific high-value food crops. Other important agricultural land is land other than Prime or Unique agricultural land that is of Statewide or local importance for the production of food, feed, fiber, and forage crops. Agricultural land that does not fall into any of these categories is designated as Unclassified or Residual. The map identifying the Agricultural Lands of Importance to the State of Hawaii (ALISH) indicates that the land underlying the project site is Unclassified (i.e., residual land). See Figure 11, Important Agricultural Lands.

Herbicides and pesticides that HC&S has historically used for their agricultural operations include the following (PBR Hawaii, December 2004).

- **Aatrex 90** (active component - atrazine; use - weed control)
- **Amine 4** (active component - 2, 4-D; use - weed control)
- **Aqua Master** (active component - glyphosate; use - weed control)
- **Banvel** (active component - dimethylamine salt of dicamba; use - weed control)
- **Ethrel** (active component - ethephon; use - tassel control)
- **Evkik 80 W** (active component - ametryn; use - weed control)
- **GB-1111** (active component - petroleum oil; use - mosquito control)
- **Karmex** (active component - diuron; use - weed control)
- **Pentagon 60 WDG** (active component - pendimethalin; use - weed control).
- **Polado L** (active component - glyphosate; use - plant growth regulator)
- **Roundup Ultra** (active component - glyphosate; use - weed control)
- **Vecto Bac** (type - nonchemical biological agent; use - mosquito control)
- **Velpar** (active component - hexazinone; use - weed control)

Fertilizers used by HC&S for its sugar cane cultivation activities include the following (PBR Hawaii, December 2004).

- **Urea** (use - source of nitrogen)
- **Potash solution** (use - source of potassium)

**Potential Impacts and Mitigation Measures.** As of 2009, the USDA’s National Agricultural Statistics Service reported that there were approximately 230,000 acres of farm land in the County of Maui. When compared to the 355,786 acres reported in 1992, the 2009 figure represents a drop of over 125,000 acres or about 35 percent of
the farm land in Maui County. This loss amounts to a straight line decrease of almost 7,000 acres per year or 2 percent per annum.

With a land area of 86 acres, the subject parcel represents only 0.0002 percent of State Agricultural District lands on the island of Maui, and just 0.0004 percent of farm land in Maui County. In addition, the 86 acres amounts to only 1.2 percent of the average annual contraction for Maui County. As previously noted, if the easement for the primary access route to the site is not granted, an alternate access route will be provided in large part by Alexander & Baldwin, Inc. via an easement along the east side of an existing HC&S irrigation reservoir. The reclassification of the subject parcel for heavy industrial use and the use of agricultural land for the alternate access road will have a very minimal effect on the inventory of land that is currently available for agricultural use.

After completion, operational activities in the subdivision could produce noise, dust, or other effects that are commonly associated with heavy industrial uses. However, these effects are not expected to have an adverse impact on surrounding properties since existing land uses at Maui Raceway Park and the Hawaiian Cement Quarry mutually accommodate the effects of their activities.

Agricultural activities that have occurred on the project site include hog farming and sugar cane cultivation. Since the subject parcel is not being used for agriculture, no agricultural jobs or revenues will be affected by the development of the proposed project.

As previously noted, the soils underlying the project site have very severe limitations due to their undesirable texture or because they are extremely rocky or stony. In addition to an overall productivity rating of “E” (the lowest rating), the site is categorized as Unclassified (or residual) land by the map identifying Agricultural Lands of Importance to the State of Hawai‘i. The unsuitable soil conditions and poor productivity ratings of the subject property preclude any feasible agricultural development on the site. As such, the long-term agricultural/economic impact resulting from the development of the proposed project is expected to be very minimal.
While the proposed project would reclassify agricultural lands for heavy industrial use, the project is expected to generate significant expenditures by the land owner and lot owners. The businesses in the proposed subdivision are expected to generate a significant, ongoing revenue stream which would benefit the State and County through job creation; additional direct and indirect sales expenditures; and increased tax revenues and fees.

The subject property lies within the proposed Urban Growth Boundaries for the draft Maui Island Plan. The site is also adjacent to Project District 10 (Old Pu‘unene Airport area), a recreational and expansion area which is currently being master planned to meet future recreational needs and provide areas for industrial activities (including government facilities) whose locations are better suited away from urban areas.

In consideration of the foregoing factors, which include sufficient agricultural supply and demand; current agricultural trends; poor subject soil quality; and complementary surrounding uses, any agricultural impacts attributable to the proposed project are expected to be negligible. The development of the proposed project also comports with the County’s long-range plans for the area.

The use of chemicals and fertilizers will be limited to the establishment and maintenance of landscape plantings for the subdivision’s common areas. Lot owners will be responsible for planting and maintaining their onsite landscaping. Pesticides will be used minimally for treatment purposes and not as a preventative measure. In addition to aesthetics, the selection of landscape materials will be based upon hardiness, drought tolerance, and resistance to pests. Fertilizers with a mixture of nitrogen, phosphorus, and potash would be applied to grassed areas, ground cover, and flowering shrubbery. By employing appropriate irrigation techniques, any leaching of fertilizers would be negligible.

The land owner will inform prospective lot owners of occasional noise and air quality impacts associated with sugar cane cultivation. Prospective buyers will also be informed that Chapter 165, HRS entitled Hawaii Right to Farm Act limits the circumstances under which pre-existing farming operations may be deemed a nuisance. In addition, the subdivision’s Lot Owner’s Association and HC&S will work
together to ensure that agricultural activities are not adversely affected by heavy industrial activities in the subdivision.

The proposed project will not have an adverse impact on agriculture nor will it have a negative effect on the inventory of agricultural lands that are available for large-scale or diversified agricultural activities.

C. PUBLIC SERVICES AND FACILITIES

1. Recreation

**Existing Conditions.** The subject property is located in the Kihei-Makena Community Plan region. The Maui Department of Parks and Recreation (DPR) operates and maintains a total of 16 parks in the South Maui region, including community and recreational facilities such as the Kihei Community Center and the Kihei Aquatic Center. In addition to the Elleair Maui Golf Club in Kihei, privately owned golf courses and tennis courts at the Makena and Wailea Resorts are open to the public.

**Potential Impacts and Mitigation Measures.** The proposed project does not trigger any of the following County requirements for park dedication: (1) a building or group of buildings containing or divided into three or more dwelling or lodging units, (2) a conversion of buildings from hotel to residential use, (3) the addition of dwelling or lodging units to a building or group of buildings in which the total unit count is three or more, (4) a subdivision within a project district, and (5) dwelling units and apartments associated with condominium property regimes.

In commenting on the Draft EA, the DPR stated that it was seeking a water source to address the Maui Raceway Park’s (MRP) needs. See July 10, 2012 letter in Appendix S, Draft EA Comment Period. In response to these comments, the applicant met with the DPR on August 6, 2012. Although a ¾-inch meter currently serves the MRP, the DPR would like a larger 1-1/2 inch meter but were informed by the Maui Water Department that a larger meter is unavailable. As a result, the DPR has been pursuing other potential water sources for the MRP. The private water system for the proposed project was also discussed. The land owner offered to hold follow-up discussions with the DPR to help develop a water system for the MRP on a
pro-rata basis. However, because no County funds are available, the DPR indicated 
that it will likely refocus its efforts to obtain the larger water meter.

The proposed project will not have a significant impact upon recreational facilities.

2. Police and Fire Protection

**Existing Conditions.** The Maui Department of Police is responsible for the 
preservation of the public peace, prevention of crime, and protection of life and 
property. The department’s Kihei Patrol District is one of six such districts in Maui 
County. In addition to regular patrol duties, the Kihei Patrol District has a substation 
at 1881 S. Kihei Road, across from the Kihei Town Center, as well as programs for 
visitor and community oriented policing, and citizen patrols.

The mandate of the Maui Department of Fire and Public Safety is to protect life, 
property, and the environment from fires, hazardous material releases and other life-
threatening emergencies. The department has 14 stations throughout the County 
including 10 stations on the island of Maui. In South Maui, the department has two 
stations, one in Kihei at 11 Waimahaihai Street and another in Wailea at 300 
Kilohana Drive.

**Potential Impacts and Mitigation Measures.** Existing security measures for the 
subject parcel include perimeter fencing around the property and locked entry gates 
at roads providing access to the site. Appropriate lighting and security measures will 
be utilized during and after construction of the proposed project for crime prevention 
and deterrence and to ensure safe vehicular movement. In addition, the project shall 
be developed in accordance with County fire protection requirements for fire flow and 
hydrant spacing, as well as the grade and clear widths of service roads.

The proposed project will not have an adverse effect upon the service capabilities of 
police, fire, and emergency medical operations nor will it extend the existing service 
area limits for emergency service.

The private water system for the proposed subdivision will provide water for drinking 
water and non-drinking water (irrigation, fire flow) purposes. As subdivision lots are 
developed in the future, lot owners will be required to submit fire flow calculations to
the Department of Fire and Public Safety in conjunction with the building permit review and approval process.

3. Schools

**Existing Conditions.** The State Department of Education operates several public schools in the Kihei area: Kamali‘i Elementary School, Kihei Elementary School, and Lokelani Intermediate School. Area students from Grades 9 to 12 attend Maui High School in Kahului. Other schools in the area include the Montessori School (ages 3 to 14) and Kihei Charter School (Grades K to 12).

**Potential Impacts and Mitigation Measures.** The proposed project does not include a residential housing component. As such, no significant impacts to existing educational facilities are anticipated.

4. Health Care

**Existing Conditions.** Located in Wailuku, the approximately 200-bed Maui Memorial Medical Center provides acute and emergency health care services for the County of Maui. Various private care physicians and clinics in the West Maui region also provide medical care and out patient services. In addition, American Medical Response (AMR) provides 24-hour emergency medical service through ten ambulance facilities stationed throughout the County, including eight facilities on the island of Maui and two facilities in Kihei.

**Potential Impacts and Mitigation Measures.** The proposed project is not expected to generate a demand for new or additional health care facilities nor will it have an adverse impact upon existing medical services. In addition, the proposed action will not adversely impact the ability of ambulances to respond to medical emergencies.

5. Solid Waste Disposal

**Existing Conditions.** The Solid Waste Division of the Maui Department of Environmental Management is responsible for the collection and disposal of single-family residential waste on the island of Maui. Private waste disposal contractors provide refuse collection for commercial and non-residential properties.
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County landfills located in Hana, Central Maui, Lanai, and Molokai accepts residential and commercial solid waste for disposal. In addition to the disposal of solid waste, the Central Maui Landfill, which is located near Pu‘unene, contains recycling, and composting facilities and also accepts green waste and used motor oil. The Maui Demolition and Construction Landfill, a commercial facility near Maalaea, accepts construction and demolition waste for disposal.

Potential Impacts and Mitigation Measures. During site work for the proposed subdivision, cleared and grubbed material may be used as mulch or transported to the County’s green waste recycling facility at the Central Maui Landfill for disposal. Construction waste material would be hauled to the Maui Demolition and Construction Landfill for disposal.

After completion, refuse collection and disposal for the subdivision will be handled by a private waste disposal service under contract to an association of subdivision lot owners. The refuse generated by the proposed subdivision is not expected to have an adverse effect upon solid waste collection and disposal services and facilities.

D. INFRASTRUCTURE

1. Water

Existing Conditions. Domestic water service for the island of Maui is provided by a public water system which is operated and maintained by the Maui Department of Water Supply (DWS). In addition to Wailuku-Kahului and Kihei-Makena, the department’s Central Maui System serves, Waihe‘e, Waiehu, Waikapu, Maalaea, Spreckelsville, and Paia.

The main supply sources for the Central Maui System include the Waihe‘e Aquifer, the Iao Tunnel, the Iao-Waikapu Ditch, and the Iao Aquifer, which was designated as a protected water source in 2003 by the State Commission on Water Resource Management.

The Central Maui System does not extend to or serve the project site, although an 8-inch County water line along Kama‘aina Road serves some of the surrounding
properties. From this point, the water is conveyed to Kihei via a 36-inch transmission line along Mokulele Highway.

The Central Maui System is currently at or near capacity and may not be able to provide sufficient source or storage for the proposed project. In light of the foregoing, Tom Nance Water Resource Engineering (TNWRE) prepared a report in September 2011 which examined the development of onsite groundwater to provide drinking water and non-drinking water for the proposed project. See Appendix O, Groundwater Resource and Water System Assessment. The report examines groundwater resources in the area, provides estimates of the drinking water and non-non-drinking water needs for the project, identifies the water system infrastructure required to meet this need, and analyzes the probable effect the project may have on groundwater resources.

**Groundwater Resources.** Data on groundwater occurrence in the Central Maui isthmus comes primarily from wells, a number of which HC&S have used for sugar cane irrigation for more than 70 years. Groundwater in the isthmus occurs as relatively thin basal lens floating on saline groundwater at depth and in hydraulic contact with seawater along the Kahului and Ma`alaea coastlines. The Kahului Aquifer has drinking water quality in some locations and brackish water in most of its remaining area. The proposed project plans to use the underlying brackish groundwater and will not be utilizing a drinking water supply. In addition, there are no existing or proposed other higher priority water uses of groundwater in this part of the Kahului Aquifer.

As designated by the State Commission on Water Resource Management (CWRM), the Kahului Aquifer has a sustainable yield of 1.0 million gallons per day (MGD), an amount which is based exclusively on rainfall recharge on less than half of the aquifer’s total area and does not account for other sources of recharge. Other sources of recharge (natural and man-made) are substantially larger: underflow from Haleakala, surface runoff from Haleakala, underflow from the West Maui Mountains, surface runoff from the West Maui Mountains, leakage from the East Maui and Waihe`e Ditch systems, and irrigation return from HC&S sugar cane fields. Historically, the sources of recharge have supported pumpage from the aquifer of 45 MGD for many decades.
The rainfall runoff as underflow from outside the aquifer, particularly from Haleakala, would sustain an order of magnitude yield greater than the 1.0 MGD sustainable yield specified by CWRM even if HC&S were to cease operations including its importation of ditch water. Present pumpage is in excess of 25 MGD, most of it by HC&S. The total estimated groundwater use for the proposed project is roughly 0.5 MGD. The location of this draft is miles from the nearest wells and will have no impact on these wells. If HC&S no longer cultivates sugar cane, a substantial amount of that aquifer’s recharge would be reduced or eliminated altogether. However, it would also mean that about 25 MGD of pumpage from the aquifer would also cease. The wells for the proposed project are well positioned, with respect to the aquifer’s natural sources of recharge, to continue to be viable.

**Drinking Water and Non-drinking Water Requirements.** To estimate the projected drinking water and non-drinking water demand for the proposed project, the DWS design standard for industrial development of 6,000 gallons per day per acre was used. The landscape irrigation demand for the subdivision’s internal roadway system and drainage retentions basins were also factored in. The 30/70 ratio that the City and County of Honolulu uses for drinking water and non-drinking water uses on industrial lands was utilized in determining the project’s estimated drinking water demand. Based on the foregoing, the projected drinking water demand is estimated to be an average of 118,800 gallons per day (gpd), while the non-drinking water requirement is projected to be an average of 305,200 gpd.

**Proposed Water System Infrastructure.** To provide an onsite groundwater supply for drinking water and non-drinking water uses, the TNWRE report recommends the installation of three wells with a capacity of 300 gallons per minute (gpm) each, including standby capacity. To treat the well water for drinking water use, the report proposes three reverse osmosis (RO) treatment trains with a capacity of 75 gpm each, with one train providing standby capacity. For water storage, the report recommends a 0.25 million gallon (MG) reservoir for drinking water storage and a 0.40 MG reservoir for non-drinking water storage.

Since both reservoirs would be at grade and therefore would not provide sufficient pressure for drinking water and non-drinking water uses, two automated, multiple pump stations would be installed to maintain pressure throughout each of the
distribution systems. To ensure fire protection is not impacted by a power outage, backup generator power will be provided for the non-drinking water booster pump.

The source wells, RO treatment trains, storage reservoirs, and pump stations would be located near the north end of the proposed subdivision.

**Potential Impacts and Mitigation Measures.** The TNWRE report also analyzed the probable effect the proposed project may have on groundwater resources. See Appendix O, *Groundwater Resource and Water System Assessment*. Further discussion of these probable effects follows below.

**Impacts on Groundwater Resources.** Since the ground surface across the subject parcel is very permeable and because there are no natural drainageways across the property, storm water runoff flowing onto the project site from up gradient areas or from the site onto down gradient areas is not known to occur. The conceptual development plan for the subdivision calls for transporting the runoff into retention basins along the western edge of the site where it will evaporate and/or percolate into the ground. As such, the proposed project will not impact surface water sources. Its impacts will be limited to the underlying groundwater. These effects, which are quantified in detail in the TNWRE report, will consist of the following.

- Withdrawal of groundwater for non-drinking water use and as feed water for the RO treatment process to produce drinking water.
- Disposal of the RO concentrate in onsite disposal wells.
- Disposal of treated domestic wastewater in leach fields.
- Percolation of excess landscape irrigation and industrial wash water.
- Change in the quality of onsite rainfall percolating to groundwater.

**Groundwater Flow Rate.** Since the aquifer’s sources of recharge come from various directions and because there is significant pumping at all active HC&S well batteries, the direction and rate of groundwater flow is not precisely known. As such, the following approximations were made for assessment purposes.

- Beneath the project site, the direction of flow is from northeast to southwest; perpendicular to this direction, the width of the project site is 0.63 mile.
• The groundwater level is 3.6 feet above mean sea level.

• The groundwater gradient is on the order of 0.6 feet per mile, equivalent to 0.00112 ft/ft.

• The permeability coefficient is 10,000 feet per day.

For the preceding approximations, the groundwater flow rate beneath the project’s 0.63-mile width is approximately 4.0 MGD.

Groundwater Quality. A short-term pump test and water quality sampling of an existing onsite well (State No. 4927-01) was conducted in July 2010. A relatively high level of nitrate-nitrogen, a result of ongoing agricultural activities was found. However, none of the detected constituents exceed the levels allowed by the U.S. Environmental Protection Agency (EPA) and the State Department of Health for drinking water use. During the pump test, the salinity of the pumped water was stable and only slightly brackish. It should be noted that Well 4927-01 is not in use nor is it suitable for use because it was improperly constructed and allows contaminants to enter groundwater via its open annular space. Also, the well casing is too small to be of any use and has come apart in numerous places.

For the aquifer as a whole, salinities are consistently low except near shore at the north end of Ma`alaea Bay where caprock is present. High nutrient levels, particularly nitrate-nitrogen, are present throughout the aquifer. For purposes of assessing potential project-related impacts to groundwater resources, the present quality of the groundwater underlying the project site was taken to be: salinity of 0.80 parts per thousand (PPT), nitrogen concentration of 330 micro-molar (uM), and phosphorus concentration of 3.4 uM.

Estimated Post-Development Changes to the Groundwater Flow Rate. The project’s onsite wells will draw water from the underlying groundwater, but some of this water will be returned in the form of RO concentrate, wastewater from septic systems, excess landscape irrigation, and percolating wash water from the non-drinking water system. With the uses and returns to groundwater as estimated in the TNWRE report, the net consumptive use of groundwater would be 0.23 MGD. This would be a 5.8 percent reduction of the estimated 4.0 MGD flow of groundwater directly beneath the site.
Estimated Post-Development Changes to Groundwater Salinity and Nutrient Levels. Based on data from onsite Well 4927-01 and others nearby, it was assumed that the underlying groundwater has a salinity of 0.8 PPT, a nitrogen content of 330 micro-molar (uM), and a phosphorus content of 3.4 uM. This would also be the quality of water extracted by the supply wells. Except for the RO concentrate which will be delivered directly to groundwater, all of the other returns to groundwater described in the report will travel vertically through the sandy soil layer, alluvium, and unweathered lava to the groundwater below. These various strata will function as a trickling filter to naturally remove nitrogen and phosphorus. Expected removal rates are greater than 80 percent for nitrogen and more than 95 percent of phosphorus. The net effect to the 4.0 MGD of groundwater flowing directly beneath the project site is shown below.

- 5.7 percent reduction in flow rate.
- 3.8 percent increase in salinity.
- 1.3 percent increase in nitrogen.
- 7.1 percent increase in phosphorus.

All of these changes are modest and are considered to be insignificant from an aquifer-wide perspective. Currently, the only uses of groundwater down gradient of the project site are three wells in the Kealia National Wildlife Refuge. These wells are pumped seasonally when surface water is insufficient to maintain the pond and wetland areas. The estimated changes due to the development of the proposed project should have no impact on this ongoing use.

It should be noted that the proposed project plans to use the underlying brackish groundwater and will not be utilizing a drinking water supply. In addition, there are no existing or proposed other higher priority water uses of groundwater in this part of the Kahului Aquifer. For these reasons, the proposed water use is in conformance with the County's Water Use and Development Plan. This use is further supported by the approval of well construction and pump installation permits for the project by the State Commission of Water Resource Management (CWRM). See Appendix O-1, CWRM Letter of Assurance for Well Nos. 4927-02 and 4927-03.

A Preliminary Engineering Report (PER) for the proposed project was prepared by
Otomo Engineering in November 2011. See Appendix P, Preliminary Engineering Report. The purpose of the PER was to examine the existing infrastructure in the project area, evaluate the adequacy of the infrastructure, and recommend infrastructure improvements for the proposed project.

The conceptual land development plan for the proposed project currently calls for subdividing the subject parcel to create 28 developable lots. The water development plan for the proposed project will involve the construction of a dual water system which will provide water for drinking water and non-drinking water (irrigation, fire flow) uses.

Groundwater drawn from three onsite wells will serve as the source for non-drinking water use and will also serve as the source for the reverse osmosis (RO) process which will treat the groundwater for drinking water use.

The drinking water system for the proposed subdivision is defined as a Public Water System by Chapter 11-20, HAR for the State Department of Health (DOH), since it will provide water for human consumption and has at least 15 service connections or regularly serves a minimum of 25 persons daily for at least 60 days annually. Public water systems are regulated by the department’s Safe Drinking Water Branch.

Utilizing the Domestic Consumption Guidelines set forth by the Department of Water Supply (DWS), as well as dual water system guidelines that recommend using a 30/70 ratio (drinking water/non-drinking water) for industrial lands, the drinking water demand for the subdivision’s developable lots was determined to be about 118,620 gallons per day (gpd).

The non-drinking water requirement for the subdivision’s developable lots, internal roadway, and landscaped and irrigated common areas was calculated to be approximately 305,030 gpd. As set forth by DWS standards, the fire flow requirement for heavy industrial uses is 2,500 gallons per minute for a two-hour period, while the maximum spacing between fire hydrants is 250 feet. The fire flow requirements for the proposed project will be addressed by the project’s non-drinking water system.

As set forth in the Groundwater Resource and Water System Assessment (See Appendix O), the following water system improvements are proposed for the
Pu`unene Heavy Industrial Subdivision

- A total of three wells with a capacity of 300 gallon per minute (gpm) each, with one well providing standby capacity.

- A total of three reverse osmosis treatment trains with a capacity of 75 gpm each, with one train providing standby capacity.

- A 0.25 million gallon (MG) storage reservoir for drinking water use.

- A 0.30 million gallon (MG) storage reservoir for non-drinking water use.

- The drinking water and non-drinking water systems will each require a booster pump with a backup generator power for the non-drinking water pump station to ensure fire protection during a power outage.

In order for the dual water system to function as designed, provisions for the maintenance of the system will be included in the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision. An association of subdivision lot owners will be formed to assume the responsibility of operating and maintaining the system in accordance with the CC&Rs.

In their letter dated July 2, 2012, the State Commission on Water Resource Management (CWRM) approved the issuance of well construction and pump installation permits for the groundwater wells for the project. See Appendix O-1, CWRM Letter of Assurance for Well Nos. 4927-02 and 4927-03. The wells will be developed and operated in accordance with the Hawai`i Well Construction and Pump Installation Standards established by CWRM. These standards were created to protect and prevent the pollution, contamination, and wasting of groundwater, and minimize salt water intrusion into wells and groundwater.

In accordance with the Hawai`i Administrative Rules (HAR) for the DOH, the water system for the proposed subdivision will comply with all applicable provisions of Title 11, Chapter 20, HAR (Rules Relating to Drinking water Systems); Title 11, Chapter 21, HAR (Cross-connection and Backflow Control) and Title 11, Chapter 25, HAR (Rules Pertaining to Certification of Public Water System Operators).

It should also be noted that Section 11-20-29.5, HAR (Capacity Demonstration and Evaluation), requires all new private water systems to demonstrate appropriate technical, managerial, and financial capacity in order to receive DOH approval for
These requirements ensure that the water system is constructed to current County and DOH standards and has access to an adequate water source(s) both as to quality and quantity. Professional operation of the system by a private water system operations company using DOH certified operators, and ownership by an association that is solely responsible for all legal, and financial aspects of the system are among the requirements. Fiscal management by a professional financial management company and maintenance of adequate reserve funds to address emergencies and replacements ensure that financial requirements can be met. A developer funded cash reserve is required and can be returned to the developer only after the water association has successfully developed its own financial reserves. Recorded covenants on each parcel serviced by the system provide the water association with the ability to levy assessments to meet operational needs so that the system remains within regulatory requirements. Ultimately, the water association has the ability to lien properties serviced by the system to provide the resources to maintain the system in compliance with all applicable regulatory requirements.

Prior to the start of construction, an application for the subdivision’s water system will be prepared and submitted to the DOH, Safe Drinking Water Branch for their review and approval.

The proposed water system improvements will also be consistent with the *Rules and Regulations of the Department of Water Supply*. As subdivision lots are developed in the future, lot owners will be required to submit fire flow calculations to the Maui Department of Fire and Public Safety in conjunction with the building permit review and approval process. Lot owners will be encouraged to utilize water conservation measures when developing their parcels in the future. Examples of such measures include, but are not limited to the following: automatic drip and sprinkler irrigation systems with time controllers and rain sensors, drought-tolerant landscape plantings, and low-flow plumbing fixtures.

Since heavy industrial uses will be determined by future lot owners, specific activities that would occur within the subdivision are presently unknown. Nonetheless, because heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will
require that all lot owners prepare and implement Best Management Practices (BMPs) and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also stipulate that lot owners must comply with all applicable Federal, State, and County laws including regulations governing water use and water quality. An association of subdivision lot owners shall be formed and will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts.

In light of the foregoing, the proposed project is not expected to result in any adverse long-term impacts to surface and groundwater resources nor will it affect the County’s water system infrastructure.

2. Wastewater

**Existing Conditions.** The Maui Department of Environmental Management is responsible for a public wastewater system that handles the collection, transmission, treatment, and disposal of sewage in most areas of Central, South, and West Maui. In the Central Maui region, the department operates and maintains a network of sewer lines and pump stations that conveys sewage to the Wailuku-Kahului Wastewater Treatment Plant for treatment and disposal. There are no County wastewater facilities within or adjacent to the project site. The nearest County sewer system is located in Kihei, about 2.3 miles to the south of the site.

**Potential Impacts and Mitigation Measures.** A Preliminary Engineering Report for the proposed project was prepared by Otomo Engineering in November 2011. See Appendix P, Preliminary Engineering Report. As previously noted, the closest County sewer system is in Kihei, approximately 10,000 feet south of the project site.

The Draft EA indicated that wastewater collection and treatment for the proposed subdivision originally would be handled by a private wastewater system consisting of
sewer transmission lines and manholes within internal subdivision roads. As lots within the subdivision are developed, lot owners would be required to install an individual wastewater system (IWS) on their lots and connect to a sewer lateral linked to the subdivision wastewater system. Wastewater from each lot would then be conveyed to a central leach field within the subdivision.

In their June 19, 2012 letter commenting on the Draft EA, the State Department of Health’s (DOH), Wastewater Branch indicated that it will not allow multiple IWS to discharge into a central leach filed and that a separate leach field must be provided for each IWS. See Appendix S, Draft EA Comment Period. In response to these comments, the wastewater treatment plan for the proposed subdivision has been modified to call for the installation of an IWS consisting of an aerobic treatment unit and leach field for each lot. As indicated by the DOH, this type of IWS can be used within 1,000 feet of drinking water sources and wells. The cost and installation of the IWS will be borne by individual lot owners when their lots are developed in the future.

All lot owners must comply with Chapter 11-62, HAR (Wastewater Systems), which ensures that the disposal of wastewater (including gray water) does not contaminate or pollute water resources, create a public nuisance, and does not pose a hazard or potential hazard to public health, safety, and welfare. As lots within the subdivision are being developed, lot owners must submit their IWS plans to the DOH for review and approval.

Because future lot owners will determine the heavy industrial use on their lots, specific activities that would occur within the subdivision are presently unknown. Notwithstanding this, since heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will require that all lot owners prepare and implement Best Management Practices (BMPs) and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also stipulate that lot owners must comply with all applicable Federal, State, and County laws including regulations governing wastewater treatment. Provisions for the installation and maintenance of the IWS on each lot will also be included in the CC&Rs. The subdivision Lot Owner’s Association will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.
In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts.

In light of the foregoing, the proposed project is not expected to result in any adverse impacts to surface and groundwater resources nor will it affect the County’s wastewater collection and treatment facilities.

### 3. Drainage

**Existing Conditions.** The subject parcel slopes in an easterly to westerly direction with on site elevations ranging from 140 feet above mean sea level (amsl) to 120 feet amsl with an average slope of 1.8 percent.

Storm water runoff on the subject property was calculated by using the rational method and the 50-year, one-hour storm event for drainage areas less than 100 acres. The criteria used for the hydrologic calculations are from the *Rules for the Design of Storm Drainage Facilities in the County of Maui* (1995).

Existing runoff at the project site was estimated to be 75.2 cubic feet per second (CFS), while the pre-development runoff volume is 135,400 cubic feet (CF). Runoff from the project site presently sheet flows across the site in a westerly direction onto downstream parcels and towards Mokulele Highway. The proposed project will not involve discharges into Class 1 (inland) waters or Class AA (marine) waters of the State of Hawai‘i.

**Potential Impacts and Mitigation Measures.** A Preliminary Engineering Report for the proposed project was prepared by Otomo Engineering in November 2011. See Appendix P, Preliminary Engineering Report. The drainage system for the proposed subdivision will be designed to accommodate the incremental increase in runoff generated by the development of the entire project site.

The master drainage system for the subdivision will provide a drain stubout to each developable lot, as well as curb-inlet catch basins, manholes, and drain lines within
the subdivision’s internal roadway system. As individual lots are developed in the future, lot owners will be required to install their own onsite drainage system and provide a drain line connection to the drain stubouts on each lot. The post-development runoff from each lot will then be conveyed to a series of retention basins along the western edge of the subdivision. The retention basins will be designed and built to accommodate the increase in runoff from the fully-developed subdivision.

Based on the 50-year, one-hour storm event, post-development runoff is projected to be 328.5 CFS, while runoff volume is projected to be 413,900 CF. The incremental increase between the pre- and post-development conditions is 253.3 CFS in runoff and 278,500 CF in runoff volume.

Regardless of the magnitude of a storm event, no surface water (runoff), is expected to reach Ma`alaea Beach. Studies have indicated that the mud cap rock along the southern two-thirds of Ma`alaea Bay prevents groundwater discharge along the shoreline, forcing it further offshore where it is thoroughly mixed to background ocean water levels. As a result, any impact to groundwater flowing beneath the project site and flowing south toward Ma`alaea Bay will not adversely impact the beach’s water quality, including its turbidity and chlorophyll a levels.

In order for the master drainage system to function as designed, provisions for the maintenance of the system will be included in the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision. The association of subdivision lot owners will assume the responsibility of operating and maintaining the system pursuant to the CC&Rs. Examples of measures to facilitate the operation and maintenance of this system include, but are not limited to, the following.

- Inspect the drainage system on an annual basis and after major storms. Repair any damage and remove debris from grated drain inlets to allow unimpeded flow.

- Periodically inspect the drainage system. Remove debris and sediment buildup as necessary especially inside grated drain inlets upstream of the subsurface retention basins.

- Prevent grass and landscape cuttings from entering the drainage system as they could cause blockages.
• Clean all parking areas as often as possible in order to keep debris and sediments from entering the drainage system.

• Keep lawns and landscaping in healthy condition to prevent soil erosion and reduce the possibility of sediments entering the drainage system.

The drainage system for the proposed subdivision will be designed in accordance with the *Rules for the Design of Storm Drainage Facilities in the County of Maui (1995).*

An erosion control plan, including Best Management Practices (BMPs), and a drainage plan and report shall be submitted to the Maui Department of Public Works for review and approval prior to the issuance of grubbing and grading permits for the proposed project. The BMPs shall comply with Chapter 20.08 of the Maui County Code entitled *Soil Erosion and Sedimentation Control.* In addition, since site work for the project will exceed one acre, a National Pollutant Discharge Elimination System (NPDES) Permit for general coverage will be obtained from the Clean Water Branch of the State Department of Health for the discharge of storm water associated with construction activities such as clearing, grading, and excavation.

Since future lot owners will determine the heavy industrial use on their lots, specific activities that would occur within the subdivision are presently unknown. Nevertheless, because heavy industrial uses have the potential to affect the environment, the CC&Rs will require that all lot owners prepare and implement BMPs and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also require that lot owners comply with all applicable Federal, State, and County laws including regulations governing storm water runoff and erosion control. The association of subdivision lot owners will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts.
In light of the foregoing, the proposed project is not expected to result in any significant impacts to surface and groundwater resources nor will it adversely affect adjacent and downstream properties.

4. Roadways

**Existing Conditions.** Linking Kahului and Kihei, Mokulele Highway is a four-lane, divided roadway with a north-south alignment. The highway has a posted speed limit of 45 miles per hour and a separate bike path along its east side.

In the project area, Mokulele Highway forms a four-legged, signalized intersection with Kama`aina Road to the east and Mehameha Loop to the west. The north and southbound approaches of the highway have separate left- and right-turn deceleration and turn/storage lanes. The north and southbound left-turn lanes allow protected turning movements. The eastbound (Mehameha Loop) and westbound (Kama`aina Road) approaches have one travel lane in each direction.

Access from Mokulele Highway to the subject parcel is provided by Kama`aina Road, South Firebreak Road, and Lower Kihei Road. Mokulele Highway and Kama`aina Road both fall under the jurisdiction of the State Department of Transportation (DOT).

Near its intersection with Mokulele Highway, Kama`aina Road has a 24-foot wide concrete-paved section that extends about 1,500 feet eastward before changing to a 24-foot wide asphalt-paved section to match up with South Firebreak Road.

From its nexus with Kama`aina Road, South Firebreak Road heads south to provide access to adjacent sugar cane fields and the Hawaiian Cement Quarry. South Firebreak Road transitions to Lower Kihei Road approximately 500 feet southwest of the Quarry Access Road.

Lower Kihei Road varies in surface width with asphalt pavement ranging from 20 to 22 feet. Lower Kihei Road proceeds in a southerly direction to provide access to the project site, an HC&S irrigation reservoir, and sugar cane fields along its alignment.

Access from Mokulele Highway to the subject property will be largely furnished by Easement 7, an existing 30-ft. wide access easement within the Kama`aina Road and South Firebreak Road rights-of-way. See Appendix D, Quitclaim Assignment of

Pu`unene Heavy Industrial Subdivision
Partial Interest in Easement (Easement 7). However, since the southern terminus of
Easement 7 lies near an irrigation reservoir by the north end of the subject parcel, the
land owner has filed a Request for Use of State Lands with the State Department of
Land and Natural Resources for a 56-ft. wide access easement (0.573 acre) at the
south end of Easement 7 which would allow access to the subject parcel. The land
owner is also requesting a 50-ft wide access easement (0.722 acre) along the
Hawaiian Cement Access Road which would be part of an alternate access route
along the north and east sides of the reservoir. See Appendix D-1, Request for Use
of State Lands (Amended). The primary and alternate access routes are shown in
Figure 5, Proposed Land Development Plan.

The external roadways providing access to the proposed subdivision and the internal
roads within the subdivision shall utilize flexible design standards as provided by
Section 18.32.030 of the Maui County Code pertaining to General Criteria for Flexible
Design Standards. The subdivision’s internal roadways will be owned and
maintained by the Lot Owner’s Association. In conjunction with the processing of the
subdivision application for the proposed project, the flexible design standards will be
submitted to the Maui Department of Public Works (DPW) for review and approval.

The County of Maui provides public bus transportation between Kihei and Kahului.
The Kihei Islander (bus) route takes passengers along Mokulele Highway at one-hour
intervals from 5:30 AM to 9:30 PM.

(TIAR) for the proposed project was prepared by Phillip Rowell and Associates in

Since the land owner’s current plan is to subdivide the property, there is no estimate
as to when the actual development of the lots will be completed. Therefore, 2015
was used as an estimated project completion date. This time frame is compatible
with traffic studies for other major projects within and adjacent to the study area. The
year 2015 was also used as the horizon or design year for which background traffic
conditions (future traffic conditions without the proposed project) are estimated.
These future traffic projections were calculated by evaluating existing traffic volumes, annual growth rates, and traffic generated by other proposed projects in the vicinity. The levels-of-service at the following intersections were evaluated for the TIAR.

- Mokulele Highway, Kama‘aina Road, and Mehameha Loop (signalized).
- South Firebreak Road and Quarry Access Road (unsignalized). This intersection is associated with the Primary Access Road.
- South Firebreak Road and Project Access Road (unsignalized). This intersection is associated with the Alternate Access Road.
- Quarry Access Road and Project Access Road (unsignalized). This intersection is also associated with the Alternate Access Road.

The study intersections were analyzed using methodology for signalized and unsignalized intersections set forth in the *2000 Highway Capacity Manual*.

**Existing Traffic.** Traffic counts were taken at the study intersections to determine existing peak hour traffic volumes. Since Kamaʻaina Road provides access to the Hawaiian Cement Quarry and experiences a lot of heavy truck traffic, heavy vehicles were also counted.

The morning peak hour along Mokulele Highway is from 7:15 to 8:15 AM and is consistent with 2010 traffic counts taken at the highway’s intersection with North Kihei Road, the next signalized intersection to the south. The total AM peak hour volume along the highway is approximately 2,200 vehicles per hour (VPH). The direction of travel is evenly split (50/50) and left and right turns are minimal. Heavy vehicles make up most of the traffic turning into and out of Kamaʻaina Road. For outbound vehicle traffic during the morning peak hour, 80 percent of the left turning vehicles and 67 percent of the right turning vehicles are heavy vehicles. For traffic turning into Kamaʻaina Road from Mokulele Highway, 48 percent of the left turning vehicles and 17 percent of the right turning vehicles are heavy vehicles.

The afternoon peak hour along Mokulele Highway is from 3:30 to 4:30 PM. The total PM peak hour traffic volume along the highway is 2,380 VPH. The directional traffic distribution is 50/50. During the afternoon peak hour, all of the southbound left turns from Mokulele Highway to eastbound Kamaʻaina Road are heavy vehicles and 83 percent of the right turns from northbound Mokulele Highway to eastbound
Kama`aina Road are heavy vehicles. Of the outbound traffic during the afternoon peak hour, 73 percent of the left turns from westbound Kama`aina Road to southbound Mokulele Highway are heavy vehicles.

The peak hour volumes along Mehameha Loop are approximately 35 VPH during the morning peak hour and 40 VPH per hour during the afternoon peak hour. There were no heavy vehicles along Mehameha Loop during both peak hours.

The peak hour volumes along Kama`aina Road are 57 VPH during the morning peak hour and 36 VPH during the afternoon peak hour. Heavy vehicles make up 25 percent of the traffic along Kama`aina Road during the AM peak hour and 22 percent during the PM peak hour.

**Level-of-Service.** This term is used to describe any of an infinite number of traffic operating conditions that may occur on a given travel lane or roadway when it is subjected to various traffic volumes. Level-of-Service (LOS) also measures the effect various factors have on traffic including factors such as space, speed, travel time, traffic interruptions, safety, driving comfort, convenience, and freedom to maneuver. LOS is expressed in a qualitative manner through the use of six levels ranging from “A” through “F” with LOS “A” representing free-flowing traffic and no congestion and LOS “F” reflecting severe traffic congestion with stop-and-go conditions.

The Institute of Transportation Engineers’ (ITE) publication, *Transportation Impact Analyses for Site Development (2006)*, notes that LOS D is typically deemed acceptable for peak hour conditions in urban areas. Using this standard and applying this criterion to the overall intersection instead of each controlled lane group, no deficiencies were identified at the intersection of Mokulele Highway, Kama`aina Road, and Mehameha Loop. The overall intersection operates at LOS A during both morning and afternoon peak hours. The east- and westbound approaches, as well as the northbound left-turn lane and southbound left-turn lane operate at LOS D, which is considered an acceptable level-of-service.

**Volume-to-Capacity Ratio.** Corresponding to each level-of-service is a volume-to-capacity (V/C) ratio. This ratio expresses existing or projected traffic volumes in relation to the capacity of an intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by a roadway during a specified
period of time. The capacity of a particular roadway is influenced by the number of
lanes, the operational characteristics of the roadway (one-way, two-way, turn
prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses,
etc.), and turning movements. A signalized intersection with a volume-to-capacity
(V/C) ratio greater than 1.000 corresponds to LOS F, while an intersection with a V/C
ratio of 0.801 – 1.000 corresponds to LOS D, which is an acceptable level-of-service.

Trip Generation. The trip generation analysis is not based on zoning but is
predicated on the anticipated land uses for the proposed project. The peak number
of trips generated by the proposed project was estimated by using trip-generation
rates for industrial parks. Based on the total area of the developable lots (65.92
acres), the project will generate 392 inbound and 80 outbound trips during the
morning peak hour and 99 inbound and 372 outbound trips during the afternoon peak
hour.

Trip Distribution. Using population distribution data from the *The Maui Long Range
Land Transportation Plan* (1996), project-related trips were distributed among
anticipated approach and departure routes. Based on population distribution
estimates for 2015, 62 percent of project-related trips are projected to approach from
and depart to the north, while the remaining 38 percent are expected to approach
from and depart to the south.

The project will have no right of access to roadways in the Maui Raceway Park. In
addition, retention basins along the western boundary of the project site will prevent
any traffic connection between the subdivision and the Park. Therefore, all traffic was
assigned to the intersection of Mokulele Highway, Kama’aina Road, and Mehameha
Loop.

Based on observations at the Central Maui Baseyard, which lies 1.3 miles to the north
of the project site, and the Consolidated Baseyard, which is located about 3.0 miles to
the northwest of the site, it is anticipated that 25 percent of the trips generated by the
project will be made by heavy vehicles.

Background Traffic Conditions. From 1990 to 2020, traffic on Maui is expected to
increase at an average annual rate of 1.6 percent according to *The Maui Long Range
Land Transportation Plan* (1996). This growth rate was used to estimate the ambient
background growth between 2011 and 2015, which is the design year for the proposed project. This growth factor was applied to the north- and southbound through traffic movements along Mokulele Highway. The other component used to estimate background traffic volumes is traffic resulting from other proposed projects in the vicinity that are either under construction or approved for construction. These “related projects” may be development projects or roadway improvements which could have a significant effect on traffic in the study area.

The background traffic projections were then calculated by expanding existing traffic volumes by the appropriate growth rates and then superimposing traffic generated by related projects.

**Background Plus Project Conditions.** This is defined as 2015 background traffic conditions plus project-related traffic and was estimated by superimposing the peak hourly traffic generated by the proposed project on peak hour 2015 background traffic volumes.

**Level-of-Service Analysis.** A level-of-service analysis (LOS) of background and background plus project conditions was conducted by analyzing the changes in traffic volumes and levels-of-service at the study intersections and project driveways. The incremental difference between these conditions quantifies the (traffic) impact of the project and was also used to help formulate appropriate mitigation measures.

The LOS analysis for 2015 background plus project conditions at the study intersections revealed the following:

1. **Mokulele Highway, Kama`aina Road, and Mehemeha Loop (signalized).**
   - The northbound left will operate at LOS E during the morning peak hour. However, the volume-to-capacity (V/C) ratio is 0.53, which means that the long delay is the result of the signal timing. No mitigation is required.
   - During the afternoon peak hour, the westbound approach will operate at LOS E, the southbound left will operate at LOS F, and the overall intersection will operate at LOS C. Since the V/C ratios for these movements are greater than 1.00, mitigation is required.
   - Modifying the westbound approach to provide a separate right-turn lane will allow all controlled movements to operate at LOS D, or better. In
addition, the overall intersection will operate at LOS B and all V/C ratios will be below 1.00.

- Because of the large number of heavy trucks entering and exiting Kama'aina Road, the need for an acceleration lane for traffic turning from westbound Kama'aina Road to northbound Mokulele Highway was assessed. A review of *A Policy on Geometric Design of Highways and Streets* (1994), published by the American Association of State Highway and Transportation Officials, concluded that there are general guidelines regarding the need for an acceleration lane, but no traffic warrants. It should be noted that an acceleration lane was not provided at this intersection, or the intersection for the Central Maui Baseyard (1.3 miles to the north), when Mokulele Highway was widened from two to four lanes in 2008.

- The projected number of heavy vehicles that would use an acceleration lane at this location is significantly higher than estimated for background without project conditions. The number of heavy vehicles is expected to increase from 10 to 22 vehicles per hour during the morning peak hour and from zero to 58 vehicles during the afternoon peak hour. Given this increase, and the potential impacts of heavy vehicle traffic on the capacity of intersections and roadways, it is recommended that an acceleration lane be provided for vehicles turning right from westbound Kama'aina Road to northbound Mokulele Highway.

2. *South Firebreak Road and Quarry Access Road (unsignalized).*

- This intersection has controlled lane groups and is associated with the Primary Access Road. No mitigation is required.

- All project-related traffic at this intersection will head south to the proposed subdivision, while all Quarry-bound traffic will continue to use the Quarry Access Road. It was assumed that the Quarry Access Road approach will be STOP sign-controlled.

- All controlled lane group movements at this intersection will operate at LOS A or B which indicates good operating conditions and minimal delays.

3. *South Firebreak Road and Project Access Road (unsignalized)*

- This intersection has controlled lane groups and is associated with the Alternate Access Road. No mitigation is required.

- All project-related traffic will turn onto the Project Access Road and all Quarry-related traffic will continue to use the Quarry Access Road. It was presumed that the Project Access Road approach will be STOP sign controlled.

- All controlled lane group movements at this intersection will operate at
LOS A or B which implies good operating conditions and minimal delays.

4. Quarry Access Road and Project Access Road (unsignalized)

- This intersection has controlled lane groups and is associated with the Alternate Access Road. No mitigation is required.

- All north- and southbound traffic at this intersection will be project related, while all east- and westbound traffic is Quarry related. It was assumed that all approaches will be STOP sign controlled and that no turns will be allowed at this intersection.

- All controlled lane group movements at this intersection will operate at LOS A or B which reflects good operating conditions and minimal delays.

Findings. Recommended mitigation measures for the intersection of Mokulele Highway, Kama`aina Road, and Mehameha Loop are reflected in the following table.

Table 1. Recommendations for 2015 Background Traffic Conditions

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Recommended Measures to Mitigate Existing (2011) Deficiencies</th>
<th>Recommended Measures to Mitigate Background Deficiencies</th>
<th>Recommended Measures to Mitigate Background Plus Project Deficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mokulele Highway, Kama`aina Road, and Mehameha Loop</td>
<td>No mitigation required.</td>
<td>No mitigation required.</td>
<td>(1) Modify westbound approach to provide a separate right-turn lane. (2) Provide acceleration lane for west-to northbound right turns. (3) Lengthen southbound left-turn deceleration lane from 60 feet to 350 feet.</td>
</tr>
</tbody>
</table>

In addition to the foregoing, the traffic study also recommends the following.

1. The areas adjacent to Kama`aina Road, South Firebreak Road, and Lower Kihei Road should be monitored to insure that sugar cane growth does not impede sight distances and that the visibility of traffic control devices is maintained.

2. Because of the increased traffic volumes along Kama`aina Road, South Firebreak Road, and Lower Kihei Road as a result of the project, these roadways should be striped and signed in accordance with County of Maui standards. The high proportion of heavy vehicle traffic should be considered in the design and installation of traffic control devices, especially the longer stopping distances that are required for these vehicles.
Construction of the proposed project will primarily involve site work and the installation of subdivision infrastructure. After mobilization, construction equipment, materials and vehicles will be stored and secured onsite. As such, short term, construction-related traffic impacts are expected to be minimal. A Traffic Management Plan will be utilized to minimize impacts during peak hour traffic by controlling the delivery of construction materials and the arrival and departure of construction workers. All required traffic control plans and devices shall conform to the applicable provisions of the *Manual on Uniform Traffic Control Devices* (2009).

The sugar cane fields adjacent to the intersections in the project area are owned by Hawaiian Commercial & Sugar Company (HC&S) and are not under the control of the applicant. To ensure that sugar growth does not impede sight distance and that the visibility of traffic control devices is maintained, the applicant will work with HC&S to help minimize impacts. As part of the subdivision application process, a driveway sight distance analysis and worksheet (for the subdivision driveway) will be submitted to the Maui Department of Public Works for review and approval to ensure that adequate sight distance and visibility are provided.

As subdivision lots are developed in the future, lot owners will be required to provide onsite parking and loading space in accordance with Chapter 19.36A of the Maui County Code pertaining to *Off-Street Parking and Loading*.

The land owner will provide his fair-share contribution toward regional roadway improvements if legislation adopting regional traffic impact fees for the island of Maui is in place prior to final subdivision approval.

In light of the foregoing, the proposed project is not expected to have an adverse impact upon traffic.

5. **Electrical and Communication Systems**

*Existing Conditions.* Electrical power for the island of Maui is provided by Maui Electric Company (MECO), while communication systems are operated by Hawaiian Telcom and Oceanic Time Warner Cable (OTWC). Hawaiian Telcom provides local and long-distance telephone service, as well as high-speed internet and online cable
television (CATV) service, while OTWC provides CATV service for the State of Hawai`i, including Maui.

Existing overhead utility lines run along the right side of Kama`aina Road, South Firebreak Road, and Lower Kihei Road. The overhead lines provide service to the surrounding area and are located within an easement granted to MECO and Hawaiian Telcom. Although OTWC has an existing fiber optic line along Mokulele Highway, the closest service connection point is at the Central Maui Baseyard approximately 1.3 miles to the north of the subject parcel. Depending on feasibility and future market potential, OTWC has worked with land owners and developers to help defray installation costs (personal communication with Bill Hanke - OTWC, July 26, 2012).

**Potential Impacts and Mitigation Measures.** A Preliminary Engineering Report for the proposed project was prepared by Otomo Engineering in November 2011. See Appendix P, Preliminary Engineering Report. To provide service to the proposed subdivision, new MECO and Hawaiian Telcom lines will be extended to the subject parcel from the existing overhead lines in the project area.

The new power and communication systems for the proposed subdivision will be installed underground in accordance with MECO and Hawaiian Telcom requirements. Street lights will be installed along the subdivision’s internal roadway system at intervals to be determined by the project’s electrical engineer.

The design and construction of the electrical and communication systems will be coordinated with MECO and Hawaiian Telcom to ensure that all applicable design and operational criteria are addressed. Construction drawings will be prepared and submitted to MECO and Hawaiian Telcom for review and approval at such time in the future that an application for subdivision approval is filed with the County of Maui.

Exterior lighting will be appropriately shielded or downward directed to provide safety, security, and facilitate parking, and to minimize impacts to any migratory seabirds which may become disoriented when traversing the project area.

Lot owners will be encouraged to utilize energy generation and energy conservation measures when developing their parcels in the future. Examples of such measures
include, but are not limited to: the use of windmills or photovoltaic panels to generate electricity, and the use of solar water heating systems, energy-efficient lighting and appliances, fiberglass insulation, double-glazed windows, skylights, and extended (roof) eaves to minimize heat gain through windows.

E. CUMULATIVE IMPACTS

A cumulative impact is the combined effect of a proposed action and other past, present, and reasonably foreseeable (future) actions regardless of who initiates the action.

Past, present, and reasonably foreseeable projects that are of similar nature or scale as the proposed project and have the potential to contribute to cumulative impacts were identified and examined for this cumulative impacts analysis. The analysis uses the best available data at the time to assess these projects and their potential impacts.

There are several projects in the area around the subject parcel that are proposed for future development. These projects are discussed below and include: Project District 10 (Old Pu`unene Airport area) by the County of Maui, the Maui Prison (aka, Maui Regional Public Safety Complex) by the State Department of Public Safety, and agricultural homesteads by the State Department of Hawaiian Homelands (DHHL).

As part of a comprehensive master-planning process, the State of Hawai`i is evaluating infrastructure needs for the future development of State and County lands in the vicinity of the Old Pu`unene Airport. The DHHL owns a 646-acre parcel to the south of the subject property which it has zoned for agricultural homesteads (i.e., farm lots) because dust and wind conditions make it unsuitable for residential or commercial use. The DHHL also has plans to develop a private wastewater treatment plant on a portion of their site. The State’s plans for the Maui Prison have been delayed due to the lack of government funding and the absence of infrastructure (i.e., water, sewer) to support this project. The County of Maui recently recommended that the Prison be moved from its proposed location in Project District 10 to State-owned land approximately one mile east of Mokulele Highway. The County’s plans for PD 10, a master-planned recreational and industrial expansion
area, is contingent upon several factors including the completion of an updated master plan, obtaining all necessary land use approvals, and the availability of funds for infrastructure development and construction. It is estimated that it could take at least 10 years or more before any ground-breaking construction commences on the State and County lands. The time frame for the development of these lands is highly indeterminate and is dependent on several key factors such as the availability of funding, the construction of infrastructure, and obtaining the necessary land use entitlements and permit approvals. As such, these State and County projects were not included in the cumulative impacts analysis since they are not considered reasonably foreseeable projects.

The following criteria were used to identify projects for the cumulative impacts analysis:

- Projects in geographic proximity to the proposed project or with similar location characteristics.
- Projects of comparable nature or scale to the proposed project.
- Projects that could affect similar resources, have the potential to generate environmental impacts and when grouped collectively with the proposed project, could result in cumulative impacts to the environment.
- Projects that are either pending approval or have already been approved.

For the analysis of cumulative impacts, the proposed project was grouped and evaluated with several other projects in the area of similar scope or character. These other projects include: the Central Maui Baseyard, Consolidated Baseyard, Waiko Baseyard Light Industrial Subdivision, and Kihei Residential Subdivision. With the exception of the proposed project and the Waiko Baseyard Subdivision and Kihei Residential Subdivision, the other projects have been completed and are occupied.

**Central Maui Baseyard:** This existing 52-acre industrial subdivision lies 1.3 miles to the north of the subject property and contains about 90 leasehold lots. Most of the lots are 1 acre or less while the largest lot is nearly 10 acres. About 40 acres of land is zoned for light industrial use while the remaining 12 acres (Lots 1C, 59 and 221) are zoned heavy industrial.
Pu`unene Heavy Industrial Subdivision: This existing light-industrial subdivision was built on a 23.2-acre site about 2.0 miles to the northwest of the subject parcel. The project contains 35 fee simple lots ranging from approximately 10,000 square feet to 2 acres in size.

Waiko Baseyard Subdivision: This future light-industrial subdivision is proposed on 31.2 acres of land about 1.8 miles to the northwest of the subject parcel. A total of 41 lots fee simple lots ranging from 9,500 square feet to 8.5 acres are proposed.

Kihei Residential Subdivision: This future residential subdivision is proposed on nearly 94 acres located 2.3 miles to the south of the subject property. The project will include 400 single-family units, 200 multi-family units, 2,000 square feet of commercial space, and 7,000 square feet of office space.

2. Assessment of Cumulative Impacts

A qualitative approach was used to assess the potential cumulative impacts of the proposed project and the projects listed above. Key components of the existing environment were examined as part of this process and included: (1) topography, (2) plant and animal life, (3) noise and air quality, (4) cultural resources, (5) visual character, (6) water quality, (7) public services, and (8) infrastructure. Cumulative impacts could change over time as new projects are introduced or projects are modified, delayed, or abandoned in response to economic conditions. The following discussion identifies potential concerns and mitigation measures from a cumulative impacts standpoint.

a. Topography

Modifications to existing terrain invariably occur as a result of site work. During grading, cut and fill quantities should be balanced to reduce site work costs and maintain existing drainage patterns. The implementation of erosion control measures and Best Management Practices (BMPs) help minimize soil loss and sedimentation during construction. Changes to the existing landform need to ensure that visual impacts are minimized and that grading plans and civil drawings comply with applicable design and construction criteria. No cumulative adverse impacts to the overall topography of the region are expected.

b. Plant and Animal Life

During the environmental and/or regulatory review process for these projects, flora and fauna on the project sites were examined. Potential impacts and measures to minimize harm to plant and animal life were also identified as part of this process.
For the most part, the project sites were formerly used for various agricultural purposes such as raising livestock, cultivating sugar cane, seed corn, and truck crops. From a cumulative viewpoint, no negative impacts to plant and animal life in the region are anticipated.

c. **Noise and Air Quality**

Although measures to reduce construction-related noise to inaudible levels will not be practical in all cases, proper equipment maintenance, the use of sound-dampening equipment, and limiting construction activities to daylight working hours help minimize short-term noise impacts. All projects must comply with State Department of Health (DOH) noise regulations. If noise from construction or land use activities exceeds their standards, a Community Noise Permit must be obtained from the DOH. From a long-term perspective, the development of lands that have been previously used for agricultural purposes will result in changes to the ambient noise levels at the project sites. Where sugar cane trucks and machinery were the primary sources of noise in the past, noise from industrial activities and traffic from nearby roadways would be the principal noise-generating sources once all the projects are completed and occupied. With the exception of the Kihei Residential Subdivision, the other projects are located away from areas of existing residential and commercial development. There are no significant noise-generating sources at any of the project sites which would result in adverse impacts to surrounding areas.

As with noise, air quality is temporarily affected during construction activities. Watering active work areas, using wind screens, limiting exposed areas, and establishing landscaping as soon as possible helps minimize the effects of fugitive dust during construction. The use of BMPs and compliance with DOH and County erosion control requirements helps manage airborne particulates. All of the projects must comply with DOH noise regulations. As such, a use or activity including a potential pollution source is subject to regulatory review during which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts. There were no point sources of air pollution at any of the project sites.
Cumulatively, no significant impacts to the ambient noise and air quality of the region are anticipated.

d. Visual Character

The visual character of the lands underlying the project sites is gradually being transformed as unused or unproductive agricultural lands are utilized for more productive purposes. After full build out, the projects will have a visual character that is more urban (industrial, residential) in nature. The use of perimeter fencing, landscape plantings, and design guidelines will help integrate the projects with their surroundings. On a cumulative basis, no adverse effects to the visual character of the lands surrounding the project sites are expected.

e. Cultural Resources

Archaeological surveys and cultural impact assessments were prepared and examined as part of the environmental and/or regulatory review process for these projects. Potential issues and mitigation measures were identified to address any areas of concern. From a cumulative standpoint, the projects will not adversely affect archaeological or cultural resources in their respective areas nor will they have a negative impact on traditional native Hawaiian practices or beliefs.

f. Water Quality

Surface runoff and other non-point source pollutants can affect water quality if left unchecked. Project-related construction is subject to State and County requirements for managing runoff and controlling erosion and sedimentation. For example, construction activities are subject to DOH requirements for NPDES permit coverage and Maui County standards for grubbing, grading, and drainage to minimize potential water quality impacts to groundwater resources and adjacent and downstream properties. From a regional water quality perspective, the use of BMPs and compliance with all applicable regulatory requirements will help mitigate potential adverse effects to water quality.

g. Public Services

The Kihei Residential Subdivision will create an increased demand for park and school space due to the residential nature of this project. The need for these
additional services will be addressed during the developer’s land use entitlement process. Due to their industrial nature, the cumulative effect that the other projects would have on public services is minimal. Other public services such as fire, police, and emergency medical responders already serve the project areas and would not need to expand their current sphere of operations.

**h. Infrastructure**

In conjunction with the permitting process for each of the projects, infrastructure requirements for the projects must be met by their developers.

Although the water system within the Central Maui Baseyard is privately owned and maintained, water for this project is provided by the County water system which benefited from major offsite improvements undertaken by the developer. Similar to the proposed project, the Consolidated Baseyard has a State-approved water system which is privately owned and maintained. Water for the proposed Waiko Baseyard Subdivision will be provided by the Consolidated Baseyard’s adjacent system. While water for the proposed Kihei Residential Subdivision will be provided by the County water system, the developer will be required to develop water source and storage facilities to serve the project.

With the exception of the Kihei Residential Subdivision, wastewater for the other projects will be handled by individual wastewater systems on each lot that have been approved by the DOH. Although sewer service for the proposed Kihei Residential Subdivision will be provided by the County wastewater system, the developer will be required to fund any necessary off-site collection system and pump station improvements.

All of the projects must comply with State and County drainage regulations for managing runoff and controlling erosion and sedimentation. Storm water management measures including BMPs and drainage control features such as retention basins or subsurface storage systems help control runoff and minimize impacts to adjacent or downstream properties. From a cumulative viewpoint, storm water runoff is not expected to have an adverse cumulative effect on existing drainage conditions.
Existing and future traffic conditions and potential traffic impacts and traffic mitigation measures for each of the projects are examined during the environmental and/or regulatory review process for each of the projects. Traffic impacts attributable to each project must be addressed by their developers to ensure that project-related impacts are mitigated and do not adversely affect short- and long-term traffic in the project areas. Mitigation measures can take various forms and include, but are not limited to, pavement striping or widening, traffic-control devices (e.g., stop signs, traffic signals), acceleration and deceleration lanes, storage and turn lanes, and additional travel lanes. The developers of each of the projects are required to comply with the recommendations or conditions for project-related traffic mitigation that are set forth by the approving (government) authorities. As a result of this review process, no adverse cumulative traffic impacts are anticipated.

3. **Secondary Impacts**

Secondary impacts are impacts that are indirectly caused by an action and occur later in time or are farther away in distance and still reasonably foreseeable. They can be viewed as the actions of others that are taken because of the presence of the project. For example, a secondary impact of a highway project is that it induces development by removing a key barrier to growth – transportation access.

Overall, the proposed project is not expected to induce a significant change in development or land use patterns since it is consistent with existing heavy industrial land uses in the immediate area such as the Central Maui Baseyard and Hawaiian Cement Quarry, as well as the planned and future areas set forth by Project District 10 (Old Pu`unene Airport area) and the draft Maui Island Plan.

The proposed project will address the pent-up demand for purely heavy industrial lands and create new or additional business opportunities for local residents. At full build-out, the project would generate profits and expenditures which would have a beneficial effect on the local economy and the coffers of the State and County.

The proposed project is not anticipated to have any adverse secondary effects upon the physical or man-made environment nor is it expected to generate new or additional demands for public services and infrastructure.
IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS

A. STATE ENVIRONMENTAL LAW

Chapter 343, HRS (Environmental Impact Statements) and Title 11, Chapter 200, HAR (Environmental Impact Statement Rules) set forth provisions for the preparation and review of environmental review documents for the State of Hawaiʻi. Section 345-5, HRS (Applicability and Requirements) identifies nine proposed actions for which an environmental assessment (EA) shall be required. As related to the proposed action, there are two actions that trigger the preparation of an EA: 1) the use of State or County lands, and 2) an amendment to an existing County general plan or community plan when it is not associated with a new plan or update initiated by the County.

Since the proposed action will involve the use of State lands (proposed easements across State property) and an amendment to a community plan, an EA has been prepared in accordance with Chapter 343, HRS and Title 11, Chapter 200, HAR. Based on consultation with the Maui Planning Department and the State Land Use Commission, the Maui Planning Commission will serve as the approving agency for the environmental review process.

B. STATE LAND USE DISTRICTS

Pursuant to Chapter 205, HRS, all lands in the State of Hawaiʻi have been placed into one of four land use districts by the State Land Use Commission (SLUC): "Urban", "Rural", "Agricultural", and "Conservation". The subject parcel is located in the State Agricultural District. See Figure 12, State Land Use Districts.

The proposed action involves a request to reclassify the property from the State Agricultural District to the State Urban District.

C. LAND USE COMMISSION RULES

Title 15, Chapter 15, HAR (Land Use Commission Rules) governs the practice and procedure of the State Land Use Commission. Subchapter 2 of 15-15, HAR sets
forth various criteria for the establishment of each of the State’s four land use districts. The request for reclassification is in conformance with the following standards for determining State Urban District boundaries as set forth in Section 15-15-18, HAR:

(1) It shall include lands characterized by “city-like” concentrations of people, structures, streets, urban level of services and other related land uses;

Comment: Although the subject property is not characterized by “city-like” concentrations or conditions, it is located in an area that is designated for future urban development. The Central Maui Baseyard, an existing industrial development on 52 acres of land in the State Urban District, is located 1.3 miles to the north of the subject property. During World War II, the subject parcel and surrounding lands were developed for use as the Pu`unene Naval Air Station. Lands planned for future development include the Pu`unene Airport Master Plan (PAMP) area which encompasses 222 acres of land west of and adjacent to the subject parcel and is a component of Project District 10 (PD 10) – Old Pu`unene Airport area – which encompasses 561 acres and is designated as “a master-planned recreational and expansion area to meet future recreational needs and to provide areas for industrial activities, including government facilities, whose locations are better suited away from urban areas”. The State Department of Hawaiian Home Lands (DHHL) owns approximately 184 acres of land to the west of PD 10 (across Mokulele Highway) which it plans to lease for future commercial development. The DHHL also owns a 646-acre parcel to the south of the subject parcel – TMK 2-3-08-008: 034 – which is zoned for agricultural homestead lots by the DHHL. Parcel 34 and other State-owned parcels in the PAMP area are the subject of a cooperative master planning effort by various State agencies to address future land use and infrastructure development for the State-owned lands in the vicinity of the Old Pu`unene Airport.

(2) It shall take into consideration the following specific factors:

(A) Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;
**Comment:** The subject property is located about 1.0 mile southeast of the intersection of Kama`aina Road, Mehameha Loop, and Mokulele Highway, a divided, four-lane facility linking South and Central Maui. From this intersection, Kahului lies approximately 3.25 miles to the north, while North Kihei is about 3.75 miles to the south. The subject parcel is ideally situated for heavy industrial activities given its separation and distance from residential and commercial development, its convenient and centralized location for customers and suppliers, and its proximity to transportation facilities at Kahului Harbor and the Kahului Airport.

(B) Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and

**Comment:** The subject parcel is undeveloped and is not currently served by basic public services. Infrastructure systems for the proposed subdivision will include private drainage, water, and wastewater systems. The external roadways providing access to the subdivision and the internal roads within the subdivision shall utilize flexible design standards as provided by Section 18.32.030 of the Maui County Code. In addition to the subdivision’s internal roads, its drainage, water, and wastewater systems will be privately owned and maintained an association of subdivision lot owners. The proposed project will not have an adverse effect on public services such as health care and police and fire protection, nor will impact public facilities such as schools and parks project since it will not place any new or additional demands for parks, schools, and health care services nor will it extend the service area limits for police and fire protection. After completion, refuse collection and disposal for the subdivision will be handled by a private waste disposal service under contract to the Lot Owner’s Association. In light of the foregoing, no impacts to existing public services and infrastructure systems are anticipated.

(C) Sufficient reserve areas for foreseeable urban growth;

**Comment:** The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the Pu`unene Airport Master Plan (PAMP) area, and Project District 10 (PD 10) all fall within the proposed Urban Growth Boundaries (UGB) for the Pu`unene Heavy Industrial Subdivision
draft Maui Island Plan and are designated for urban expansion for by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan. The reclassification of the subject parcel would allow 86 acres of poor, unproductive agricultural land to be used for a higher and better use as provided for by the Plan.

(3) It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil condition, and other adverse environmental effects;

Comment: The subject parcel has an average slope of 1.8 percent. The property is located in Zone “X”, an area of minimal flooding (See: Figure 9, Flood Insurance Rate Map and does not lie in an area which is subject to tsunami evacuation as indicated by the tsunami evacuation maps prepared by the Maui County Civil Defense Agency. Based on a re-evaluation of seismic hazards by the United States Geological Service in 1992, the seismic hazard for Maui County falls within Zone 2B, indicating that in any given year within a 50-year period (average building life span), there is a 10 percent chance that 1/5 the force of gravity (ground acceleration) during an earthquake will be exceeded. In addition, there are no known unstable soil conditions nor are there any other adverse physical or environmental conditions that would render it unsuitable or inappropriate for the proposed action.

(4) Land contiguous with existing urban areas shall be given more consideration than non-contiguous land and particularly when indicated for future urban use on state or county general plans;

Comment: As previously indicated, the subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the PAMP area, and PD 10 all fall within the proposed UGB for the draft Maui Island Plan and are designated for urban expansion for by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan. In addition, the DHHL owns approximately 184 acres of land bordered by Mehameha Loop which is designated for future commercial development. The nearby Hawaiian Cement Quarry and Hawai‘i Army National Guard Armory are both operating under a Land Use Commission Special Use Permit (the Quarry also has a County
The Central Maui Baseyard lies in the *State Urban District* and is located 1.3 miles to the north of the subject parcel. In addition to the foregoing, the subject parcel is ideally situated for heavy industrial activities given its separation and distance from residential and commercial development, its convenient and centralized location for customers and suppliers, and its proximity to transportation facilities at Kahului Harbor and the Kahului Airport.

(5) It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the state and county general plans;

*Comment:* As previously noted, the subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the PAMP area, and PD 10 all fall within the proposed UGB for the *draft Maui Island Plan* and are designated for urban expansion for by the Plan. See Figure 13, *Directed Growth Map* and Figure 14, *Kihei-Makena Community Plan*. The subject property also lies in proximity to the 184 acres of DHHL land bordered by Mehameha Loop which is designated for future commercial development.

(6) It may include lands which do not conform to the standards in paragraphs (1) to (5):

(A) When surrounded by or adjacent to existing urban development; and

(B) Only when those lands represent a minor portion of this district;

*Comment:* Although the subject property and lands in the surrounding vicinity are in the *State Agricultural District*, the subject parcel, the PAMP area, and PD 10 all lie within the proposed UGB for the *draft Maui Island Plan* and are designated for urban expansion by the Plan. See Figure 13, *Directed Growth Map* and Figure 14, *Kihei-Makena Community Plan*. As such, these lands lie within an appropriate area for future urban expansion and development. The granting of the proposed request would provide the land owner with the appropriate land use entitlements for the long-term, heavy industrial use of the subject property.
(7) It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services;

*Comment:* The reclassification of the subject property will not contribute to scattered spot urban development. The subject parcel, the PAMP area, and PD 10 all fall within the proposed UGB for the *draft* Maui Island Plan and are designated for urban expansion for by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan. In addition, the subject parcel lies in the vicinity of existing industrial uses such as the Hawaiian Cement Quarry and the Central Maui Baseyard and in proximity to the 184 acres of DHHL land which is designated for future commercial development. The proposed project will not necessitate unreasonable public investment for infrastructure or public services.

(8) It may include lands with a general slope of twenty percent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, is adopted by any federal, state or county agency, are adequate to protect the public health, welfare and safety, and the public's interest in the aesthetic quality of the landscape.

*Comment:* The subject property has an average slope of 1.8 percent and does not possess any slopes of 20 percent or more.

**D. DECISION-MAKING CRITERIA**

Chapter 205-17, HRS (Land Use Commission Decision-making Criteria) sets forth criteria that the Land Use Commission must specifically consider in its review of a Petition for district boundary reclassification. The decision-making criteria include the following:

(1) The extent to which the proposed reclassification conforms to the applicable goals, objectives, and policies of the Hawai`i State Plan and relates to the applicable priority guidelines of the Hawai`i State Plan and the adopted functional plans;

*Comment:* The proposed action conforms to the applicable goals, objectives, and policies of the Hawai`i State Plan and relates to the applicable priority guidelines of the Hawai`i State Plan and the adopted functional plans (See
Chapter IV.D and Chapter IV.E of this document).

(2) The extent to which the proposed reclassification conforms to the applicable district standards;

Comment: The proposed action conforms to State “Urban” District standards as identified in Chapter 205-2, HRS (Districting and Classification of Lands) and is in keeping with the Maui County General Plan (See Chapter V.A of this document).

(3) The impact of the proposed reclassification on the following areas of State concern:

(A) Preservation and maintenance of important natural systems or habitats;

Comment: There are no important natural systems or critical wildlife habitats within the subject parcel.

(B) Maintenance of valued cultural, historical, or natural resources;

Comment: An Archaeological Inventory Survey (AIS), Archaeological Monitoring Plan (AMP), and Cultural Impact Assessment were prepared for the proposed project to identify any significant archaeological and cultural resources, provide mitigation recommendations if necessary, and establish monitoring protocols for ground-altering construction activities. Archaeological monitoring will be conducted during all ground-altering construction activities in accordance with the approved AMP. If any archaeological features, cultural artifacts, or human burials are located during construction, the SHPD and the Maui/Lana`i Islands Burial Council will be notified and immediately consulted to assess the significance of the find and establish appropriate mitigation measures as necessary. The State Historic Preservation Division (SHPD) approved the AIS and the AMP for the proposed project on June 18, 2012 and August 24, 2012, respectively. See Appendix I-1, SHPD Approval of Inventory Survey and Appendix J-1, SHPD Approval of Monitoring Plan.

(C) Maintenance of other natural resources relevant to Hawai`i’s economy, including agricultural resources;
Comment: The soils underlying the project site have very severe limitations due to their undesirable texture or because they are extremely rocky or stony. In addition to an overall productivity rating of “E” (the lowest rating), the land underlying the site is Unclassified (i.e., residual land) by the map identifying the Agricultural Lands of Importance to the State of Hawai‘i. The unsuitable soil conditions and poor productivity ratings of the subject property preclude any feasible agricultural development on the site. As such, the long-term agricultural/economic impact resulting from the development of the proposed project is expected to be very minimal. It should also be noted that the 86 acres encompassed by the subject parcel represents only 0.0002 percent of State Agricultural District lands on the island of Maui, and just 0.0004 percent of farm land in Maui County. In light of the foregoing, the proposed project will not have an adverse impact on agriculture nor will it have a negative effect on the inventory of agricultural lands that are available for large-scale or diversified agricultural activities.

(D) Commitment of State funds and resources;

Comment: The reclassification of the subject parcel is not expected to result in a significant commitment of State funds and resources. Infrastructure systems for the proposed subdivision will include private drainage, water, and wastewater systems. The external roadways providing access to the subdivision and the internal roads within the subdivision shall utilize flexible design standards as provided by Section 18.32.030 of the Maui County Code. In addition to the subdivision’s internal roads, its drainage, water, and wastewater systems will be privately owned and maintained by an association of subdivision lot owners. The proposed project will not have an adverse effect on public services such as health care and police and fire protection, nor will impact public facilities such as schools and parks project since it will not place any new or additional demands for parks, schools, and health care services nor will it extend the service area limits for police and fire protection. After completion, refuse collection and disposal for the subdivision will be handled by a private waste disposal service under contract to the Lot Owner’s Association.
(E) Provision for employment opportunities and economic development; and

Comment: As indicated in Chapter III.B.2 of this document, the proposed project will provide construction-related employment during the development of the subdivision. Upon completion, lot owners will contribute to the support of the local economy through the payment of taxes and the purchase of goods and services.

(F) Provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups;

Comment: Not Applicable.

(4) The standards and criteria for the reclassification or rezoning of important agricultural lands in Section 205-50; and

Comment: The proposed project does not involve the reclassification or rezoning of important agricultural lands. The land underlying the subject property is Unclassified (or residual) land by the map identifying the Agricultural Lands of Importance to the State of Hawai`i. The soils of the subject parcel have an overall land productivity rating of “E” (the lowest rating) because of very severe limitations due to their undesirable texture or because they are extremely rocky or stony. The unsuitable soil conditions and poor productivity ratings of the subject property preclude any feasible agricultural development on the site. As such, any long-term agricultural impact resulting from the development of the proposed project is expected to be very minimal.

(5) The representations and commitments made by the Petitioner in securing a boundary change.

Comment: The proposed project will be implemented in accordance with the representations and commitments that have been made in obtaining the district boundary amendment.

E. HAWAI`I STATE PLAN

Chapter 226, HRS, also known as the Hawai`i State Plan, is a long-range comprehensive plan which serves as a guide for the future long-range development.
of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms.

The proposed action is in keeping with the following goals of the Hawai`i State Plan.

- A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai`i’s present and future generations.
- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.
- Physical, social, and economic well-being, for individuals and families in Hawai`i, that nourishes a sense of community responsibility, of caring, and of participation in community life.

1. Objectives and Policies of the Hawaii State Plan

The request for reclassification is in conformance with the following objectives and policies of the Hawai`i State Plan:

**Chapter 226-5. HRS. Objectives and Policies for Population**

226-5(a), HRS: It shall be the objective in planning for the State’s population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.

226-5(b)(2), HRS: Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.

226-S(b)(3), HRS: Promote increased opportunities for Hawaii’s people to pursue their socio-economic aspirations throughout the islands.

**Chapter 226-6, HRS, Objectives and Policies for the Economy in General**

226-6(a)(1), HRS: Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii’s people.

226-6(a)(2), HRS: A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.

*Comment:* The proposed project conforms to the Objectives and Policies for Population (HRS 226-5) by increasing economic opportunities and
employment opportunities on the Neighbor Islands. The proposed heavy industrial subdivision will allow for the expansion of existing enterprises and the possible creation of new businesses which would employ Maui residents. This further supports the Objectives and Policies for the Economy-in General (HRS 226-6) by offering potential industrial businesses with the opportunity to expand their activities through newly available industrial-zoned lands.

2. **Priority Guidelines of the Hawa`i State Plan**

The proposed action is in keeping with the following priority guidelines of the Hawa`i State Plan:

*Chapter 226-103. HRS, Economic Priority Guidelines*

226-103(1), HRS: Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.

a. *Encourage investments which:*

   (i) Reflect long term commitments to the State;
   (ii) Rely on economic linkages within the local economy;
   (iii) Diversify the economy;
   (iv) Re-invest in the local economy;
   (v) Are sensitive to community needs and priorities; and
   (vi) Demonstrate a commitment to management opportunities to Hawai`i residents.

*Chapter 226-104. HRS, Population Growth and Land Resources Priority Guidelines*

226-104(a)(1), HRS: Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawaii’s people.

226-104(b)(1), HRS: Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.
226-104(b)(2), HRS: Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.

226-104(b)(12), HRS: Utilize Hawaii’s limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline conservation lands, and other limited resources for future generations.

Comment: The proposed project is in keeping with the priority guidelines of the Hawaii State Plan’s Economic Priority Guidelines (HRS 226-103) because the project will rely on economic linkages within the local economy, through potential lessees and lot purchasers, who in turn, will serve other businesses; will diversify the economy by providing expansion for heavy industrial businesses; and provide a reinvestment in the local economy through the expansion or development of local businesses. Further, the project will meet the Population, Growth and Land Resources Priority Guidelines (HRS, 226-104) by encouraging urban growth in an area which is designated for urban expansion. As previously noted, there are other light and heavy industrial uses currently operating in close proximity to the proposed project. Further, the reclassification of the property from the State "Agricultural" District to the State "Urban" District will make available marginal lands for heavy industrial uses while maintaining neighboring lands for agricultural purposes.

F. STATE FUNCTIONAL PLANS

The State Functional Plans implement the Hawai‘i State Plan by identifying needs, problems and issues, and by recommending policies and priority actions which address the identified areas of concern. The request for reclassification comports with the following State Functional Plans:

1. State Agriculture Functional Plan

The proposed action will reclassify 86.03 acres of land from the State “Agricultural” District to the State “Urban” District. The subject parcel has a Land Study Bureau rating of “E” (the lowest rating) which indicates that it is poorly suited for agriculture. The site is not classified under the State’s agricultural lands rating system (Agricultural Lands of Importance to the State
of Hawai‘i) which indicates that it is not considered “prime”, “unique” or “other” agricultural land. While the subject parcel was formerly utilized for hog farming, it has not been used for agriculture cultivation due to its poor soil. The proximity of the property to existing and planned urban land uses coupled with its location within the proposed Urban Growth Boundary for the draft Maui Island Plan provides a reasonable nexus and an appropriate foundation for the request for reclassification.

2. State Transportation Functional Plan

Comments were sought and received from the State Department of Transportation (DOT) as part of the early consultation process for the preparation of the Draft EA. The DOT noted that a traffic assessment must be prepared and submitted for their review and approval and that project-related traffic may use Maui Raceway Park as a shortcut to Mokulele Highway. A traffic impact assessment report (TIAR) will be included in the Draft EA and a copy will be provided to the DOT. The TIAR will note that the proposed project will have no right of access to Maui Raceway Park roads and that proposed drainage retention basins along the western edge of the subject project site will preclude any traffic connection between the site and Maui Raceway Park. The external roadways providing access to the subdivision and the internal roads within the subdivision shall utilize flexible design standards as provided by Section 18.32.030 of the Maui County Code. The subdivision’s internal roadways will be privately owned and maintained by the Lot Owner’s Association.

3. State Employment Functional Plan

It is estimated that the land use and subdivision approval process for the proposed project will take approximately four to five years (from 2011). As such, subdivision construction could begin in 2016 (or commence as early 2015), while the forecasted construction period is projected to be about 30 months. The subsequent lot build-out period for the subdivision is expected to last approximately 10 years. An annual average of 65 direct and indirect Maui jobs is projected during the subdivision’s construction period, while an annual average of 142 direct and indirect Maui jobs is forecasted for the subdivision’s
lot build-out phase. It is likely that they will require some training for equipment or computer skills. To the extent possible, employment opportunities generated by the proposed project will seek to utilize State training programs for potential employees.

G. HAWAI’I COASTAL ZONE MANAGEMENT PROGRAM

The Federal Coastal Zone Management Act of 1972 was adopted in response to competing development and preservation interests in U.S. coastal areas. Population growth and development in coastal areas were impacting marine resources, open space, view sheds, wildlife, and other important ecological, cultural, and historic resources. In response to this concern, Congress created a framework for managing and regulating the coastal zone and appropriated funds for State-run coastal zone management programs (CZMP). The State’s acceptance of the Federal funds necessitated compliance with federal CZMP standards.

The boundaries of Hawaii’s coastal zone management program are defined by coastal waters and adjacent, coastlands that are strongly influenced by each other. Coastal areas which require special consideration due to their unique values or characteristics are called Special Management Areas (SMA) and must be designated by a management plan. Any development within these areas is subject to a special assessment process. This protocol provides a means to preserve, protect, and when possible, restore the natural resources of the coastal zone by controlling development with shoreline areas in order to avoid the permanent loss of valuable resources. As required by State law, maps showing the limits of the SMA have been prepared by each County. In the Kihei-Makena Community Plan region, Pi’ilani Highway serves as the SMA boundary for this part of the island.

The project area does not lie within the limits of the SMA for the island of Maui. See Figure 16, Special Management Area. At its closest point, the subject parcel is approximately 2.25 miles from the ocean.

The following section discusses the relationship of the proposed project to the objectives and policies of the Hawaii Coastal Zone Management Program pursuant to Chapter 205A, HRS.
1. **Recreational Resources**

Objective: Provide coastal recreational resources accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreation planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring placement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or require reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing;

(viii) Encourage reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such
dedication against the requirements of Section 46-6, HRS.

*Analysis:* The subject property does not abut the shoreline and is approximately 2.25 miles from the ocean at its closest point. The proposed project will not impact coastal recreational resources nor will it affect public shoreline access and activities.

2. **Historical/Cultural Resources**

   **Objective:** Protect, preserve and, where desirable, restore those natural and man-made historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

   **Policies:**
   
   (a) Identify and analyze significant archeological resources;
   
   (b) Maximize information retention through preservation of remains and artifacts or salvage operations; and
   
   (c) Support state goals for protection, restoration, interpretation, and display of historic structures.

   **Analysis:** An Archaeological Inventory Survey (AIS) was prepared for the proposed project. The AIS did not yield any significant findings and no further archaeological work was warranted. An Archaeological Monitoring Plan (AMP) was also prepared for the proposed project. In conjunction with any ground-altering work, a qualified archaeologist will be present to monitor all subsurface, construction activities. The archaeologist will have the authority to halt excavation in the event archaeological features or cultural deposits are identified during monitoring. Should this occur, the SHPD will be immediately consulted to determine an acceptable course of action. If human remains are located, work will cease in the vicinity of the find and the find protected from further disturbance. The SHPD and the Maui/Lana`i Islands Burial Council will be promptly notified and procedures for the treatment of the remains will be implemented in accordance with Chapter 6E-43, HRS. The State Historic Preservation Division (SHPD) approved the AIS and the AMP for the proposed project on June 18, 2012 and August 24, 2012, respectively. See Appendix I-1, SHPD Approval of Inventory Survey and Appendix J-1, SHPD Approval of Monitoring Plan.
3. **Scenic and Open Space Resources**

Objective: Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(a) Identify valued scenic resources in the coastal zone management area;

(b) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

(c) Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources; and

(d) Encourage those developments that are not coastal dependent to locate in inland areas.

*Analysis:* While the visual character of the project area will be modified by the proposed project, it will not have an adverse effect upon scenic resources or view corridors due to its distance from Mokulele Highway and other public roadways in the area. In addition, because of its distance from Mokulele Highway and residential areas in Kahului, Kihei, and Upcountry, the proposed project will not have an adverse visual impact. The maximum building height under *M-3, Restricted Industrial* zoning is 90 feet. Landscaping around the perimeter of the proposed subdivision will help integrate the project with its surroundings. All lot owners and all buildings and accessory structures that are built within the subdivision will be required to comply with the Covenants, Conditions, and Restrictions and the Design Guidelines for the subdivision, a coordinated set of documents that will enforce the design, development, and land use standards for the Pu`unene Heavy Industrial Subdivision.

4. **Coastal Ecosystems**

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(a) Improve the technical basis for natural resource management;

(b) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(c) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(d) Promote water quantity and quality planning and management practices, which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate State water quality standards.

**Analysis:** As described in Section III of this report, the proposed project is not expected to have an adverse effect upon the region’s coastal ecosystem. With the use of Best Management Practices and appropriate mitigation measures during construction, no adverse impacts to near shore waters from non-point sources of pollution are expected.

### 5. Economic Uses

**Objective:** Provide public or private facilities and improvements important to the State’s economy in suitable locations.

**Policies:**

(a) Concentrate coastal dependent development in appropriate areas;

(b) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area;

(c) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

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

**Analysis:** The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the Pu`unene Airport Master Plan area, and Project District 10 all fall within the proposed Urban Growth Boundaries for the *draft* Maui Island Plan.
and are designated for urban expansion for by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan.

6. Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies:

(a) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;

(b) Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and non-point pollution hazards;

(c) Ensure that developments comply with requirements of the Federal Flood Insurance Program;

(d) Prevent coastal flooding from inland projects; and

(e) Develop a coastal point and non-point source pollution control program.

*Analysis:* The property is located in Zone “X”, an area of minimal flooding (See: Figure 9, Flood Insurance Rate Map) and does not lie in an area which is subject to tsunami evacuation as indicated by the tsunami evacuation maps prepared by the Maui County Civil Defense Agency. In light of the foregoing, the proposed project is not expected to be impacted by flood or tsunami hazards.

7. Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources hazards.

Policies:

(a) Use, implement, and enforce existing laws effectively to the maximum extent possible in managing present and future coastal zone development;

(b) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
(c) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning process and review process.

**Analysis:** The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the Pu`unene Airport Master Plan area, and Project District 10 all fall within the proposed Urban Growth Boundaries for the *draft Maui Island Plan* and are designated for urban expansion for by the Plan. See Figure 13, *Directed Growth Map* and Figure 14, *Kihei-Makena Community Plan*. In conjunction with providing opportunities for development review, communication, and public participation, letters requesting comments on the proposed project were sent to various government agencies and owners/lessees of parcels in the vicinity of the subject property as part of the early consultation process for the preparation of the Draft Environmental Assessment (EA). Similarly copies of the Draft EA were provided to various agencies, organizations, and owners/lessees for their review during the public comment period for the Draft EA. The Maui Planning Commission is serving as the approving agency for the environmental review process.

8. **Public Participation**

Objective: Stimulate public awareness, education, and participation in coastal management.

Policies:

(a) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program.

(b) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and

(c) Organize workshops, policy dialogues, and site-specific medications to respond to coastal issues and conflicts.

**Analysis:** As part of the early consultation process for the preparation of the Draft EA, letters describing the proposed project and requesting comments on the project were sent to various government agencies and owners/lessees of
property located within proximity to the subject parcel. A typical early consultation letter, as well as written comments and responses to substantive comments are included in Appendix R, Early Consultation Letters. Similarly copies of the Draft EA were provided to various agencies, organizations, and owners/lessees for their review during the public comment period for the Draft EA. Letters received during the Draft EA public comment period and letters responding to those comments are included in Appendix S, Draft EA Comment Period.

9. Beach Protection
Objective: Protect beaches for public use and recreation.
Policies:
   (a) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;
   (b) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
   (c) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Analysis: At its closest point, the subject property lies approximately 2.25 miles from the ocean. As such, no adverse impacts to public beach use and recreation are expected to occur.

10. Marine Resources
Objective: Implement the State’s ocean resources management plan.
Policies:
   (a) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
   (b) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
(c) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;

(d) Assert and articulate the interest of the state as a partner with federal agencies in the sound management of the ocean resources within the United States exclusive economic zone;

(e) Promote research, study, and understanding of ocean processes, marine life, and other ocean development activities relate to and impact upon the ocean and coastal resources; and

(f) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Analysis: The proposed project does not involve the direct use or development of marine resources. By incorporating site-specific erosion and sedimentation control measures during and after construction, adverse impacts to near shore waters from runoff and pollution are not expected. From this perspective, the proposed project is not expected to have a significant impact on coastal or marine resources.

H. A NEW DAY IN HAWAI‘I PLAN

During his gubernatorial campaign in 2010, Governor Neil Abercrombie developed A New Day in Hawai‘i Plan the objective of which is “to move away from the economic and social policies of the status quo that consistently postpone solving problems, leaving them for future generations.”

The Plan covers the 13 themes listed below and is not intended to cover every aspect of governance.

1. Economy and Jobs
2. Education
3. Education - Early Childhood
4. Education - University of Hawai‘i System
5. Energy
6. Environment and Natural Resources
7. Food and Agriculture
8. Health
9. Health - Older Adults and Aging
10. Housing, Families, and Human Services
11. Small Business and Entrepreneurship
12. Technology and Innovation
13. Additional Issues (civil and human rights, culture and arts, Native Hawaiians, public safety, taxes and government, and transportation).

*Comment:* The proposed project will support small business and entrepreneurship during construction and after build-out of the subdivision by creating new jobs and planting the seeds for new jobs in the future.

I. STATE PRIORITY GUIDELINES FOR SUSTAINABILITY

On July 5, 2011, the Legislature of the State of Hawai`i adopted Act 181. This Act established sustainability as a State priority by incorporating the following Hawai`i 2050 sustainability plan definitions, guiding principles, and goals into Chapter 226, Hawai`i Revised Statutes (Hawai`i State Planning Act).

1. Encouraging balanced economic, social, community, and environmental priorities.

2. Encouraging planning that respects and promotes living within the natural resources and limits of the State.

3. Promoting a diversified and dynamic economy.

4. Encouraging respect for the host culture.

5. Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

6. Considering the principles of the *ahupua`a* system.

7. Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai`i.

*Comment:* Lot owners will be encouraged to implement and utilize sustainability measures and practices during lot development and onsite operations.
V. CONFORMANCE WITH COUNTY PLANS AND PROGRAMS

A. MAUI COUNTY GENERAL PLAN

The 1990 update of the General Plan for the County of Maui provided long-term goals, objectives, and policies directed toward improving living conditions in the County. As stated in the Maui County Charter:

“The purpose of the General Plan is to recognize and state major problems and opportunities concerning the needs and the development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns and characteristics of future development.”

The proposed action is consistent with the following General Plan objectives and policies.

B. Land Use

Objective

2. To use the land within the County for the social and economic benefit of all the County’s residents.

Policy

1b. Provide and maintain a range of land use districts sufficient to meet the social, physical, environmental, and economic needs of the community.
1d. Formulate a directed growth strategy, which will encourage the redevelopment and infill of existing communities allowing for mixed land uses, where appropriate.

As part of the decennial update of the General Plan, the Countywide Policy Plan for the 2030 General Plan was adopted by the County of Maui on March 19, 2010. The Countywide Policy Plan is the keystone for the General Plan update and establishes an over-arching statement of values while providing policy support for the Maui Island Plan and the regional community plans.

Key components of the Countywide Policy Plan include:

1. A vision statement and core values for the County to the year 2030.
2. An explanation of the plan-making process.

3. A description and background information of Maui County today.

4. Identification of guiding principles.

5. A list of Countywide goals, objectives, policies, and implementing actions relating to various core themes.

In addition, the following core principles are contained in the Countywide Policy Plan:

1. Excellence in the stewardship of the natural environment and cultural resources.

2. Compassion for and understanding of others.

3. Respect for diversity.

4. Engagement and empowerment of Maui County residents.

5. Honor for all cultural traditions and histories.

6. Consideration of the contributions of past generations as well as the needs of future generations.

7. Commitment to self-sufficiency.

8. Wisdom and balance in decision making.

9. Thoughtful, island-appropriate innovation.

10. Nurturance of the health and well-being of our families and our communities.

The Maui County Council is in the process of reviewing the draft Maui Island Plan. Once approved, the Maui Island Plan will be used by the County Council, Maui Planning Commission, County staff, and the community as policy support for day-to-day decision making. As it relates to the draft Maui Island Plan, the subject parcel lies within the proposed Urban Growth Boundaries for by the Plan. See Figure 13, Directed Growth Map.

The Countywide Policy Plan sets forth broad goals, objectives, policies, and actions that reflect the desired direction of future growth in the County. In terms of context, those that relate to the proposed action are listed below:
Goal: **A. Protect the Natural Environment**

Objective: 3. Improve the stewardship of the natural environment.

Policy: 3c. Evaluate development to assess potential short-term and long-term impacts on land, air, aquatic, and marine environments.

*Analysis:* Potential short and long-term impacts to the natural environment have been evaluated in Chapter III of this document.

Goal: **F. Strengthen the Local Economy**

Objective: 1. Promote an economic climate that will encourage diversification of the County’s economic base and a sustainable rate of growth.

Policies: 1a. Support economic decisions that create long-term benefits.

1d. Support and promote locally-produced products and locally-owned operations and businesses that benefit local communities and meet local demand.

*Analysis:* As indicated in Chapter III.B.2 of this document, the proposed project will have a positive effect on the State and local economy and is not expected to have an adverse impact on economic conditions in the State of Hawai‘i and the County of Maui.

Objective: 3. Significantly increase the use of renewable and green technologies to promote energy efficiency and energy self-sufficiency.

Policy: 3i. Promote the retrofitting of existing buildings and new development to incorporate energy-saving design concepts and devices.

*Analysis:* All lot owners will be encouraged to utilize water and energy conservation measures when developing their parcels in the future.

Objective: 4. Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity.

Policies: 4a. Capitalize on existing infrastructure capacity as a priority over infrastructure expansion.

4d. Promote land use patterns that can be provided with infrastructure and public facilities in a cost-effective manner.
**Analysis:** The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the Pu`unene Airport Master Plan (PAMP) area, and Project District 10 (PD 10) all fall within the proposed Urban Growth Boundaries (UGB) for the *draft* Maui Island Plan and are designated for urban expansion by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan.

**Goal:** J. Promote Sustainable Land Use and Growth Management

**Objective:** 1. Improve land use management and implement a directed-growth strategy.

**Policies:** 1b. Direct urban and rural growth to designated areas.

**Analysis:** The subject property is situated in an appropriate area for urban expansion and development. The subject parcel and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the PAMP area, and PD 10 all fall within the proposed UGB for the *draft* Maui Island Plan and are designated for urban expansion by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan.

**Objective:** 3. Design all developments to be in harmony with the environment and to protect each community’s sense of place.

**Analysis:** All lot owners and all buildings and accessory structures that are built within the subdivision will be required to comply with the Covenants, Conditions, and Restrictions and the Design Guidelines for the subdivision, a coordinated set of documents that will enforce the design, development, and land use standards for the Pu`unene Heavy Industrial Subdivision.

**Objective:** 4. Improve and increase efficiency in land use planning and management.

**Policy:** 4b. Ensure that new development projects requiring discretionary permits demonstrate a community need, show consistency with the General Plan, and provide an analysis of impacts.


Analysis: The subject parcel is located in an appropriate area for urban expansion and development. The community need and justification for the proposed project and an assessment of potential impacts are included in Chapter III of this document.

In light of the foregoing, the proposed project is deemed to be consistent with the Countywide Policy Plan for the 2030 General Plan.

B. KIHEI-MAKENA COMMUNITY PLAN

Maui County has adopted nine community plans. Each community plan examines the conditions and needs of the planning region and outlines objectives, policies, planning standards and implementing actions to guide future growth and development in accordance with the Maui County General Plan. Each community plan serves as a relatively detailed agenda for implementing the broad General Plan themes, objectives and policies.

The locations and land use categories shown on the community plan map serve to guide growth and future development in the South Maui region. The Kihei-Makena Community Plan (KMCP), which was first adopted by Ordinance No. 1490 in 1985, was updated in 1997 as part of the County’s decennial review of the various community plans. The updated KMCP was adopted by Ordinance No. 2641 and went into effect on March 6, 1998. The subject parcel is designated Agriculture by the community plan’s land use map. See Figure 14, Kihei-Makena Community Plan.

Project District 10 (Old Pu`unene Airport area) lies to the west of the subject parcel and is the only land use in the area that has been included in the KMCP. Although the subject parcel and PD 10 were included in the KMCP region, it can be argued that this area should have been included in the Wailuku-Kahului Community Plan region given its geographic location and proximity to Kahului, and its association with historic land use and development in Central Maui.

The granting of the Community Plan Amendment (from Agriculture to Heavy Industrial) will provide an appropriate area for purely heavy industrial uses in Central Maui. The proposed action is in consonance with the following community plan objectives, policies, and standards:
LAND USE

Goal

A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructural and community needs while preserving and enhancing the unique character of Maalaea, Kihei, Wailea, and Makena, as well as the region’s natural environment, marine resources, and traditional shoreline areas.

Objectives and Policies

k. Provide for moderate expansion of services in the Central Maui Baseyard. These areas should not be used for retail businesses or commercial activities. These actions will place industrial use near existing and proposed transportation arteries for the efficient movement of goods.

r. Allow special permits in the State Agricultural Districts to accommodate unusual yet reasonable uses.

ECONOMIC ACTIVITY

Goal

A diversified and stable economic base, which serves resident and visitor needs while providing long-term resident employment.

Objectives and Policies

a. Establish a sustainable rate of economic development consistent with concurrent provision of needed transportation, utilities, and public facilities improvements.

PHYSICAL AND SOCIAL INFRASTRUCTURE

Goal

Provision of facility systems, public services, and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kihei-Makena community, and fully support present and planned land uses, especially in the case of project district implementation.

Liquid and Solid Waste

Objectives and Policies

b. Provide efficient, safe, and environmentally sound systems for the reuse, recycling, and disposal of liquid and solid wastes.
Energy and Public Utilities

Objectives and Policies

g. Encourage the provision of public utilities, which will meet community needs in a timely manner.

GOVERNMENT

Goal

Efficient, effective, and responsive government services in the Kihei-Makena region.

Objectives and Policies

b. Continue to streamline the permit process, where appropriate, through means such as consolidated public hearings and concurrent processing of applications.

c. Continue to expedite the review and approval process for projects, which will result in public benefit by “fast tracking” and the assignment of permit expediters.

C. MAUI COUNTY ZONING

The subject property is zoned for Agricultural District uses by the County of Maui. See Appendix A, Zoning and Flood Confirmation and Figure 15, Maui County Zoning. Zoning standards for this district are promulgated by Chapter 19.30A of the Maui County Code (MCC). Principal permitted uses within the County’s Agricultural Zoning District include: (1) agriculture, (2) agricultural land conservation, (3) agricultural parks, (4) animal and livestock raising, (5) private agricultural parks, and (6) minor utility facilities. Permitted accessory uses include two farm dwellings per lot and one farm labor dwelling (per five acres of lot area).

On September 21, 2012, the Maui County Council approved a bill for M-3, Restricted Industrial District zoning. The bill was signed by the Mayor on September 24, 2012 and was designated Ordinance No. 3977. It should be noted that CMBY’s application for the Change in Zoning (CIZ) was initially prepared on the basis of seeking a zoning change from Agricultural to M-2, Heavy Industrial. However, with the recent adoption of M-3, Restricted Industrial zoning, the CIZ application has been amended to request a change to M-3 zoning.
Generally, M-3, Restricted Industrial zoning encompasses those uses that involve the manufacture, processing, storage, or treatment of goods from raw materials. The intent of M-3 zoning is to provide for manufacturing and nuisance industries and exclude retail and office uses. Some of the uses permitted under M-3 zoning include: canneries; factories; manufacturing facilities; major utility facilities; landfills, lumber yards; machine shops; rock quarries; and material recycling/processing facilities. The minimum lot size under M-3 zoning is 10,000 square feet, while the minimum lot width is 75 feet and the maximum building height is 90 feet. Side and rear setbacks are zero feet or the same as the adjoining zoning category whichever is greater. See Appendix C, M-3 Restricted Industrial Zoning Regulations.

In order to develop the proposed subdivision, land use consistency must be established among the current State land use, community plan, and zoning designations for the subject property. Section 18.04.030 of the Maui County Code regarding subdivisions states in pertinent part that “the director shall not approve any subdivision that does not conform to or is consistent with the county general plan, community plans, land use ordinances, the provisions of the Maui County Code, and other laws relating to the use of land . . . “. As final subdivision approval would be subject to this provision, the land owner is seeking the change in zoning to establish State land use, community plan, and zoning consistency for the subject property.

In accordance with this request, the land owner submits that the proposed action meets the following criteria for a zoning change as set forth in Section 19.510.040 of the Maui County Code.

1. The proposed request meets the intent of the general plan and objectives and policies of the community plans of the County.

   Analysis: As discussed in Chapter V.A and Chapter V.B of this document, the proposed request meets the intent of the Maui County General Plan and the objectives and policies of the Kihei-Makena Community Plan which guides growth and development in the region through the year 2010.

2. The proposed request is consistent with the applicable community plan land use map of the County.
**Analysis:** The subject property and the lands in the vicinity of the project site are either planned or designated for future urban development. The subject parcel, the Pu`unene Airport Master Plan area, and Project District 10 all fall within the proposed Urban Growth Boundaries for the *draft* Maui Island Plan and are designated for urban expansion for by the Plan. See Figure 13, Directed Growth Map and Figure 14, Kihei-Makena Community Plan. As such, the subject property is located in an appropriate area for future urban expansion and development and is consistent with the *draft* Maui Island Plan which will guide future growth on the island of Maui through 2030 and also serve as guidance for the community plan update process which will commence in the near term.

3. **The proposed request meets the intent and purpose of the district being requested.**

**Analysis:** The change in zoning request meets the purpose and intent of the existing and proposed heavy industrial zoning regulations. The granting of the proposed request would provide the land owner with the appropriate land use entitlements for the long-term use of the subject property for heavy industrial purposes.

4. **The application, if granted, would not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirements, conveniences and improvements.**

**Analysis:** As discussed in Chapter III.C and Chapter III.D of this document, the proposed subdivision will not have a significant impact on public or private services, facilities, and infrastructure systems nor is it expected to adversely affect or interfere with public requirements, conveniences, and improvements.

5. **The application, if granted would not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area.**

**Analysis:** As discussed in Chapter III of this document, the proposed action will not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the surrounding area.
6. If the application for change in zoning involves the establishment of an agricultural district with a minimum lot size of two acres, an agricultural feasibility study shall be required and reviewed by the Department of Agriculture and the U.S. Soil Conservation Service.

Analysis: Not applicable.

The reclassification of the subject parcel will not adversely affect neighboring land uses, as the existing character of the agricultural-zoned properties in the surrounding area will be maintained. From a long-term perspective, the reclassification of the subject property will provide land use consistency for the subject property and establish an appropriate area for heavy industrial activities. It will also increase the limited inventory of lands that are currently available for purely heavy industrial use, and create new business and employment opportunities for island residents.
VI. SUMMARY OF ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Potential construction-related impacts include noise-generated impacts occurring from site preparation and construction activities. In addition, there may be temporary air quality impacts associated with dust generated from construction activities, and exhaust emissions discharged by construction equipment. These effects are temporary, and appropriate Best Management Practices will be implemented to ensure that these construction-related impacts are mitigated.
VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The proposed action will involve the commitment of fuel, labor, and material resources, as well as private funds. The proposed action will also involve the commitment of land which is typical of development projects and is consistent with existing development in the project area. In terms of resource commitments, the use of the subject property for heavy industrial purposes will not have a negative effect upon the inventory of lands that are available for development purposes.
VIII. CHAPTER 343, HRS
SIGNIFICANCE CRITERIA

As summarized below, the proposed action was evaluated pursuant to Section 11-200-12, HAR (Environmental Impact Statement Rules) which sets forth criteria for determining whether a proposed action may have a significant effect upon the environment.

1. **No irrevocable commitment to loss or destruction of any natural or cultural resources would occur as a result of the proposed action**

   *Comment:* As documented in this report, the proposed action will not result in the loss or destruction of any natural or cultural resources.

   In terms of natural resources, no known, rare, threatened, or endangered species of flora and fauna have been observed on the subject property.

   An Archaeological Inventory Survey (AIS) and an Archaeological Monitoring Plan (AMP) were prepared for the proposed project. From an archaeological standpoint, the ground surface of the subject parcel has been disturbed by previous military, hog farm, and scrap yard use, as well as by more recent land clearing activities. These ground disturbances make it very unlikely that any intact cultural deposits may remain in the subject area. The AIS provides further evidence to support this conclusion as no cultural remains were encountered on the surface or through sub-surface testing. The AMP establishes a protocol for archaeological monitoring during ground-altering construction activities. Should any cultural artifacts or human remains be located during construction, work will be halted in the immediate vicinity and the find shall be protected from further disturbance. The SHPD and/or the Maui/Lana`i Island Burial Council will be promptly notified to establish an appropriate mitigation strategy. The State Historic Preservation Division (SHPD) approved the AIS and the AMP for the proposed project on June 18, 2012 and August 24, 2012, respectively. See Appendix I-1, SHPD Approval of Inventory Survey and Appendix J-1, SHPD Approval of Monitoring Plan.
2. **The proposed action would not curtail the range of beneficial uses of the environment**

   **Comment:** The range of beneficial uses of the environment will not be curtailed by this action. As documented in this report, the subject parcel is located in an appropriate area for heavy industrial development and will increase the limited inventory of heavy industrial lands that are available for such use.

3. **The proposed action does not conflict with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.**

   **Comment:** The proposed action is not contrary to the State’s long-term environmental policies or goals. As documented in this report, appropriate mitigation measures will be implemented to minimize potentially adverse impacts to the environment.

4. **The economic or social welfare of the community or State would not be substantially affected by the proposed action**

   **Comment:** Beneficial economic effects will accrue to the community from the proposed action. Lot owners will contribute to the economic well being of the community through the purchase of goods and services and the payment of sales and real property taxes. As documented in this report, the proposed action is not expected to result in any significant adverse impacts to the existing socio-economic environment.

5. **The proposed action does not substantially affect public health**

   **Comment:** The proposed action is not expected to have an adverse effect upon the public’s health and welfare. The development of the proposed project will comply with applicable regulatory requirements, permits, and approvals. Best Management Practices will be implemented during construction to mitigate any air, noise, and water quality impacts.

6. **No substantial secondary impacts such as population changes or effects on public facilities are anticipated**
Comment: Based on an assessment of the proposed action and existing socio-economic conditions, the proposed project is not expected to result in any significant secondary impacts to population, housing, and employment. Beneficial secondary effects associated with the proposed action include increasing the limited inventory of heavy industrial lands and creating new business and employment opportunities for the community. Infrastructure systems to be provided for the proposed subdivision include private internal roadways, and private drainage, water, and individual wastewater systems. As such, no impacts to existing public infrastructure systems are anticipated. The proposed project will not have an adverse effect on public services such as health care and police and fire protection, nor will impact public facilities such as schools and parks. Impacts upon solid waste disposal and nearby motor sports recreational activities at Maui Raceway Park are considered minimal.

7. **No substantial degradation of environmental quality is anticipated**

Comment: Short-term, construction-related noise and air quality impacts will be addressed through the use of Best Management Practices. From a long term perspective, the proposed project is not expected to have an adverse impact on air quality and ambient noise levels nor is it anticipated to have a significant effect on open space and scenic resources, flora, fauna, streams, and wetlands. The storm water retention basins for the proposed subdivision will be designed in accordance with County drainage standards to ensure that runoff will not have an adverse impact upon adjacent and downstream properties. The proposed action is not expected to result in a substantial degradation of environmental quality.

8. **The proposed action does not involve a commitment to larger actions nor would it cumulatively have a considerable effect upon the environment**

Comment: The proposed action is not expected to result in long-term adverse impacts which are not capable of being mitigated. The proposed subdivision improvements will be completed in a single construction phase. In addition, the proposed action is not part of a larger action nor is it expected to result in cumulative impacts which result in considerable effects on the environment.
9. **No rare, threatened or endangered species or their habitats would be adversely affected by the proposed action**

   **Comment:** There are no known rare, threatened or endangered species of flora, fauna, or their habitats on the subject property. The proposed project is not expected to result in any short- or long-term adverse impacts to important wildlife habitats or plant and animal life.

10. **Air quality, water quality or ambient noise levels would not be detrimentally affected by the proposed action**

   **Comment:** Construction activities are expected to result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, will be implemented during construction to minimize wind-blown emissions. Noise impacts will primarily result from construction-related activities. To minimize these impacts, construction will be limited to daylight working hours. Water quality is not expected to be affected.

In the long term, the proposed project is not expected to have an adverse effect on air quality in the area. In addition, the project is not anticipated to have a significant impact on ambient noise levels. As applicable, future lot owners will be responsible for obtaining the necessary Department of Health permits for activities associated with certain types of industrial uses (e.g., air quality permits, noise permits).

11. **The proposed action would not affect environmentally sensitive areas such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters**

   **Comment:** The subject property lies within Zone “X”, an area of minimal flooding. The project site is not located within any environmentally sensitive areas nor will it have any adverse effects on any such areas. The project site is not subject to flooding or tsunami inundation and the soils underlying the project site are not subject to severe erosion. There are no geologically hazardous lands, estuaries, or coastal waters within or adjacent to the project site.

12. **The proposed action would not substantially affect scenic views and view planes identified in County or State plans or studies**
Comment: The subject parcel does not contain any scenic features nor is it located in a scenic view plane. The proposed project will not affect public view corridors nor will it impact scenic coastal views.

13. The proposed action would not require substantial energy consumption

Comment: The proposed project will involve the short-term commitment of fuel for equipment, vehicles, and machinery during construction activities. However, this use is not anticipated to result in a substantial consumption of energy resources. In the long term, the project may create an additional demand for electricity. However, this demand is not deemed substantial or excessive within the context of the region’s overall energy consumption.
IX. FINDINGS AND CONCLUSIONS

The proposed action involves a request to amend the current “Agricultural” land use classifications for the subject parcel to allow the property to be used for long-term heavy industrial purposes.

As discussed in Chapter III of this document, the proposed action will not adversely affect the existing physical and socio-economic environment as the proposed project will comply with all applicable Federal, State, and County rules and regulations. The proposed action will not burden government agencies with the responsibility of providing or improving additional public services and infrastructure as public services are adequate and infrastructure will be developed by the land owner.

In light of the foregoing, a Finding of No Significant Impact (FONSI) is warranted as the proposed action is not expected to result in any significant environmental impacts.
X. REFERENCES

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Figure 8  Soil Classifications
Figure 9  Flood Insurance Rate Map
Figure 10 Soil Productivity Ratings
Figure 11 Important Agricultural Lands
Figure 12 State Land Use Districts
Figure 13  Directed Growth Map
Figure 14  Kihei-Makena Community Plan
Figure 15  Maui County Zoning
Figure 16  Special Management Area
The figure illustrates the view from the edge of a lake. The edge of the lake is reflected in the water, creating a mirror-like effect. The landscape around the lake is dry and barren, typical of a desert environment. The photograph captures the boundary between the lake and the surrounding land, emphasizing the stark contrast between water and land.
FIGURE 7
Pu‘unene Airport Master Plan - Concept Land Uses
Pu‘unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019
FIGURE 8

Soil Classifications
Pu’unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019
FIGURE 13
Directed Growth Map
Pu‘unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019
APPENDICES

Appendix A  Zoning and Flood Confirmation
Appendix B  Topographic Survey Map
Appendix C  M-3, Restricted Industrial Zoning Regulations
Appendix D  Quitclaim Assignment of Partial Interest in Easement 7
Appendix D-1 Request for Use of State Lands
Appendix E  Flora Survey
Appendix F  Faunal Survey
Appendix F-1 Arthropod Study
Appendix F-2  *Nene* (Hawaiian Goose) Survey
Appendix G  Noise Study
Appendix H  Air Quality Study
Appendix I  Archaeological Inventory Survey
Appendix I-1 SHPD Approval of Inventory Survey
Appendix J  Archaeological Monitoring Plan
Appendix J-1 SHPD Approval of Monitoring Plan
Appendix K  Cultural Impact Assessment
Appendix L  Phase I Environmental Site Assessment and Supplemental Data
Appendix M  Market Study
Appendix N  Agricultural Impact Assessment
Appendix O  Groundwater Resource and Water System Assessment
Appendix O-1  CWRM Letter of Assurance for Well Nos. 4927-02 and 4927-03
Appendix P  Preliminary Engineering Report
Appendix Q  Traffic Impact Analysis Report
Appendix R  Early Consultation Letters
Appendix S  Draft EA Comment Period
APPENDIX A
Zoning & Flood Confirmation
ZONING AND FLOOD CONFIRMATION FORM

APPLICANT INFORMATION: (To be completed by Applicant)
APPLICANT NAME: Glenn Tadaki (Chris Hart & Partners)
PROJECT NAME: 'Unene Heavy Industrial Subdivision
ADDRESS/Lot: Off Kama'aina Road

☐ Yes ☒ No Will this Zoning and Flood Confirmation Form be used with a Subdivision Application, including four (4) or more dwelling units on a parcel, but NOT including subdivisions listed and processed under the exceptions in Section 18.04.030(B), Maui County Code? IF YES, LIST THE PROPOSED LAND USES BELOW:

☐ No

NOTE: 1) Use a separate Zoning and Flood Confirmation Form for each Tax Map Key (TMK) number.
2) If the above "Yes" box is checked AND if the zoning Information for the subject property contains multiple State Land Use Districts, Community Plan Designations, or County Zoning, a signed and dated Land Use Designations (LUD) Map, prepared by a licensed surveyor showing all the various districts, designations, zones, and any subdistrict, shall be submitted for review and approval.
3) If the above "Yes" box is checked AND if there are multiple State Land Use District designations, the applicant shall procure a District Boundary Interpretation from the State Land Use Commission.

FOR COUNTY USE ONLY (To be completed by ZAED)

STATE LAND USE DISTRICT(S): Agriculture
COMMUNITY PLAN DESIGNATION(S): Agriculture
COUNTY ZONING(S): Agriculture
OTHER DESIGNATION(S): N/A

☐ Yes ☒ No See Additional Comments On Page Two
 ☐ Yes ☒ No See The Attached Land Use Designation Map

FLOOD INFORMATION:
FLOOD HAZARD AREA ZONE(S): X
BASE FLOOD ELEVATION(S): N/A

*FLOODWAY □ Yes ☒ No *FLOOD DEVELOPMENT PERMIT REQUIRED □ Yes ☒ No
*For flood hazard areas zones X or X0, a flood development permit would be required if any work is done in any drainage facility or stream area that would reduce the capacity of the drainage facility, river, or stream, or adversely affect downstream property.
*For subdivisions in ALL FLOOD HAZARD AREA ZONES (including zones X or X0) that involve streams, gulches, low areas, or any type of drainage way, a designation of the 100 year flood inundation limits or a drainage reserve may be required.

☐ N/A (Not Applicable) ☐**The proposed land uses appear to be consistent a unilateral agreement.

Comment: except as permitted in Section 18.04.030(D), Maui County Code
property containing any Interim Zoning shall NOT be subdivided.

☐**The proposed land uses appear to NOT be consistent.

Comment:

☐**All proposed subdivisions will be further reviewed during the subdivision application process to verify subdivision consistency, unilateral agreement requirements, and the conditions associated with a unilateral agreement.

REVIEWED & CONFIRMED BY:

[Signature] [Date]

For: AARON SHINMOTO, Planning Program Administrator, Zoning Administration and Enforcement Division
APPENDIX B
Topographic Survey Map
INDEX

PREPARED BY: AKAMAI LAND SURVEYING
LOCATION: Pulehuinal, Waikuku, Maui, Hawaii
TRM Parcel Size: 86.030 Acres
AND LOWER KIHEI ROAD (POR)
KAMAMIA RD. SOUTH FIREBREAK RD. (POR)
TITLE: TOPOGRAPHIC SURVEY OF TRM: (9) 3-8-008-019.
APPENDIX C
M-3, Restricted
Industrial Zoning
Regulations
ORDINANCE NO. ___2077___

BILL NO. __76__ (2012)

A BILL FOR AN ORDINANCE AMENDING TITLE 19, MAUI COUNTY CODE, RELATING TO M-3 RESTRICTED INDUSTRIAL DISTRICT

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Title 19, Maui County Code, is amended by adding a new chapter to be appropriately designated and to read as follows:

"Chapter 19.25

M-3 RESTRICTED INDUSTRIAL DISTRICT

Sections:

19.25.010 Purpose and Intent.
19.25.020 Permitted uses.
19.25.030 Accessory uses and structures.
19.25.040 Special uses.
19.25.050 Development standards.
19.25.060 Rulemaking authority.

19.25.010 Purpose and Intent. Those uses which include the manufacture, processing, storage or treatment of goods from raw materials are permitted in the M-3 restricted industrial district. The district is intended to include manufacturing and nuisance industries. General retail and office uses are specifically excluded from this district.

19.25.020 Permitted uses. Within the M-3 restricted industrial district, no building, structure, or premises shall be used, and no building or structure hereafter erected, structurally altered, replaced, or enlarged except for one or more of the following uses:

<table>
<thead>
<tr>
<th>Uses</th>
<th>Notes and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylene gas manufacture or bulk storage</td>
<td></td>
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<tr>
<td>Acid manufacture</td>
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<tr>
<td>Alcohol manufacture</td>
<td></td>
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<tr>
<td>Ammonia, bleaching powder or chlorine manufacture</td>
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<tr>
<td>Asphalt manufacture of refraining and asphalitic concrete plant</td>
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<tr>
<td>Automobile wrecking</td>
<td></td>
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<tr>
<td>Blast furnaces or coke oven</td>
<td></td>
</tr>
<tr>
<td>Boiler and steel works</td>
<td></td>
</tr>
<tr>
<td>Brick, tile or terra cotta manufacture</td>
<td></td>
</tr>
<tr>
<td>Canners</td>
<td></td>
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<tr>
<td>Cement, lime, gypsum, or plaster of parts manufacture</td>
<td></td>
</tr>
<tr>
<td>Chemical manufacture</td>
<td></td>
</tr>
<tr>
<td>Concrete or cement products manufacture</td>
<td></td>
</tr>
<tr>
<td>Crematories, mortuaries</td>
<td></td>
</tr>
<tr>
<td>Energy systems, power plants, substations, and utility facilities, major</td>
<td></td>
</tr>
<tr>
<td>Explosives manufacture or storage</td>
<td></td>
</tr>
<tr>
<td>Factories</td>
<td></td>
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<tr>
<td>Fertilizer manufacture</td>
<td></td>
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<tr>
<td>Fish canneries</td>
<td></td>
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<td>Foundries</td>
<td></td>
</tr>
<tr>
<td>Freight classification yard (railroad)</td>
<td></td>
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<tr>
<td>Garbage, offal or dead animals reduction or dumping</td>
<td></td>
</tr>
<tr>
<td>Gas manufacture</td>
<td></td>
</tr>
<tr>
<td>Glue manufacture</td>
<td></td>
</tr>
<tr>
<td>Heavy equipment storage, servicing, and sales</td>
<td></td>
</tr>
<tr>
<td>Junk establishment used for storing, depositing, keeping junk or similar goods for business purposes</td>
<td></td>
</tr>
<tr>
<td>Landfill, solid waste processing and disposal</td>
<td></td>
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<tr>
<td>Lime kins</td>
<td></td>
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<tr>
<td>Lumber yard and wood treatment facilities</td>
<td></td>
</tr>
<tr>
<td>Machine shops</td>
<td></td>
</tr>
<tr>
<td>Oilcloth or linoleum manufacture</td>
<td></td>
</tr>
<tr>
<td>Oil storage plants</td>
<td></td>
</tr>
<tr>
<td>Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture</td>
<td></td>
</tr>
</tbody>
</table>
SECTION 2. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM
AND LEGALITY.

MICHAEL J. HOPPER
Deputy Corporation Counsel
County of Maui

WE HEREBY CERTIFY that the foregoing BILL NO. 74 (2012)

1. Passed FINAL READING at the meeting of the Council of the County of Maui, State of Hawaii, held on the 21st day of September, 2012, by the following vote:

<table>
<thead>
<tr>
<th>Name</th>
<th>Vote</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENNIS A. MATEO, CHAIR</td>
<td>Aye</td>
</tr>
<tr>
<td>JEFFREY T. KWADADA, COUNTY CLERK</td>
<td>Aye</td>
</tr>
<tr>
<td>County of Maui</td>
<td></td>
</tr>
</tbody>
</table>

2. Was transmitted to the Mayor of the County of Maui, State of Hawaii, on the 21st day of September, 2012.

DATED AT WAILUKU, MAUI, HAWAII, this 21st day of September, 2012.

DENNIS A. MATEO, CHAIR
Council of the County of Maui

THE FOREGOING BILL IS HEREBY APPROVED THIS 24 DAY OF September 2012.

ALAN M. ARAKAWA, MAYOR
County of Maui

I HEREBY CERTIFY that upon approval of the foregoing BILL by the Mayor of the County of Maui, the said BILL was designated as ORDINANCE NO. 3977 of the County of Maui, State of Hawaii.

JEFFREY T. KWADADA, COUNTY CLERK
County of Maui

Passed First Reading on September 7, 2012.
Effective date of Ordinance September 24, 2012

I HEREBY CERTIFY that the foregoing is a true and correct copy of Ordinance No. 3977, the record of which is on file in the Office of the County Clerk, County of Maui, State of Hawaii.

Dated at Wailuku, Hawaii, on

County Clerk, County of Maui
APPENDIX D
Quitclaim
Assignment of
Partial Interest in
Easement 7
IN WITNESS WHEREOF, the Assignor has executed this instrument this 7th day of March, 2011.

ALEXANDER & BALDWIN, INC.,
A Hawaii corporation

By:
Name: Nelson H.S. Chan
Title: Senior Vice President

CMBY 2011 INVESTMENT, LLC,
A Washington limited liability company

By JBGNE Investments, Inc.,
A Washington corporation
Its Manager

By:
Name: ___________________________
Title: ___________________________

 Assignor

CMBY 2011 INVESTMENT, LLC,
A Washington limited liability company

By JBGNE Investments, Inc.,
A Washington corporation
Its Manager

By:
Name: ___________________________
Title: ___________________________

 Assignee

OUTCLAIM ASSIGNMENT OF PARTIAL INTEREST IN EASEMENT
(Easement 7)

KNOW ALL MEN BY THESE PRESENTS:

That ALEXANDER & BALDWIN, INC., a Hawaii corporation, of Honolulu, Hawaii, hereinafter called the "Assignor", in consideration of the sum of Ten Dollars ($10.00) and other valuable considerations to it paid, the receipt of which is hereby acknowledged, does, to the extent permitted hereby assigns, transfers and quitclaims unto CMBY 2011 INVESTMENT, LLC, a Washington limited liability company, whose address is 1300 N. Holopono Street, Suite 201, Kihei, Hawaii 96753, as the owner of property identified as Tax Map Key No. (2)2-1-008-015 (the "Property"), hereinafter called the "Assignee", and its successors and assigns, WITHOUT RECOUERSE AND WITHOUT REPRESENTATIONS OR WARRANTIES OF ANY KIND, a nonexclusive right, a partial interest, together with Assignor and any other persons or entities designated by Assignor from time to time, in the use of:

Easement 7, as described in Section 1(f) of that certain Order and Judgment on Declaration of Taking attached hereto and made a part hereof as Exhibit "A";

TO HAVE AND TO HOLD the same unto the Assignee and its successors-in-interest to the Property.
IN WITNESS WHEREOF, the Assignor has executed this instrument this 11th day of March 2011.

ALEXANDER & BALDWIN, INC., a Hawaii corporation

By: ____________________________
Name: Nelson N.S. Chun
Title: Senior Vice President

By: ____________________________
Name: Charles W. Loomis
Title: Assistant Secretary

"Assignor"

CMBY 2011 INVESTMENT, LLC, a Washington limited liability company

By: JSCNE Investments, Inc., a Washington corporation
Title: President

By: ____________________________
Name: Kent Zarotvary
Title: Vice President

"Assignee"

STATE OF HAWAII
CITY AND COUNTY OF HONOLULU

On this 11th day of March, 2011, before me personally appeared NELSON N.S. CHUN, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.

Pamela Simon
Notary Public, State of Hawaii
Printed Name: Pamela Simon
My commission expires: 9-13-2011

(Official Stamp or Seal)

NOTARY CERTIFICATION STATEMENT
Document Identification or Description: Quoclaim Partial Assignment of Lease Rights (Lease #)
Doc. Date: ________ or Unstated at time of notarization.
No. of Pages: ________ Jurisdiction: First Circuit
(Lease #) (in which notarial act is performed)

Signature of Notary
Date of Notarization and Certification Statement
Pamela Simon
Printed Name of Notary
(Official Stamp or Seal)
STATE OF HAWAII

CITY AND COUNTY OF HONOLULU

On this 11th day of March, 2011, before me personally appeared CHARLES W. LOOMIS, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the true act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.

Pamela Simon
Notary Public, State of Hawaii
Printed Name: Pamela Simon
My commission expires: 9-13-2011

STATE OF HAWAII

COUNTY OF MAUI

On this 11th day of March, 2011, before me personally appeared JOHN ZAPOTOCKY, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the true act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.

Mary Jo K. Cobral
Notary Public, State of Hawaii
Printed Name: Mary Jo K. Cobral
Expiration Date: December 9, 2013
My commission expires:

NOTARY CERTIFICATION STATEMENT

Document Identification or Description: Quitclaim Partial Assignment of Easement Rights (Easement 7)
Doc. Date: ____________ or ☐ Undated at time of notarization.
No. of Pages: 9
Jurisdiction: First Circuit
(in which notarial act is performed)

Pamela Simon
Signature of Notary
March 11, 2011
Date of Notarization and Certification Statement
(Official Stamp or Seal)

Pamela Simon
Printed Name of Notary

NOTARY CERTIFICATION STATEMENT

Document Identification or Description: Quitclaim Partial Assignment of Easement Rights (Easement 7)
Doc. Date: ____________ or ☐ Undated at time of notarization.
No. of Pages: 8
Jurisdiction: Second Circuit
(in which notarial act is performed)

Mary Jo K. Cobral
Signature of Notary
March 11, 2011
Date of Notarization and Certification Statement
(Official Stamp or Seal)

Mary Jo K. Cobral
Printed Name of Notary
The area of said land are those described by the dimensions of

For the purposes of filing or the execution of the declaration of taking and for the convenient of such description under the authority of such description under the authority of and in accordance with the authority of and in accordance with the authority of the

As hereinabove and heretofore is it more of the filing of

In cases where such a copy or these copies are properly served by the United States Marshal upon each of the individuals named and upon each and every person, company or corporation in possession of said land at the time possession was commenced to the petitioners, the United States Marshal is authorized to serve a copy thereof in a convenient place in the premises and to demonstrate with due notice to the said service to this Court.

Said Harley Leavens, Esq., U.S., this 18th day of May, 1869.

EXHIBIT "A"
Page 3 of 3
Request for Use of State Lands (Original)
February 9, 2011

Mr. Daniel Orellas
Land Agent
Dept. of Land and Natural Resources
Land Division
Maui District Branch
54 South High Street, Room 101
Wailuku, HI 96793

RE: TMK (3) 3-8-88-019 (Lot 2), Paikoau, Wailuku, Maui

Please find the following item(s) enclosed:

<table>
<thead>
<tr>
<th>COPIES</th>
<th>DATE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 (orig)</td>
<td>3/11</td>
<td>Letter request from CMBY 2011 Investment, LLC</td>
</tr>
<tr>
<td>2 (orig)</td>
<td>2/11</td>
<td>Request for State Lands Application Form</td>
</tr>
<tr>
<td>2</td>
<td>1/21/11</td>
<td>Access Easement Plat Map</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Preliminary concept plan and tax map location</td>
</tr>
</tbody>
</table>

Comments:
If any further information is required, please contact me at 270-5940 or blanca@pacificrimland.com.

Thank you,

Blanca L. Lavoie
Project Coordinator
STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES

REQUEST FOR STATE Lands
APPLICATION FORM

For DLNR use only:
Date of request: ______________
Date request rec'd: ______________
Date request no. issued ______________
Request number ______________
Land Code: ______________
Unit Code: ______________
Status: ______________
Type of Request: ______________
Assigned Land Agent: ______________

I. APPLICANT

Should a land disposition result from your application, the following information will be used in the preparation of the legal documents. Therefore, please include all applicable, full legal names and addresses, one for each person/entity (attach additional sheets as necessary). If title is held by a trust, please include the trustee(s) name(s) and full description of the trust (e.g., George D. Smith, Trustee of the George D. Smith Revocable Living Trust dated June 1, 2001).

Applicant name(s): CMBY 2011 Investment, LLC
Last name First Name

Mailing address: P.O. Box 598
No. and Street
Wenatchee WA 98807
City State Zip Code

Phone numbers: (509) 682-5263 ( ) ( )
Work Home Cellular

Signature: ___________________________
J. Stephen Gandhiah, Its President

Applicant intends to hold title as:
( ) Individual ( ) Corporation
( ) Husband and Wife ( ) Limited Liability Corporation
( ) Trust ( ) Limited Partnership
( ) Joint Venture ( ) Limited Liability Partnership
( ) Other (specify): ______________

For individual or husband and wife, type of tenancy:
( ) Tenant in Severalty ( ) Tenants in Common ( ) Joint Tenants ( ) Tenants by the
Entirety

II. AGENT

If you have an attorney, consultant or other person processing this request for you, please include the following information.

Agent name: Lafollette Blanch (Pacific Rim Land, Inc.)
Last name First Name

Agent address: P.O. Box 220
Kihai HI 96753
No. and Street
City State Zip Code

Phone numbers: (868) 872-5263 (868) 270-5040 (direct) (808) 357-0085
Work Home Cellular

Pager Fax E-mail address
( ) (808) 879-2557 hlance@pacificrimland.com

III. TYPE OF REQUEST

*(X) Right-of-entry (right to temporarily enter onto State lands for a specific purpose)

*An annual immediate right of way access is being requested for legal access while Grant of
Easement is being obtained.

(x) Grant of easement (access, utility, seawall, etc.)

( ) Month-to-month revocable permit
( ) Direct lease (deemorarory organizations, public utilities, government, renewable energy
produces, etc.)

( ) Purchase of remnant
( ) Land patent in confirmation of a Land Commission Award
( ) Land license

Is this request being made to resolve an encroachment or other violation? ( ) Yes (X) No
If yes, explain: N/A

IV. LOCATION AND AREA

If your request pertains to a specific parcel, please specify below.

Island: ( ) Oahu ( ) Maui ( ) Molokai
( ) Kauai (X) Hawaii ( ) Lanai

LD-01 (rev. 12/02/08) Page 3 of 4
LD-01 (rev. 12/02/08) Page 4 of 11
Town: Pululahau (Panama)  
Tax Map Key: (23-8-08:019)

Area: 410.650 sq. ft. (7,333 ft x 56 ft) acres (sq. ft) (circle one)

County Zoning: Agricultural

State Land Use: (x) Agricultural  ( ) Rural
( ) Conservation  ( ) Urban

Is property located in a Special Management Area?  
( ) Yes (x) No

V. USE
Identify the specific uses intended.
( ) Agriculture  ( ) Basement - Access
( ) Business/Commercial  (x) Basement - Utility
( ) Industrial  ( ) Basement - Sewerage
( ) Poultry  ( ) Other (specify):

A. Fully describe your proposed use of the public lands:

An approximate 7,333 foot long paved right of way to access (23-8-08:019-Lot 2) the "Property" will be designed and constructed per State and County requirements. The 56-foot requested access is from Molokai Hwy. and Kamana Road to the entrance of the Property. (See Exhibit #1).

B. Attach a location map showing a preliminary sketch or plot plan of your proposed project in relation to the tax maps. (See Exhibit #2)

C. Describe any improvements you intend to place on the land and their approximate value:

Upon completion of County of Maui subdivision approval, the Applicant ("CMBY") will construct a State and County approved right of way. Value will be determined based on construction plans.

D. If constructing improvements, attach a Plan of Development showing improvements to be constructed and their location on the public lands including a timeframe for construction.

Upon completion of entitlements for the Property, a Plan of Development for the Construction of the right of way will be designed per State and County requirements.

E. Is it your opinion that an environmental assessment is required?  (x) Yes ( ) No

If no, identify exemption: __________________________

F. If yes, describe completion of EA: Use of State lands, and the Community Plan Amendment from Agriculture to Heavy Industrial will generate the EA.

CMBY has begun the process to apply for a District Boundary Amendment from State Agricultural to State Urban; Community Plan Amendment from Agricultural to Heavy Industrial; and a Change in Zoning from Agricultural to M2 or M3 Heavy Industrial.

VI. OTHER
A. If you are applying for a revocable permit for any type of use, you are required to provide the following information:

1) Describe your qualifications and experience in running this type of operation; and

2) Describe your long-term intentions for this operation. (Note: Revocable permits are temporary and may be revoked at any time.)

B. If you are applying for a revocable permit for pasture or agricultural use, you are required to complete Attachment A. N/A

VII. CERTIFICATION

If we hereby certify that the statements and information contained in this application, including all attachments, are true and accurate to the best of our knowledge and understand that if any statements are shown to be false or misrepresented, this application may be rejected or my/our lease/permit/agreement may be cancelled.

Blanca Leilette  
Printed Name

X __________________________  
Signature

Printed Name

X __________________________  
Signature

Date 12/02/08

LD-01 (rev. 12/02/08)  
Page 5 of 11
Request for Use of State Lands (Amended)
February 8, 2012

Mr. Daniel Ornelas
District Land Agent, State of Hawaii
Department of Land and Natural Resources
Land Division
54 High Street, Room 101
Wailuku, HI 96793

Subject: Ref. No. 11MD-101
Auditor: D-DO/10y
CMBY 2011 Investment, LLC; TMK (2) 3-8-08:019
Land of Puulehuui

Dear Mr. Ornelas:

Thank you for meeting with Clay Sutherland and me on January 31, 2012.

For your background and reference, I wanted to confirm that CMBY 2011 Investment, LLC ("CMBY") currently does not have access to TMK (2) 3-8-08:19 (the "Property"), which property was purchased from Alexander & Baldwin, Inc. ("A&B"). Access from Molokai Highway is provided by way of Easement 7, as shown on the attached map. However, Easement 7 terminates near the reservoir shown on the map, and access from the terminus of Easement 7 to the Property is sought at this time.

Per our discussion at that meeting, CMBY's current Request for State Lands Application Form (submitted via hand delivery on February 9, 2012), will be resubmitted by your department as an amended application.

The amended application will include: (1) Easement Map indicating Easement A as Option 1, and Easement B as Option 2; (2) Easement A and B plat map, and meters and bounds description for both options; and (3) photographs of Option 1 and Option 2 access roads. As stated above, our current access is along Easement 7 per the Quitclaim Assignment of Partial Interest in Easement, which terminates prior to reaching the Property; therefore, we would request an easement to allow access beyond the terminus of Easement 7 to the Property. There are two possible routes for such access, as described below as Option 1 and Option 2. We would prefer the right to use Easement A, described as Option 1 below. The two access options are further described as follows:

Option 1: Easement A
At the point of terminus for Easement 7, we are requesting a 56-foot wide access easement for a roadway. The access roadway would be a 24-foot paved road section suitable for use by all adjacent users, and would continue onto lands owned by A&B, land which A&B will grant access rights to CMBY to

PACIFIC RIM LAND, INC.

VIA HAND DELIVERY

Mr. Daniel Ornelas
Page 2
February 8, 2012

the property. CMBY has reviewed the topographic map of the area indicating several utilities within the 56 feet, therefore finding the 56-foot width necessary for access to the subject property. If the 56-foot wide access easement request isn't acceptable to the department, we would request your consideration of a right of way adequate to accommodate a 24-foot paved road section and shoulders for drainage and utility uses. By providing CMBY Easement A, the State will benefit by using the access at no cost to the State.

Option 2: Easement B
Easement 7 intersects with an existing State easement, currently being used for access to the Hawaiian Cement use area and other uses in the area. We are requesting Easement B to allow for access to A&B lands above the reservoir area. From that current access we would continue over lands owned by A&B land, which A&B will grant access rights to CMBY to the subject property.

We would appreciate your review of our request and attachments. If you have any comments to our request, please contact me at 808-586-306 or on my direct line at 270-586-05, or by email at blane@pacificrimland.com. We look forward to hearing from you.

Sincerely,

Blaine Tabolette
Project Coordinator for
CMBY 2011 Investment, LLC

End:
- Easement Map
- Plot map
- Meters and bounds description
- Photographs of access roadway

P.O. Box 220 • Kihei, HI • 96753 • 808.874.5563 • Fax 808.879.1537
EASEMENT A
THE LAND OF PULEHUNUI
SITUATED AT PULEHUNUI, WAILUKU, MAUI, HAWAII
BEING A PORTION OF LAND PATENT 8140,
LAND COMMISSION AWARD 5230 TO KEMEAHNI

Beginning at the Southeast corner of this Easement, being 353' 11" 39' 251.47 feet from the Southeast corner of Lot 2-B-1 of the Land of Pulehunui, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU HELE" being 3,289.64 feet North and 16,951.00 feet East and running by azimuths measured clockwise from True South:

1. 156° 03' 127.23 feet along the remainder of Lot 2-B-1;
2. 195° 55' 467.52 feet along the remainder of Lot 2-B-1;
3. 351° 43' 30" 136.66 feet along existing Easement 7;
4. 15° 55' 379.51 feet along Parcel 5 of Tax Map Key (2) 3-8-08;
5. 353° 11' 30" 66.14 feet along Parcel 5 of Tax Map Key (2) 3-8-08 to the point of beginning and containing an area of 0.573 Acre.

R. T. TANAKA ENGINEERS, INC.

Kirk T. Tanaka
Registered Professional Surveyor
Certificate No. 7223-LS
License Expires: April 30, 2012

871 Kolu Street, Suite 201
Wailuku, Hawaii 96793
February 2, 2012

EASEMENT B
THE LAND OF PULEHUNUI
SITUATED AT PULEHUNUI, WAILUKU, MAUI, HAWAII
BEING A PORTION OF LAND PATENT 8140,
LAND COMMISSION AWARD 5230 TO KEMEAHNI

Beginning at the Northwest corner of this Easement, on the Southwest corner of Parcel 6 of Tax Map Key (2) 3-8-08, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU HELE" being 3,943.84 feet North and 17,085.46 feet East and running by azimuths measured clockwise from True South:

1. 263° 45' 602.80 feet along Parcel 6 of Tax Map Key (2) 3-8-08;
2. 274° 40' 25.79 feet along Parcel 6 of Tax Map Key (2) 3-8-08;
3. 4° 40' 50.00 feet along the remainder of Lot 2-B-1;
4. 94° 40' 21.00 feet along Parcel 5 of Tax Map Key (2) 3-8-08;
5. 83° 45' 608.16 feet along Parcel 5 of Tax Map Key (2) 3-8-08;
6. 105° 12' 03" 51.01 feet along the remainder of Lot 2-B-1 to the point of beginning and containing an area of 0.722 Acre.

R. T. TANAKA ENGINEERS, INC.

Kirk T. Tanaka
Registered Professional Surveyor
Certificate No. 7223-LS
License Expires: April 30, 2012

871 Kolu Street, Suite 201
Wailuku, Hawaii 96793
February 2, 2012
BOTANICAL RESOURCE ASSESSMENT FOR THE
PROPOSED PUT'UNENE HEAVY INDUSTRIAL SUBDIVISION
PUT'UNENE, MAUI, HAWAII

Prepared by:
Maya LeGrande
LeGrande Biological Surveys Inc.
68-310 Kikou Street
Waishin HI 96791

Prepared for:
CMBY 2011 Investment, LLC
1300 N. Holopono St., Suite 201
P.O. Box 220
Kihei, HI 96753

August 2011

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INTRODUCTION

This report includes the findings of a plant inventory conducted in Pulehuani on the island of Maui, including portions of a parcel owned by CMBY 2011 Investment, LLC (TMK 2) 5-8-08-19) and various easements required for access to the proposed subdivision. LeGrand Biological Surveys, Inc., carried out a botanical field survey of the above locations on the 16th and 17th of August 2011. The primary objectives of the field studies were to:

1. inventory the flora and;
2. provide a general description of the vegetation on the project site;
3. search for threatened and endangered species as well as species of concern; and
4. provide recommendations regarding potential impacts to the biological resources of the area in regards to the proposed development of the survey area.


GENERAL SITE DESCRIPTION

The 86-acre subject parcel is located in Pu’u’u’eni town proper. The subject property lies to the east of the Old Pu’u’eni Airport (Maui Airport). Currently the area to the west is being used for recreational motor sports, the area to the east and south are in crop cultivation, and to the north bordered by Lower Kikei Road. Additional to the subject parcel, two roadway easements were surveyed for this project, a 56-foot wide easement owned by the state along the existing Kama’ina Road, and an alternative 56-wide easement which travels around the existing Reservoir No. 6 in the north to the subject property.

METHODS

Topographic maps were examined to determine terrain characteristics, access, boundaries, and reference points. Prior to undertaking the field studies, a search was made of the pertinent literature to familiarize the principal investigator with other botanical studies conducted in the general area. A walk-through survey method was used. The field survey included the 86-acre subject parcel as well as the two proposed roadway easements, both 56 feet wide. The easement transects were surveyed between 100 to 150 feet wide as the exact location of the easement could not be ascertained in the field and the construction of the roadway will not doubt include an area wider than the easement itself.

Notes were made on plant associations and distribution, disturbances, topography, substrate types, exposure, drainage, etc. Plant identifications were made in the field; plants that could not be positively identified were photo documented and described for later determination in the BISH herbarium, and for comparison with the recent taxonomic literature.

VEGETATION

The subject parcel is characterized by Dry Kiale/Buffalograss vegetation. The main subject property is at approximately 120 feet in elevation. The easements range from 110 to 140 feet elevations along the roadway from Makulele Highway to above the reservoir. The Mean Annual Rainfall is 12 to 20 inches per year. The NRCS Soil Survey delineates the entire 86-acre parcel and both easements as Waisoka extremely stony silty clay loam, 3 to 25 percent slope, eroded (NRCS, 2011).

There were a total of 50 plant species observed within the survey sites, 44 are alien (introduced) and 6 are indigenous (native to the Hawaiian Islands and elsewhere). Therefore, 88% of the plant species observed are alien and 12% are native. An inventory of all the plants observed within the survey area is presented in the species list (Table 1) at the end of the report.

Main Parcel

The dominant vegetation of the subject parcel is a kiiawe (Prosopis pallida)/buffalograss (Cenchrus ciliaris) grassland with a koa hoaka (Lewisia longiscapula) scrub transition between the southern boundary of the property. The northern section appears to have relatively recent grading with large boulder piles near the gate entrance. Several other weedy native species were observed scattered throughout the property including; lima bean (Phaseolus vulgaris), cowbird (Oxalis stricta), and golden crowfoot (Ranunculus acris). Few native species were observed within the survey area. They include three indigenous species, lima (Sida fallax), pepolo (Solanus americanum), and whaileho (Waltheria indica).

The northeast corner of the subject property appears to be in cattle operation historically. Several water troughs and barbed wire fencing are still evident in the area and other concrete structures may be associated with ranching.

State Easement

The "lower 56' easement" follows Kama’ina Road (State owned), South Firebreak Road (State & privately owned), and Lower Kikei Road (privately owned) with current sugar cane cultivation to the west and a reservoir bank to the east. Dominate roadside weeds are buffal grass and koa hoaka shrubs. Others species scattered along roadsides and the reservoir embankment include paducah pea (Chamaecrista nitiensis subs. patellaris var. gloriosa), swallen finger grass (Cyperus difformis), sugarbean (Ricinus communis), wild tobacco (Nicotiana obtusifolia), and purple loosestrife (Lythrum salicaria) with a berm of Anacampseros, and goose-grass (Panicum maximum), and banana (Musa sp.).

Reservoir Easement

The "Upper 56' easement" borders the existing reservoir to the north and east. Monkeypod (Samanas saman) and Siris (Albizia lebeckii) are the dominant tree species around the east boundary of the easement mixed with a Ko‘a hoaka scrub. At the north end of the reservoir a position of the easement crosses over a drainage canal. Large Java plum (Syzygium cumini) trees dominate the area around the canal. During our survey we observed ‘aukuʻu (Black-crowed night heron) nesting in the Java plum trees. Several other plant species were noted in the area including two indigenous species: milo (Thespesia populnea) and hala (Pandanus secoaria), as well as Guinea grass (Panicum maximum), and banana (Musa sp.).

As the easement heads north from the subject parcel it crosses a road leading to the Hawaii Canoe Plant and then heads west into current sugar cane fields. A drainage ditch near the area where the easement turns west (past the reservoir) contains some plant species that are usually found near standing or running water. They included one native species ‘ae‘e (Dactyloctenium aegyptiacum), and several non-native species such as Water morning glory (Ipomoea aquaticae), kalo...
DISCUSSION & RECOMMENDATIONS

The vegetation on the project site is dominated by introduced species such as buffel grass, koa haloe, kiawe, etc. Of a total of 50 plant species inventoried on the property, 44 (88%) are introduced and 6 (12%) are native. Of the natives, all 6 are indigenous, that is they are native to the Hawaiian Islands and elsewhere. These are the ‘ilima, ‘ala‘ala, popolo, hali, mili, and ‘ae‘ae.

None of the plants observed during the survey is a threatened or endangered species or a species of concern (U.S. Fish and Wildlife Service, 2008). The survey area has been impacted over time by agricultural and vehicular use and its biological resources have been altered from its native state. No wetlands were encountered during this survey. None of the three essential criteria for defining a federally recognized wetland were present within the study site. Those being: hydrophytic vegetation, hydric soils, and wetland hydrology.

The proposed Pu‘u‘enoe Heavy Industrial Subdivision and access easements are not expected to have significant negative impacts on the botanical resources of the site or the general region.

The client received comments from the USFWS regarding Blackburn Sphinx Moth host plants possibly occurring on the site. The recommendation to carry out the plant survey during or after the rainy season was noted. Host plants such as the introduced tree tobacco were observed very infrequently during the survey. Only a few small plants were seen over the entire subject property. Surrounding areas in Kīhei and along the highway in Pu‘u‘enoe had an abundance of tree tobacco during the same dates as the survey was carried out. The area encompassed by our survey does not appear to be an optimum area for BSM host plants. As such, it is our opinion that a follow up survey in the spring is not warranted under the circumstances.

The reservoir easement borders the existing reservoir for much of its length. If this alignment is chosen for the easement, there should be a buffer between the reservoir and easement roadway during construction to protect the emergent native vegetation and native waterfowl present at the reservoir.

LITERATURE CITED


TABLE 1: PLANT SPECIES LIST

The following checklist is an inventory of all the plant species observed within the survey area of the proposed Pu'tuene Heavy Industrial Subdivision [TMK (2) 3-8-08-19] and various statements required for access to the proposed subdivision during a site visit (August 16-17, 2011). The plant names are arranged alphabetically by family and then by species into two groups: Monocots and Dicots. The taxonomy and nomenclature of the flowering plants (Monocots and Dicots) are in accordance with Wagner et al. (1990), Wagner and Herbst (1999) and Staples and Herbst (2005). Recent name changes are those recorded in the Hawaii Biological Survey series (Evettsis and Eldredge, eds., 1959-2003) and the BISH native-naturalized checklist March 2010.

For each species, the following name is provided:
1. Scientific name with author citation.
2. Common English and/or Hawaiian name(s), when known.
3. Where the plant was observed; marked as in either the coastal or marsh sections of the project area or both.
4. Biogeographic status. The following symbols are used:
   A = Alien species introduced to the Hawaiian Islands by humans, intentionally or accidentally.
   I = Indigenous species native to the Hawaiian Islands and also found elsewhere in the world.
   E = Exotic species found only in the Hawaiian Islands.

<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paspalum scirpoides (L.) Scclts.</td>
<td>nacap grasa</td>
<td>A</td>
</tr>
<tr>
<td>Saccharum officinarum L.</td>
<td>Ma, sugar cane</td>
<td>A</td>
</tr>
<tr>
<td><strong>DICOTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amaranthaceae</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amaranthus spinosus L.</td>
<td>hakai kuku, spiny amaranth</td>
<td>A</td>
</tr>
<tr>
<td>Amaranthus viridis L.</td>
<td>Monsao, pakapuna, slender amaranth</td>
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</tr>
<tr>
<td><strong>ASTERACEAE</strong></td>
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</tr>
<tr>
<td>Euphorbia prostrata (L.) L.</td>
<td>fabe daisy</td>
<td>A</td>
</tr>
<tr>
<td>Echitesia californica</td>
<td>California poppy</td>
<td>A</td>
</tr>
<tr>
<td>Phlox drumoni (L.) Less</td>
<td>yu yu bush, marsh pink</td>
<td>A</td>
</tr>
<tr>
<td>Tridax procumbens L.</td>
<td>yu yu daisy</td>
<td>A</td>
</tr>
<tr>
<td>Pterostegia enneaphiala (Car.) Houl. &amp; Hool.</td>
<td>golden crown beard</td>
<td>A</td>
</tr>
<tr>
<td><strong>CHENOPODIACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chenopodium murale L.</td>
<td>Lamb's quarters</td>
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</tr>
<tr>
<td><strong>CONVOLVULACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipomoea aquatica Forstf.</td>
<td>Water morning glory</td>
<td>A</td>
</tr>
<tr>
<td>Ipomoea obscura (L.) Kor-Gawi</td>
<td>Obscure morning glory</td>
<td>A</td>
</tr>
<tr>
<td>Morfonia nigropilis (L.) Urb</td>
<td>Rau yu yu</td>
<td>A</td>
</tr>
<tr>
<td><strong>CUCURBITACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monardella charantia L.</td>
<td>bitter melon</td>
<td>A</td>
</tr>
<tr>
<td><strong>EUPHORBIEACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chamaesyce hirta (L.) Millsp.</td>
<td>hary spurge, garden spurge</td>
<td>A</td>
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<tr>
<td>Chamaesyce hypericifolia (L.) Millsp.</td>
<td>graceful spurge</td>
<td>A</td>
</tr>
<tr>
<td>Euphorbia heterophylla L.</td>
<td>Kaliko</td>
<td>A</td>
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</table>

2011. LeGrand Biological Surveys, Inc
<table>
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<th>SCIENTIFIC NAME</th>
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<th>STATUS</th>
</tr>
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<td><strong>EUPHORBIACEAE</strong></td>
<td>Ricinus communis L.</td>
<td>castor bean</td>
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<tr>
<td><strong>FABACEAE</strong></td>
<td>Albizia lebeck (L.) Benth.</td>
<td>Sira tree</td>
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<td></td>
<td>Chamaecrista nicotiana H.B.K.</td>
<td>Partridge pea</td>
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<tr>
<td></td>
<td>Crotalariaacinus L.</td>
<td>Cherry entlepod</td>
</tr>
<tr>
<td></td>
<td>Crotalaria pallida Aiton</td>
<td>cow pea</td>
</tr>
<tr>
<td></td>
<td>Desmanthuspermambucanus (L.) Thell.</td>
<td>Systematic name</td>
</tr>
<tr>
<td></td>
<td>Leucaena leucocephala (Lam.) de Wit</td>
<td>Koa holu</td>
</tr>
<tr>
<td></td>
<td>Prosopispollul (Humb. &amp; Bonpl. ex Willd.) Kunth</td>
<td>Klawn, mesquite</td>
</tr>
<tr>
<td></td>
<td>Samaneasamane (Jacq.) Merr.</td>
<td>Monkey pod</td>
</tr>
<tr>
<td><strong>LAMIACEAE</strong></td>
<td>Leonotis nepetifolia (L.) R. Br.</td>
<td>Leon’s ear</td>
</tr>
<tr>
<td><strong>MALVACEAE</strong></td>
<td>Abutilongrandiflorum (Willd.) Sweet</td>
<td>Hairy abutilon</td>
</tr>
<tr>
<td></td>
<td>Malva parviflora L.</td>
<td>Goose weed</td>
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<tr>
<td></td>
<td>Malvastrum carolinianum (subsp. carolinianum) (L.) Serbke</td>
<td>False mallow</td>
</tr>
<tr>
<td></td>
<td>Ricinodendronalastrum</td>
<td>Lima</td>
</tr>
<tr>
<td></td>
<td>Bixa orellana L.</td>
<td>Bixa</td>
</tr>
<tr>
<td><strong>MYRTACEAE</strong></td>
<td>Syzygium cumini (L.) Skeels</td>
<td>Java plum</td>
</tr>
<tr>
<td><strong>NYCTAGINACEAE</strong></td>
<td>Bauhinia coccoidea L.</td>
<td>Bauhinia</td>
</tr>
</tbody>
</table>
Appendix Site Photographs

Figure 1. Vegetation of the 85-acre subject property is dominated by kiawe trees and buffelgrassland.

Figure 3. Vegetation along the Reservoir easement.

Figure 2. Lands adjacent to the southern section of the subject property are currently cultivated in sugar cane.

Figure 4. Roadside vegetation along portion of State Roadway Easement.
AVIFAUNAL AND FERAL MAMMAL SURVEY FOR THE
PROPOSED PU‘UNENE HEAVY INDUSTRIAL SUBDIVISION
PU‘UNENE, MAUI, TMK (2) 3-8-808: 019

INTRODUCTION

The purpose of this report is to provide the findings of a two day (6, 7 July 2011) field survey of property proposed for the Pu‘unene Heavy Industrial Subdivision Project at Pu‘unene, Maui TMK (2) 3-8-808: 019. In addition to the data obtained from the field survey, relevant published and unpublished sources are also noted in the report. These resources add a broader perspective of the wildlife in this region of the island. The goals of the survey were:

1. Document the species of birds and mammals observed on or near the property.
2. Devote special attention to documenting the presence and/or possible use of this area by native and migratory species particularly those that are listed as threatened or endangered.

SITE DESCRIPTION

This proposed project is located on a 86 acre parcel. Access to the proposed subdivision will be provided by Kama‘aina Road and South Firebreak Road via a 56 foot wide access and utility easement. An alternative subdivision access road around the north and east side of an Hawaiian Commercial & Sugar irrigation reservoir was also examined. The property currently contains mostly alien (introduced) vegetation...
dominated by Klaaw or Mesquite trees (*Prosopis pallida*) and dry grass/weeds. Surrounding lands are in sugar cane and similar dry brush/grass. An active irrigation reservoir is located nearby to the north of the property and adjacent to South Firebreak Road. This reservoir is fairly large with emergent vegetation along portions of its shoreline.

**SURVEY PROTOCOL**

The field survey was conducted over two consecutive days (6, 7, July 2011). Data were collected in the early morning and late in the day when birds and mammals are most active and more easily detected. Visual and auditory observations form the basis of the data. The entire property was examined along with adjoining lands including the irrigation reservoir. Observations of mammals were primarily limited to visual sightings. The evening of 6 July 2011 was devoted to a search for the presence of the endangered Hawaiian Hoary Bat (*Lasiurus cinereus semotus*). A Petterson Electronic All Ultrasound Detector D 100 was used to listen for echolocating bats at several sites throughout the property and along the roads around the site as well as at the irrigation reservoir.

Weather during the survey was generally clear with some light passing showers in the early morning and evening. The wind was gusting above 30mph during mid-day.

**RESULTS AND DISCUSSION**

Native Land Birds:

No native land birds were observed on the survey. The only species that might on rare occasions occur in this area is the Hawaiian Short-eared Owl or Pueo (*Asio flammeus sandwichensis*) (Pratt et al. 1987, Hawaii Audubon Society 2005). The Pueo is listed by the State of Hawaii as endangered on Oahu but not on Maui. They forage over an array of habitats including: forests, grasslands, agricultural fields and nest on the ground in high, dense grass (Hawaii Audubon Society 2005).

Native Waterbirds:

An average of 16 Aku‘u or Black-crowned Night Heron were observed over the two day survey around the irrigation reservoir, but none were seen on the property proposed for development. This species is indigenous to Hawaii. It is not listed as endangered or threatened. They forage on a wide variety of prey and wetland habitats. Over 40 Koloa or Hawaiian Duck (*Aythya vociferans*) were tallied on the irrigation reservoir on both mornings of the survey. Koloa are an endangered species. Those on Maui are believed to be hybrids between the Koloa and Mallard (*Hawaii Audubon*...
An average of 31 Hawaiian Coot or Alae Ke'oke'o \( (Fulica ala) \) were counted on the irrigation reservoir during the survey. This endangered waterbird is common on Maui. The only other native waterbird that might occur at times along the edges of the irrigation pond is the endangered Hawaiian or Black-necked Stilt or Ae'o \( (Himantopus mexicanus knudseni) \). Migratory shorebirds:

At this time of year migratory shorebirds are on their breeding grounds in the arctic and subarctic. They winter in Hawaii between August and April. The only species that would potentially occur on this site would be the Pacific Golden-Plover or Kolea \( (Pluvialis fulva) \). Kolea forage for insects on lawns and other habitats in Hawaii. They can be seen on cane haul roads and in agricultural fields (Prat et al. 1987, Hawaii Audubon Society 2005). They are not a threatened or endangered species. A few plover likely occur on this site during August – April. No other migratory shorebirds would likely occur at this site.

**Alien (Introduced) Birds:**

The property contains the usual array of introduced birds seen on similar property in Central Maui (Bruster 1993, 1994, 1995, 1996, 2002). Table One notes the species recorded on this survey. None of these are listed as endangered or threatened.

**Mammals:**

The only feral mammal observed was the Small Indian Mongoose \( (Herpestes javanicus) \). Rats \( (Rattus spp.) \) and Mice \( (Mus musculus) \) also likely occur on the site along with perhaps feral cats \( (Felis catus) \). No endangered Hawaiian Hoary Bat were detected by the ultrasound device during an evening search of the property on 6 July 2011. I know of no recent documented records for the Hawaiian Hoary Bat in the area of the proposed project. The Hawaiian Hoary Bat roosts solitary in trees. They forage for flying insects in a wide variety of habitats including forests, agricultural lands, urban areas, as well as over bays and ponds (Tomich 1986, Kepler and Scott 1990, Jacob 1991, 1993, Duval and Duvall 1991, Reynolds et al. 1998, and Bonaccorso 2008 pers. comm.).

**EXECUTIVE SUMMARY AND RECOMMENDATIONS**

This survey found the typical assemblage of non-native (alien) birds and mammals on the proposed Heavy Industrial Subdivision Property. No endangered or threatened avian species were observed nor expected given the available resources on this site. The nearby irrigation reservoir, however, is utilized by at least two endangered waterbirds (Kolea, Alae Ke'oke'o). This reservoir sits beside South Firebreak Road. The waterbirds were not responsive to the traffic noise from nearby roadways. The vegetation buffer around the irrigation pond also visually shields the birds from human disturbance unless one climbs up the embankment and walks along the edge of the pond. The
proposed Heavy Industrial Subdivision Project and alternative subdivision access road should not adversely impact the waterbirds at this reservoir. The road and 36 acre property is hidden from the actual irrigation pond by a high embankment and vegetation. The only potential migratory shorebird that might forage along roads and cleared areas in Pu’unene is the Pacific Golden-Plover. It is not threatened or endangered. I know of no published bat sightings for the area involved in this project. However, because they forage over a wide variety of habitats it is possible they could on rare occasion occur in this area. Bonacorso (2008 pers. comm.) has conducted extensive research on the Hawaiian Hoary Bat on the island of Hawaii. He recommends that trees in a project area not be cut or disturbed between the months of April and August if there is any current evidence bats occur in the area. At this time of year young flightless bats are left in the tree while their mother forages.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
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<tbody>
<tr>
<td>Cattle Egret</td>
<td>Bubulcus ibis</td>
</tr>
<tr>
<td>Gray Francolin</td>
<td>Francolinus pondiceranus</td>
</tr>
<tr>
<td>Black Francolin</td>
<td>Francolinus francolinus</td>
</tr>
<tr>
<td>Ring-necked Pigeon</td>
<td>Phasianus colchicus</td>
</tr>
<tr>
<td>Spotted Dove</td>
<td>Streptopelia chinensis</td>
</tr>
<tr>
<td>Zebra Dove</td>
<td>Geopelia striata</td>
</tr>
<tr>
<td>Barn Owl</td>
<td>Tyto alba</td>
</tr>
<tr>
<td>Japanese White-eye</td>
<td>Zosterops japonicus</td>
</tr>
<tr>
<td>Common Myna</td>
<td>Acridotheres tristis</td>
</tr>
<tr>
<td>Northern Cardinal</td>
<td>Cardinals cardinalis</td>
</tr>
<tr>
<td>House Finch</td>
<td>Carpodacus mexicanus</td>
</tr>
<tr>
<td>Nutmeg Manakin</td>
<td>Lonchura punctulata</td>
</tr>
</tbody>
</table>
SOURCES CITED

Bonaccorsi, F. J. USGS, Pacific Island Ecosystems Research Center, Kilauea Field Station Hawaii Volcanoes National Park, Hawaii.


APPENDIX F-1
Arthropod Study
The Pu‘unene Heavy Industrial Subdivision project lies on 86 acres of undeveloped land in lower Pulehu, East Maui TMK (2) 3-8-0R:19. This survey also includes the primary access road and the alternate access road to the project (see Figure 1). The project area has a plantation reservoir to the north, sugar cane fields and a rock crusher/cement operation to the east and south, and Maui Raceway Park to the west. The project area lies about a mile to the east of Molokai Highway. This arthropod study was initiated by the owners in response to environmental requirements of the planning process.

SITE DESCRIPTION

This area was the site of a former hog farm operation and as a result is heavily disturbed by intensive human and animal use. Much of the area remains cleared of vegetation with a network of old asphalt roadways. The existing vegetation consists mostly of buffelgrass (*Cenchrus ciliaris*) with scattered kiawe trees (*Prosopis pallida*). The terrain is gently sloping down to the west at elevations from 110 feet to 140 feet above sea level. Soils consist primarily of Waiakea Extremely Stony Silty Clay Loam (*Foote* et al, 1972). Rainfall averages about 12 inches per year with the bulk falling in a few winter storms (*Armstrong* 1983).
SURVEY OBJECTIVES

Survey objectives were to inventory all arthropod species occurring on the property, recording species, distribution, abundance and status, and to identify any native species with special focus on any that are Endangered or Threatened species.

METHODS

A walk-through survey method was employed, covering all parts of the project area. Binoculars and a magnifying lens were used and field notes taken for reference work.

RESULTS

A total of 15 arthropods were recorded during the survey, representing seven Orders of spiders and insects. Taxonomy and nomenclature follow Nishida et al (1992). Just two species were common, the blowfly (*Eucalliphora latifrons*) and the honey bee (*Apis mellifera*). All others were uncommon to rare in the project area.

One native dragonfly was recorded, the globe skimmer (*Pamela flavescens*). This dragonfly is indigenous to Hawaii and quite common. It is also native worldwide in the tropics. It is of no particular environmental interest or concern.

Looked for but not seen was the Endangered Blackburn’s sphinx moth *Manduca blackburni* (USFWS, 2000). None of its preferred alternate host plants, the tree tobacco (*Nicotiana glauca*) were found on the property and no adult moths, eggs or larvae were seen.

No other rare or endangered insects were seen.

CONCLUSIONS

There were no Endangered or Threatened arthropod species found during the survey on this dry, un-irrigated project area. From an entomological standpoint the proposed developments on this property would not have a significant negative impact on the arthropod resources in this part of Maui.

No recommendations with regard to the arthropod fauna are deemed appropriate or necessary.

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance for Arthropods only. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:
   - endemic = native only to Hawaii; not naturally occurring anywhere else in the world.
   - indigenes = native to the Hawaiian Islands and also to one or more other geographic area(s).
   - non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.
   - migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:
   - abundant = many flocks or individuals seen throughout the area at all times of day,
   - common = a few flocks or well scattered individuals throughout the area.
   - uncommon = only one flock or several individuals seen within the project area.
   - rare = only one or two seen within the project area.
<table>
<thead>
<tr>
<th>SCIENTIFIC NAME</th>
<th>COMMON NAME</th>
<th>STATUS</th>
<th>ABUNDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order ARANAES - spiders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARANEIDAE (Orb Weaver Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Araneus diadematus Clerck</td>
<td>European garden spider</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>SALTICIDAE (Jumping Spider Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hasarius adidasii Audouin</td>
<td>Adanson's house jumper</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Order COLEOPTERA - beetles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRYPTOPHAGIDAE (Silken Fungus Beetle Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hestoria serrata Gylenhal</td>
<td>silken fungus beetle</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>Order DIPTERA - flies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALLIPHORIDAE (Blowfly Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encalyphora latifrons Hough</td>
<td>blowfly</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>Rhina testaceo Robineau-Desvoidy</td>
<td>blowfly</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>DROSOPHILIDAE (Fruit Fly Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chrysomyza pronemus Williston</td>
<td>vinegar fly</td>
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<td>uncommon</td>
</tr>
<tr>
<td>MUSCIDAE (House Fly Family)</td>
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<td></td>
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<tr>
<td>Musca sorbens Wiedemann</td>
<td>dung fly</td>
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<td>rare</td>
</tr>
<tr>
<td>Order HYMENOPTERA - bees, wasps &amp; ants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>APIDAE (Honey Bee Family)</td>
<td></td>
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<tr>
<td>Apis mellifera Linnaeus</td>
<td>honey bee</td>
<td>non-native</td>
<td>common</td>
</tr>
<tr>
<td>FORMICIDAE (Ant Family)</td>
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</tr>
<tr>
<td>Linepithema humile Mayr</td>
<td>Argentine ant</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>MEGACHILIDAE (Leafcutter Bee Family)</td>
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<tr>
<td>Megachile gentilis Cresson</td>
<td>leafcutter bee</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>SPHECIDAE (Sphexid Wasp Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ampules compressa Fabricius</td>
<td>jewel wasp</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>VESPIDAE (Vespid Wasp Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polistes aurifer Saussure</td>
<td>golden paper wasp</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
<tr>
<td>Order LEPIDOPTERA - butterflies &amp; moths</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOCTUIDAE (Owlet Moth Family)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Heliothis zea Boddie</td>
<td>corn ear worm moth</td>
<td>non-native</td>
<td>rare</td>
</tr>
<tr>
<td>Order ODONATA - dragonflies &amp; damselflies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBELLULIDAE (Skimmer Dragonfly Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potanina flavescens Fabricius</td>
<td>globe skimmer</td>
<td>Indigenous</td>
<td>uncommon</td>
</tr>
<tr>
<td>Order ORTHOPTERA - grasshoppers &amp; crickets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACRIDIDAE (Grasshopper Family)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oedaleus abruptus Thunberg</td>
<td>short-horned grasshopper</td>
<td>non-native</td>
<td>uncommon</td>
</tr>
</tbody>
</table>

Figure 1
LITERATURE CITED


APPENDIX F-2

Nene (Hawaiian Goose) Survey
SURVEY CONDUCTED ON JULY 16, 2012
FOR THE NEHE OR HAWAIIAN GOOSE (Branta sandvicensis)
PU'UNENE HEAVY INDUSTRIAL SUBDIVISION PROJECT
PULEHU, MAUI

INTRODUCTION

The Pu'unene Heavy Industrial subdivision project lies on 86 acres of undeveloped land in lower Pulehu, East Maui TMK (2) 3-8-08:19. Also included in this survey are the primary access road and the alternate access road to the project (see Figure 1). The project area has a plantation reservoir to the north, sugar cane fields and a rock crusher/cement operation to the east and south, and Maui Raercway Park to the west. The project area lies about a mile to the east of Mokulele Highway. This nene survey was initiated by the owners in response to comments received during the review of the biological studies submitted in support of the Environmental Assessment for the Pu'unene Heavy Industrial Subdivision Project.

SITE DESCRIPTION

This area was the site of a former hog farm operation and as a result is heavily disturbed by intensive human and animal use. Much of the area remains cleared of vegetation with a network of old asphalt roadways. The existing vegetation consists mostly of buffalo grass (Cenchrus ciliaris) with scattered kiawe trees (Prosopis pallida). The terrain is gently sloping down to the west at elevations from 110 feet to 140 feet above sea level. Soils consist primarily of Weiskos Extremely Stoney Silty Clay Loam (Foert et al., 1972). Rainfall averages about 12 inches per year with the bulk falling in a few winter storms (Armstrong 1983).

SURVEY OBJECTIVES

This survey was called for to assess the potential of this project area for providing habitat for nene even if only incidental or temporary in nature and to document any such usage. It was intended to provide a random “snapshot” in time to assess this potential.

METHODS

The survey was conducted as a walk-through reconnaissance to all parts of the project area. Binoculars were employed to get a detailed view of any nene activity on the ground or in the air. Nene are large and often vocal birds whose presence is easy to detect, especially in such open habitat as is found on this property.

By:
Robert W. Hobdy
Environmental Consultant
Kaanokono, Maui

Prepared for: CMBY 2011 Investment, LLC

July 23, 2012
RESULTS

No nēnē were seen on the ground or in flight over the project area. Many smaller birds were fairly plentiful including gray francolin (Francolinus pondicerianus), black francolin (Francolinus francolinus), zebra dove (Geopelia striata) and spotted dove (Streptopelia chinensis), but none of the much larger nēnē were observed anywhere on the project area. There was little in the way of food or water resources on this property that would attract nēnē here.

DISCUSSION AND CONCLUSIONS

Nēnē are vegetarians that eat a variety of grasses, small fruits, seeds and other herbaceous vegetation. They prefer damp or wet sites with succulent young grasses. They are also powerful fliers that can cover many miles in search of preferred resources. They can often be seen on irrigated areas such as newly planted cane fields, large parks, golf courses, pastures and even on hydromulched roadside banks. Their use of such areas is unpredictably intermittent and temporary. Each of these wide-ranging, temporary resources can be termed important habitat for these endangered nēnē, but to call any one of them essential to their survival is too much of a stretch.

The 86 acre project area is an un-irrigated parcel that is located in one of the driest parts of Maui. The area experiences long, hot and dry summers during which the grasses and herbaceous plants become sear and withered. In even a substantial wet season here the vegetation is tough and the greenness fleeting. There is nothing in this environment that would equate to preferred habitat for nēnē or which would attract them to feed or breed here. That no nēnē were observed here during this survey is an expected outcome, consistent with the existing environmental resources.
LITERATURE CITED


Soil survey of the islands of Kauai, Oahu, Maui, Molokai, and Lanai.
Washington, D.C.
APPENDIX G
Noise Study
ACOUSTIC STUDY FOR THE
PUUNENE HEAVY INDUSTRIAL SUBDIVISION
PUUNENE, MAUI, HAWAII

Prepared for:
CMBY 2011 INVESTMENT, LLC

Prepared by:
Y. EBISU & ASSOCIATES
1126 12th Avenue, Room 305
Honolulu, Hawaii 96816

NOVEMBER 2011
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CHAPTER 1 SUMMARY

The existing and future traffic noise levels in the vicinity of the proposed Puunene Heavy Industrial Subdivision in Puunene, Maui were evaluated for their potential impacts and their relationship to current FHA/HUD noise standards. The traffic noise level increases along the roadways servicing the project site (see Figure 1) were calculated. No significant increases in traffic noise levels are predicted to occur along Molokai Highway as a result of project traffic following project build-out by CY 2015. Large increases of 6.4 DNL are expected to occur along the roadways used by project traffic between the project site and Molokai Highway.

Along Molokai Highway in the vicinity of the project site, traffic noise levels are expected to increase by approximately 1.3 to 1.4 DNL by CY 2015 as a result of project and non-project traffic. Of this increase, a 1.0 DNL increase is expected to occur from non-project traffic by CY 2015. Project traffic will account for approximately 0.3 to 0.4 DNL units of noise increase along Molokai Highway in the immediate vicinity of the project. Along Kamaaina Road and South Firebreak Road between Mokulele Highway and the project site, traffic noise levels are expected to increase by 6.4 DNL by CY 2015 as a result of project traffic. This level of traffic noise increase resulting from project-generated traffic along Kamaaina Road and South Firebreak Road is considered to be large. The 6.4 DNL predicted increase in project-generated traffic noise levels are limited to the roadways used by project traffic between Mokulele Highway and the project site, and are not expected to generate adverse noise impacts by CY 2015 due to the absence of noise-sensitive developments along these roadways.

The project site is located near an existing quarry, with large buffer distances to the closest residential developments. The closest neighboring developments include a rock quarry, the Maui Humane Society, a motorsport raceway, an industrial subdivision, and military noise facilities. Predicted worst-case noise emissions from operating equipment within the proposed Puunene Heavy Industrial Subdivision are not expected to exceed noise impact thresholds at the nearest noise-sensitive developments. Compliance with State Department of Health noise regulations for fixed on-site equipment are recommended to minimize adverse noise impacts on adjacent and distant properties.

Adverse noise impacts are not expected to occur during construction of the proposed project due to the relatively large buffer distances to the nearest developed properties and due to the non-noise-sensitive nature of the neighboring properties. Because construction activities may be audible within the project site and at nearby properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of quiet equipment and compliance with State Department of Health construction noise regulations are recommended as standard mitigation measures.

Page 1
CHAPTER II. PURPOSE

The primary objective of this study was to describe the existing and future traffic noise environment in the environs of the proposed Puunene Heavy Industrial Subdivision in Puunene on the island of Maui. Traffic forecasts for 2015 were used. Traffic noise level increases and impacts associated with the proposed project were to be determined within the project site as well as along the public roadways which are expected to service the project traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases.

Noise impacts from on-site activities and short term construction noise at the project site were also included as noise study objectives. Recommendations for minimizing identified noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies (such as FHA/HUD) to assess environmental noise is the Day-Night Average Sound Level (DNL). This descriptor incorporates a 24-hour average of Instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the DNL descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the DNL descriptor. A more complete list of noise descriptors is provided in Appendix B to this report.

Table 1, derived from Reference 1, presents current federal noise standards and acceptability criteria for residential land uses. Table 2, also extracted from Reference 1, presents the general effects of noise on people in residential use situations. Land use compatibility guidelines for various levels of environmental noise as measured by the DNL descriptor system are shown in Figure 2 (from Reference 2). As a general rule, noise levels of 55 DNL or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL, and as high as 75 DNL when the roadway is a high speed freeway. In the project area, traffic noise levels associated with Molokini Highway are typically greater than 55 DNL along the Right-of-Way due to the relatively large volume of traffic and high vehicle speeds on this thoroughfare.

For purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HEW and VA), an exterior noise level of 65 DNL or less is considered acceptable for residences. This standard is applied nationally (Reference 3), including Hawaii. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 DNL does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 4, a lower level of 55 DNL is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HEW and VA have selected 65 DNL as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 DNL.

On the island of Maui, the State Department of Health (DOH) regulates noise from construction activities through the issuance of permits for allowing excessive
### TABLE 1

**EXTerior NOISE EXPOSURE CLASSIFICATION (RESIDENTIAL LAND USE)**

<table>
<thead>
<tr>
<th>NOISE EXPOSURE CLASS</th>
<th>DAY–NIGHT SOUND LEVEL</th>
<th>EQUIVALENT SOUND LEVEL</th>
<th>FEDERAL (1) STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal Exposure</td>
<td>Not Exceeding 55 DNL</td>
<td>Not Exceeding 55 Leq</td>
<td>Unconditionally Acceptable</td>
</tr>
<tr>
<td>Moderate Exposure</td>
<td>Above 55 DNL But Not Above 65 DNL</td>
<td>Above 55 Leq But Not Above 65 Leq</td>
<td>Acceptable(2)</td>
</tr>
<tr>
<td>Significant Exposure</td>
<td>Above 65 DNL But Not Above 75 DNL</td>
<td>Above 65 Leq But Not Above 75 Leq</td>
<td>Normally Unacceptable</td>
</tr>
<tr>
<td>Severe Exposure</td>
<td>Above 75 DNL</td>
<td>Above 75 Leq</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>

Notes:
1. Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.
2. FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.

---

### TABLE 2

**EFFECTS OF NOISE ON PEOPLE (Residential Land Use Only)**

<table>
<thead>
<tr>
<th>EFFECTS</th>
<th>General Community Area</th>
<th>Noise Impact</th>
<th>Noise Level</th>
</tr>
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<tbody>
<tr>
<td>70</td>
<td>Very Strong Impact</td>
<td>10%</td>
<td>70</td>
</tr>
<tr>
<td>80</td>
<td>Strong Impact</td>
<td>25%</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>Moderate Impact</td>
<td>50%</td>
<td>90</td>
</tr>
<tr>
<td>100</td>
<td>Weak Impact</td>
<td>75%</td>
<td>100</td>
</tr>
<tr>
<td>110</td>
<td>Very Weak Impact</td>
<td>100%</td>
<td>110</td>
</tr>
</tbody>
</table>

1. The percentage of people reporting annoyance at lower noise levels is also reduced as noise level increases. Source: Sound Information, 1999.

---

Page 5
noise during limited time periods. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than DNL (see Reference 5). Although they are not directly comparable to noise criteria expressed in DNL, State DOH noise limits for residential, commercial, and industrial lands equal to approximately 55, 60, and 76 DNL, respectively.
CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic noise levels were measured at four locations (A1, A2, B, and C) in the project environs to provide a basis for developing the project's traffic noise contributions along the roadways which will service the proposed development. The locations of the measurement sites are shown in Figure 1. Noise measurements were performed during the month of October 2011. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. The traffic noise measurement results, and their comparisons with computer model predictions of existing traffic noise levels are summarized in Table 3.

Traffic noise calculations for the existing conditions as well as noise predictions for the Year 2015 were performed using the Federal Highway Administration (FHWA) Traffic Noise Model (Reference 6). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes; average vehicle speeds; estimates of traffic mix; and "Lawn and Loose Soil" propagation loss factors. The traffic data and forecasts for the project (Reference 7), plus the spot traffic counts obtained during the noise measurement periods were the primary sources of data inputs to the model. Appendix C summarizes the AM and PM peak hour traffic volumes for CY 2011 and 2015 which were used to model existing and future traffic noise along the roadways in the vicinity of the project site. For existing and future traffic along the roadways in the vicinity of the project site, it was assumed that the the 24-hour DNL, along those roadways were equal to the average noise levels, or Leq(h), during the AM peak traffic hour plus 1 dB. This assumption was based on computations of both the hourly Leq and the 24-hour DNL of traffic noise on Molokai Highway (see Figure 3) using State of Hawaii hourly traffic counts from Reference 8.

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level receptors with and without the benefit of shielding from natural terrain features or man-made obstructions. Traffic noise levels were also calculated for future conditions with and without the proposed project. The forecasted changes in traffic noise levels over existing levels were calculated with and without the project, and noise impact risks evaluated. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Degree of Noise Protection</th>
<th>Hourly Traffic Volume (in millions of vehicles)</th>
<th>Measured Noise Level (dB)</th>
<th>Predicted Noise Level (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>98 FT from the center-line of Molokai Hwy. (102411)</td>
<td>275 123</td>
<td>69.9</td>
<td>69.9</td>
</tr>
<tr>
<td>A2</td>
<td>163 FT from the center-line of Molokai Hwy. (102411)</td>
<td>35 5 39</td>
<td>60.1</td>
<td>60.1</td>
</tr>
<tr>
<td>B</td>
<td>90 FT from the center-line of Thapana Rd. (102411)</td>
<td>27 104</td>
<td>66.6</td>
<td>66.6</td>
</tr>
<tr>
<td>C</td>
<td>44 FT from the center-line of Pinebank Rd. (102411)</td>
<td>50 139</td>
<td>58.7</td>
<td>58.7</td>
</tr>
</tbody>
</table>

Evaluations of potential noise impacts from on-site noise sources were performed by predicting the noise levels from on-site noise sources at the closest residential developments in Kehei (2.3 miles), Puakala (6.4 miles), and Kahului (4.0 miles). These predictions assumed that each of the small and large lots of the industrial subdivision emitted the maximum sound level of 70 dBA as allowed for industrial properties by the State DOH noise regulations (Reference 5). A total of 28 subdivision lots, each with 70 dBA noise emitters located within each lot (for a total of 28 continuous noise sources), was assumed for these noise modeling purposes. The
worst case sound levels at the closest residential developments in Kihei, Pukalani, and Kahului resulting from this noise modeling assumption were then compared to existing background noise levels and noise impact criteria.

Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned buildings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed.
V. EXISTING ACOUSTICAL ENVIRONMENT

The existing background ambient noise levels within the project site are relatively low and less than 50 dBA, except during passbys of heavy motor vehicles on the cane field service roads or during flybys of aircraft operating at Kahului Airport. Traffic along Mokulele Highway does not control the background noise levels at the project site due to the very large (approximately 1 mile) buffer distance between the project site and Mokulele Highway. The loudest noise sources at the project site are probably agricultural machines and heavy trucks during planting or harvesting seasons on the project site.

Traffic and background ambient noise measurements were obtained in October 2011 at four locations (A1, A2, B, and C) in the project environs. These locations are shown in Figure 1. The results of the traffic and background ambient noise measurements are summarized in Table 3, with measurement locations identified in Figure 1. The measurement locations were located at ground level. As shown in Table 3, correlation between measured and predicted traffic noise levels was satisfactory. The Traffic Noise Model's "Loose Soil" and "Lawn" propagation loss factors were used to obtain the good correlation.

Calculations of existing traffic noise levels during the AM and PM peak traffic hours are presented in Table 4. The hourly Leq (or Equivalent Sound Level) contribution from each roadway section in the project environs was calculated for comparison with forecasted traffic noise levels with and without the project. In Table 4, the AM peak hour Leq values were assumed to be approximately 1 dB lower than the DNL values for the roadways shown. The existing setback distances from the roadways' centerlines to their associated 65 and 70 DNL contours were also calculated as shown in Table 5. The contour line setback distances do not take into account noise shielding effects or the additive contributions of traffic noise from intersecting street sections.

The existing traffic noise levels in the project environs along the Mokulele Highway Rights-of-Way are in the "Significant Exposure, Normally Unacceptable" category for residences, and at or greater than 65 DNL along the highway's Rights-of-Way. The existing traffic noise levels in the project environs along Mokulele Highway's Rights-of-Way are approximately 70 to 71 DNL. Existing traffic noise levels at the Maui Humane Society building closest to Mokulele Highway are approximately 65 to 67 DNL, which is considered to be acceptable for office buildings. Existing traffic noise levels at the Maui Army National Guard Puunene Armory are approximately 56 DNL, which is also considered to be acceptable for office buildings. Existing traffic noise levels at the industrial subdivision south of Waiehu Road intersection with Mokulele Highway range from approximately 55 DNL to 71 DNL, which is also considered to be acceptable for industrial land uses.
### TABLE 5

EXISTING AND CY 2015 DISTANCES TO 65 AND 70 DNL CONTOURS

<table>
<thead>
<tr>
<th>STREET SECTION</th>
<th>EXISTING</th>
<th>CY 2015</th>
<th>EXISTING</th>
<th>CY 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mokulele Hwy. North of Kamaaina Rd.</td>
<td>174</td>
<td>202</td>
<td>106</td>
<td>122</td>
</tr>
<tr>
<td>Mokulele Hwy. South of Kamaaina Rd.</td>
<td>172</td>
<td>194</td>
<td>104</td>
<td>118</td>
</tr>
<tr>
<td>Kamaaina Rd. At Mokulele Hwy.</td>
<td>33</td>
<td>67</td>
<td>17</td>
<td>44</td>
</tr>
<tr>
<td>Menunena Ln. At Mokulele Hwy.</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Under Project Access Alternative 1:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Firebreak Rd. N. of Quarry Access Rd.</td>
<td>33</td>
<td>78</td>
<td>17</td>
<td>41</td>
</tr>
<tr>
<td>Quarry Access Rd. At South Firebreak Rd.</td>
<td>33</td>
<td>39</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>South Firebreak Rd. S. of Quarry Access Rd.</td>
<td>N/A</td>
<td>68</td>
<td>N/A</td>
<td>38</td>
</tr>
<tr>
<td><strong>Under Project Access Alternative 2:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Firebreak Rd. N. of Project Access Rd.</td>
<td>33</td>
<td>78</td>
<td>17</td>
<td>41</td>
</tr>
<tr>
<td>South Firebreak Rd. S. of Project Access Rd.</td>
<td>33</td>
<td>33</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Quarry Access Rd. At South Firebreak Rd.</td>
<td>33</td>
<td>33</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Project Access Rd. At South Firebreak Rd.</td>
<td>N/A</td>
<td>68</td>
<td>N/A</td>
<td>38</td>
</tr>
</tbody>
</table>

Notes:
1. All setback distances are from the roadways' centerlines.
2. Sicks 1 and 2 are for traffic volume, speed, and mix assumptions.
3. Setback distances are for ground level receptors.

### CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 7 for CY 2015 with the proposed project. Estimates of CY 2015 traffic volumes with and without the project were contained in Reference 7. The future projections of project plus non-project traffic noise levels on the roadways which would service the project are shown in Table 6 for the AM and PM peak hours of traffic, under the Build Alternative. Predicted increases in the setback distances to the 65 and 70 DNL contours are shown in Table 5. The separate non-project and project traffic noise contributions for the Build Alternative are shown in Table 7.

Very small changes in traffic noise levels (0.3 to 0.4 DNL) are expected along Mokulele Highway in the project environs between CY 2011 and 2015 as a result of project traffic. The growth in non-project traffic by CY 2015 is predicted to result in a traffic noise level increase of 1.0 DNL along Mokulele Highway. By CY 2015, traffic noise levels in the project area along Mokulele Highway are expected to increase primarily due to the anticipated growth in non-project traffic, and it will be difficult to determine the increases in future traffic noise associated with the project traffic.

Along the project access roads between Mokulele Highway and the project site, existing traffic noise levels are expected to increase by 3.7 to 6.4 DNL solely as a result of project traffic. No changes in non-project traffic noise levels are expected along the access roads between the project site and Mokulele Highway. The increases in traffic noise levels due to project traffic are relatively high, but these increases are expected to occur in currently undeveloped, agricultural lands.

The dominant traffic noise sources in the project environs will continue to be traffic along Mokulele Highway, with the increases in future traffic noise levels being relatively small along those two roadways and primarily associated with non-project traffic.

Future traffic noise levels on the proposed project site will continue to be unaffected by traffic noise along Mokulele Highway due to the large buffer distance to the highway. Future traffic noise levels on the project site will be controlled by project traffic moving within the industrial subdivision and moving to and from the industrial subdivision. These future traffic noise levels within the industrial subdivision are not expected to exceed 70 DNL, and should be acceptable for the planned industrial land uses.
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TOTAL</th>
<th>VOLUMES (AMP)</th>
<th>(AM OR PM PEAK HOUR, BUILD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mokulele Hwy, North of Kamaaina Rd. (AM)</td>
<td>26</td>
<td>3295</td>
<td>2941</td>
</tr>
<tr>
<td>Mokulele Hwy, South of Kamaaina Rd. (AM)</td>
<td>26</td>
<td>2477</td>
<td>2300</td>
</tr>
<tr>
<td>Kamaaina Rd. At Mokulele Hwy. (AM)</td>
<td>26</td>
<td>2659</td>
<td>2404</td>
</tr>
<tr>
<td>Meahama Lp. At Mokulele Hwy.</td>
<td>26</td>
<td>926</td>
<td>851</td>
</tr>
</tbody>
</table>

**Under Project Access Alternative 1:**
- South Firebreak Rd. N. of Quarry Access Rd.
- Quarry Access Rd. At South Firebreak Rd.
- South Firebreak Rd. S. of Quarry Access Rd.

<table>
<thead>
<tr>
<th>STREET SECTION</th>
<th>NOISE LEVEL INCREASE DUE TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Project Traffic</td>
<td>Project Traffic</td>
</tr>
<tr>
<td>Mokulele Hwy, North of Kamaaina Rd.</td>
<td>1.0</td>
</tr>
<tr>
<td>Mokulele Hwy, South of Kamaaina Rd.</td>
<td>1.0</td>
</tr>
<tr>
<td>Kamaaina Rd. At Mokulele Hwy.</td>
<td>0.0</td>
</tr>
<tr>
<td>Meahama Lp. At Mokulele Hwy.</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Under Project Access Alternative 2:**
- South Firebreak Rd. N. of Project Access Rd.
- South Firebreak Rd. S. of Project Access Rd.
- Quarry Access Rd. At South Firebreak Rd.
- Project Access Rd. At South Firebreak Rd.

<table>
<thead>
<tr>
<th>STREET SECTION</th>
<th>NOISE LEVEL INCREASE DUE TO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Project Traffic</td>
<td>Project Traffic</td>
</tr>
<tr>
<td>South Firebreak Rd. N. of Project Access Rd.</td>
<td>0.0</td>
</tr>
<tr>
<td>South Firebreak Rd. S. of Project Access Rd.</td>
<td>0.0</td>
</tr>
<tr>
<td>Quarry Access Rd. At South Firebreak Rd.</td>
<td>N/A *</td>
</tr>
<tr>
<td>Project Access Rd. At South Firebreak Rd.</td>
<td>N/A *</td>
</tr>
</tbody>
</table>

Note:
- *Existing noise levels from agricultural equipment are not included.*
CHAPTER VII. DISCUSSION OF PROJECT-RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES

Traffic Noise. Existing traffic noise levels along Mokulele Highway are relatively high, and are expected to remain so through CY 2015. Risks of future traffic noise impacts along the highway should continue to be low due to the absence of noise-sensitive receptors along the highway in the project environs.

Project related traffic along Mokulele Highway is not expected to cause measurable increases in future traffic noise levels. The predicted increases of 0.3 to 0.4 DNL in project related traffic noise are small compared to the 1.0 DNL increase expected from non-project traffic. For these reasons, traffic noise mitigation measures should not be required.

On-Site Noise Sources. By existing State Department of Health regulations, fixed machinery on industrial lots may emit sound levels continuously during the day and night, as long as their sound levels do not exceed 70 dBA at the lots’ property boundaries. Therefore, using the industrial subdivision plan shown in Figure 1, it was assumed that there could be 4 large lots and 24 small lots within the subdivision. A total of 28 noise sources, each emitting sound levels of 70 dBA at their respective lot boundary lines, was assumed for modeling the potential sound level emissions from on-site sources within the proposed industrial subdivision. Under these hypothetical worst case conditions, the combined sound level from the 28 lots of the industrial subdivision would be approximately 45 dBA at 4,900 feet (0.93 mile) distance from the center of the subdivision. A continuous outdoor sound level of 45 dBA is considered to be acceptable by the State DOH and by all federal agencies for single family residences. Because there are no noise sensitive developments within 5,000 feet of the proposed heavy industrial subdivision (see Figure 4), risks of adverse noise impacts from on-site noise sources are considered to be minimal.

Predicted noise levels under the hypothetical worst case condition described above were developed at the closest residential developments. These hypothetical worst case levels were: 29 dBA in Kalihi at Kalihi Street; 3 dBA in Pukalani at Opaliihi Place; 19 dBA at Punaena near the Sugar Museum; and 17 dBA in Kailua at Makali Street. These worst case levels are very low, and will be below existing nighttime background noise levels in these communities.

Noise mitigation measures which limit the noise from fixed mechanical equipment to those allowed by the State Department of Health (Reference 5) should be required of all tenants within the industrial subdivision.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction is unknown, but it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure
to construction noise at any receptor location will probably be less than the total construction period for the entire project. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job site are shown in Figure 5. The impulsive noise levels of impact pile drivers are approximately 15 dB higher than the levels shown in Figure 5, while the intermittent noise levels of vibratory pile drivers are at the upper end of the noise level ranges depicted in the figure. Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in Figure 5.

The closest residences to the project site are well beyond the 1,000 feet separation distance shown in Figure 5, and for this reason, risks of adverse noise impacts from construction activity on the project site are expected to be very low. The noise from construction activities will decrease and be masked by traffic noise from Mokulele Highway at the Maui Humane Society and National Guard facilities.

Peak airborne noise levels from pile driving may be as much as 15 dBA greater than noise levels shown in Figure 5 for non-impulsive (steady) construction noise sources. Although the pile driving can produce more intense noise levels, each pulse is of short individual duration (less than one second). Therefore, its impact on speech communication is not as severe as that of a steady source of the same noise level.

Adverse noise impacts are more likely to occur following completion of initial site preparation and infrastructure construction activities and at the initial subdivision terminus who are exposed to building construction noise from neighboring or nearby lots of the same subdivision. Adverse noise impacts are not expected to occur inside air conditioned structures which are beyond 200 FT of a building construction site. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 65 to 70 dBA at 200 FT to 600 FT distances from the building construction site. Closure of all doors and windows facing the building construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The use of properly muted construction equipment should be required on all job sites. The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii (Reference 5), is another noise mitigation measure which is normally applied to construction activities. Figure 5 depicts the normally permitted hours of construction. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.
APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.


(4) "Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety;" U.S. Environmental Protection Agency; EPA 550/9-74-004; March 1974.

(5) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.


(7) "Traffic Impact Analysis Report for Puunene Heavy Industrial Subdivision;" Phillip Howell and Associates; September 26, 2011.

(8) Hourly Traffic Counts At Station B74031100336, Mokulele Highway Near Maui Raceway Park; Hawaii State Department of Transportation; May 13, 2009.
APPENDIX B
EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

**Descritor Symbol Usage**

The recommended symbols for the commonly used acoustics descriptors based on A-weighting are contained in Table I. As most acoustics criteria and standards used by EPA are derived from the A-weighted sound level, almost all acoustics symbol usage guidelines are contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbols shown which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E,………). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those instances in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "B". For example, a report on blast noise might wish to contrast the LC8 with the LA8.

Although not included in the tables, it is also recommended that "Ldn" and "Ldn'" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, each term be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 60 and 73 dB, respectively.

**Descriptor Nomenclature**

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent." Hence, LA becomes the equivalent sound level. For LA, Ld, and LEq, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. The terms Ld, Ldn, Ldn', and LEq are used to designate "daytime sound level," "nighttime sound level," and "day-night sound level," respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residential", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentified noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DEC, DBM, and DSN are not to be used. Examples of this preferred usage are: the perceived noise level (Lp) was found to be 75 dB, Ldn = 73 dB. This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustics Society of America. No metric system will accept any modification of the "dB" except for prefixes indicating its multiples or submultiples (e.g., units).

**Noise Impact**

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighted Loss of Hearing" (PWL) shall be used consistent with CMAA Working Group 51 Report Guidelines for Preparing Environmental Impact Statements (1977).

---

**APPENDIX B (CONTINUED)**

**TABLE I**

**A-WEIGHTED RECOMMENDED DESCRIPTOR LIST**

<table>
<thead>
<tr>
<th>TERM</th>
<th>SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A-Weighted Sound Level</td>
<td>LA</td>
</tr>
<tr>
<td>2. A-Weighted Sound Power Level</td>
<td>LWA</td>
</tr>
<tr>
<td>3. Maximum A-Weighted Sound Level</td>
<td>Lmax</td>
</tr>
<tr>
<td>4. Peak A-Weighted Sound Level</td>
<td>LApk</td>
</tr>
<tr>
<td>5. Level Exceeded x% of the Time</td>
<td>L(x)</td>
</tr>
<tr>
<td>6. Equivalent Sound Level</td>
<td>Leq</td>
</tr>
<tr>
<td>7. Equivalent Sound Level over Time (T) (1)</td>
<td>Leq(T)</td>
</tr>
<tr>
<td>8. Day Sound Level</td>
<td>Ld</td>
</tr>
<tr>
<td>9. Night Sound Level</td>
<td>Ln</td>
</tr>
<tr>
<td>10. Day-Night Sound Level</td>
<td>Ldn</td>
</tr>
<tr>
<td>11. Yearly Day-Night Sound Level</td>
<td>Ldn(Y)</td>
</tr>
<tr>
<td>12. Sound Exposure Level</td>
<td>LSE</td>
</tr>
</tbody>
</table>

(1) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(t)). Time may be specified in non-quantitative terms (e.g., months or years).

**SOURCE:** EPA ACOUSTIC TERMINOLOGY GUIDE, BMA 8-14-78.
## APPENDIX B (CONTINUED)

### TABLE II 

**RECOMMENDED DESCRIPTOR LIST**

<table>
<thead>
<tr>
<th>TERM</th>
<th>A-WEIGHTING</th>
<th>ALTERNATIVE$^{(1)}$</th>
<th>OTHER$^{(2)}$</th>
<th>UNWEIGHTED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$L_A$</td>
<td>$L_{PA}$</td>
<td>$L_B$</td>
<td>$L_{PB}$</td>
</tr>
<tr>
<td>1. Sound (Pressure)$^{(3)}$ Level</td>
<td>$L_P$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sound Power Level</td>
<td>$L_{WA}$</td>
<td></td>
<td>$L_{WA}$</td>
<td></td>
</tr>
<tr>
<td>3. Max. Sound Level</td>
<td>$L_{max}$</td>
<td></td>
<td>$L_{max}$</td>
<td></td>
</tr>
<tr>
<td>4. Peak Sound (Pressure) Level</td>
<td>$L_{Apk}$</td>
<td></td>
<td>$L_{pk}$</td>
<td></td>
</tr>
<tr>
<td>5. Level Exceeded x% of the Time</td>
<td>$L_X$</td>
<td></td>
<td>$L_{Ax}$</td>
<td>$L_{Bx}$</td>
</tr>
<tr>
<td>6. Equivalent Sound Level</td>
<td>$L_{eq}$</td>
<td></td>
<td>$L_{Beq}$</td>
<td></td>
</tr>
<tr>
<td>7. Equivalent Sound Level (4) Over Time(T)</td>
<td>$L_{eq(T)}$</td>
<td></td>
<td>$L_{Beq(T)}$</td>
<td></td>
</tr>
<tr>
<td>8. Day Sound Level</td>
<td>$L_d$</td>
<td></td>
<td>$L_{Bd}$</td>
<td></td>
</tr>
<tr>
<td>9. Night Sound Level</td>
<td>$L_n$</td>
<td></td>
<td>$L_{Bn}$</td>
<td></td>
</tr>
<tr>
<td>10. Day-Night Sound Level</td>
<td>$L_{dn}$</td>
<td></td>
<td>$L_{Bdn}$</td>
<td></td>
</tr>
<tr>
<td>11. Yearly Day-Night Sound Level</td>
<td>$L_{dn(Y)}$</td>
<td></td>
<td>$L_{Bdn(Y)}$</td>
<td></td>
</tr>
<tr>
<td>12. Sound Exposure Level</td>
<td>$L_S$</td>
<td></td>
<td>$L_{SA}$</td>
<td>$L_{SB}$</td>
</tr>
<tr>
<td>13. Energy Average Value Over (Non-Time Domain) Set of Observations</td>
<td>$L_{eq(e)}$</td>
<td></td>
<td>$L_{Beq(e)}$</td>
<td></td>
</tr>
<tr>
<td>14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations</td>
<td>$L_{x(e)}$</td>
<td></td>
<td>$L_{Ax(x)}$</td>
<td>$L_{Bx(x)}$</td>
</tr>
<tr>
<td>15. Average $L_X$ Value</td>
<td>$L_X$</td>
<td></td>
<td>$L_{Ax}$</td>
<td>$L_{Bx}$</td>
</tr>
</tbody>
</table>

(1) "Alternative" symbols may be used to assure clarity or consistency.  
(2) Only B-weighting shown. Applies also to C,D,E.....weighting.  
(3) The term "pressure" is used only for the unweighted level.  
(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is $Leq$(HOUR)) and may be specified in non-quantitative terms (e.g., could be specified as $Leq$(WASH) to mean the washing cycle noise for a washing machine.

### APPENDIX C

**SUMMARY OF BASE YEAR AND YEAR 2015 TRAFFIC VOLUMES**

<table>
<thead>
<tr>
<th>ROADWAY LAKES</th>
<th><strong>AM VPH</strong></th>
<th><strong>PM VPH</strong></th>
<th><strong>AM VPH</strong></th>
<th><strong>PM VPH</strong></th>
<th><strong>AM VPH</strong></th>
<th><strong>PM VPH</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2015 (RD BUILD)</td>
<td>2015 (BUILD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mukilteo Hwy, N. of Kamaaina Rd. (NB)</td>
<td>1,164</td>
<td>1,218</td>
<td>1,399</td>
<td>1,557</td>
<td>1,428</td>
<td>1,728</td>
</tr>
<tr>
<td>Mukilteo Hwy, N. of Kamaaina Rd. (SB)</td>
<td>1,066</td>
<td>1,173</td>
<td>1,384</td>
<td>1,478</td>
<td>1,369</td>
<td>1,686</td>
</tr>
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AIR QUALITY STUDY
FOR THE PROPOSED
PUUNENE HEAVY INDUSTRIAL SUBDIVISION
PUUNENE, MAUI, HAWAII

Prepared for:
CMBY 2011 Investment, LLC

November 2011

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1.0 SUMMARY

CMBY 2011 Investment, LLC is proposing to develop the Puunene Heavy Industrial Subdivision in Puunene on the island of Maui. Preliminarily, the proposed project will provide a total of 28 lots on 86 acres zoned for heavy industry. This study examines the potential short- and long-term air quality impacts that could occur as a result of construction and use of the proposed facilities. Mitigative measures are suggested to reduce any potential air quality impacts where possible and appropriate.

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone, and lead. In some cases, such as for carbon monoxide, the Hawaii air quality standards are more stringent than the national standards.

Regional and local climate, together with the amount and type of human activity, generally dictate the air quality of a given location. The climate of the project area is very much affected by its elevation near sea level and by nearby mountains. Northeast trade winds occur most of the time and tend to be channeled through the area by the terrain. Local winds (such as land/sea breezes and upslope/downslope winds) affect the wind flow when the trade winds are weak or absent. Temperatures in the project area are generally very consistent and warm with average daily temperatures ranging from about 63°F to 86°F. Rainfall in the project area is minimal with an average of only about 13 inches per year.
Except for periodic impacts from volcanic emissions (vog) and possibly occasional localized impacts from traffic congestion and local agricultural sources, the present air quality of the project area is believed to be relatively good. There is very little air quality monitoring data available from the Hawaii Department of Health for the project area, but the limited data that are available suggest that concentrations are generally within state and national air quality standards, except for occasional high concentrations of particulate matter due to agricultural tilling operations and/or brush fires or sugarcane burning.

If the proposed project is given the necessary approvals to proceed, it may be inevitable that some short- and/or long-term impacts on air quality will occur either directly or indirectly as a consequence of project construction and use. Short-term impacts from fugitive dust will likely occur during the project construction phase. To a lesser extent, exhaust emissions from stationary and mobile construction equipment, from the disruption of traffic, and from workers’ vehicles may also affect air quality during the period of construction. State air pollution control regulations require that there be no visible fugitive dust emissions at the property line. Hence, an effective dust control plan must be implemented to ensure compliance with state regulations. Fugitive dust emissions can be controlled to a large extent by watering of active work areas, using wind screens, keeping adjacent paved roads clean, and by covering of open-bodied trucks. Other dust control measures could include limiting the area that can be disturbed at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Paving and landscaping of project areas early in the construction schedule will also reduce dust emissions. Monitoring dust at the project boundary during the period of construction could be considered as a means to evaluate the effectiveness of the project dust control program. Exhaust emissions can be mitigated by moving construction equipment and workers to and from the project site during off-peak traffic hours.

To assess the potential long-term impact of emissions from project-related motor vehicle traffic operating on roadways in the project area after construction is completed, a computerized air quality modeling study was undertaken. The project traffic study indicated that the intersection of Kamaaina Road and Mokulele Highway would likely be the only intersection affected by project-related traffic. The air quality modeling study estimated current worst-case concentrations of carbon monoxide at this intersection and predicted future levels both with and without the proposed project. During worst-case conditions, model results indicated that present 1-hour and 8-hour worst-case carbon monoxide concentrations are well within both the state and the national ambient air quality standards. In the year 2015 without the project, worst-case carbon monoxide concentrations were generally predicted to decrease (improve) slightly, and concentrations would remain well within standards. With the project in the year 2015, worst-case carbon monoxide concentrations were projected to increase only slightly compared to the without project case. Concentrations would remain well within standards. Due to the small impact the project is expected to have, implementing mitigation measures for long-term traffic-related air quality impacts is probably unnecessary and unwarranted.
At this time, the specific tenants of the proposed industrial subdivision have not been identified. Some of the allowed industrial uses for this type of zoning could involve significant emissions of air pollution which could result in direct impacts on air quality. Given specific information, potential air quality impacts from industrial sources can be estimated using computerized atmospheric dispersion models. Although detailed information concerning the specific industries that may locate at this development is not available at this stage of the project, before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. Depending on the expected emission rates, a detailed air quality impact assessment may be required before construction can begin. The required assessment must demonstrate that the facility will comply with all applicable air quality standards. Thus, while an air quality impact assessment of project-related industrial emissions is not presently feasible, an assessment may be required in the future when specific industries propose to locate at this development.

2.0 INTRODUCTION

CBY 2011 Investment, LLC is proposing to develop the Puunene Heavy Industrial Subdivision on approximately 86 acres in Puunene, Maui. Preliminarily, the proposed project will subdivide the project into 28 lots zoned for heavy industry. The project site is located approximately 1.4 miles east of Mokulele Highway in the vicinity of the Old Puunene Airport (see Figure 1 for project location). Access to and egress from the project will be via Kamaaina Road, which intersects Mokulele Highway adjacent to the Maui Humane Society. Development of the proposed subdivision would begin in 2012. Currently, there is no estimate of when the subdivided lots will be fully developed and occupied, but for the purposes of this report, the year 2015 is assumed.

The purpose of this study is to describe existing air quality in the project area and to assess the potential short- and long-term direct or indirect air quality impacts that could result from construction and use of the proposed facilities as planned. Measures to mitigate impacts by the project are suggested where possible and appropriate.

3.0 AMBIENT AIR QUALITY STANDARDS

Ambient concentrations of air pollution are regulated by both national and state ambient air quality standards (AAQS). National AAQS are specified in Section 40, Part 50 of the Code of Federal Regulations (CFR), while State of Hawaii AAQS are defined in Chapter 11-59 of the Hawaii Administrative Rules. Table 1 summarizes both the national and the state AAQS that are specified in the cited documents. As indicated in the table, national and state AAQS have been established for particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone and lead. The state has also set a standard for hydrogen sulfide. National AAQS are stated in terms of both primary and secondary standards for most of the regulated air pollutants. National primary standards are designed to protect the public health with an "adequate margin of safety". National secondary standards, on the other hand, define levels of air quality necessary to protect the public welfare from "any known or anticipated adverse effects of a pollutant". Secondary public welfare impacts may include
such effects as decreased visibility, diminished comfort levels, or other potential injury to the natural or man-made environment, e.g., soiling of materials, damage to vegetation or other economic damage. In contrast to the national AAQS, Hawaii State AAQS are given in terms of a single standard that is designed "to protect public health and welfare and to prevent the significant deterioration of air quality".

Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time. The AAQS specify a maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1- to 24-hour) AAQS, both national and state standards allow a specified number of exceedances each year.

The Hawaii AAQS are in some cases considerably more stringent than the comparable national AAQS. In particular, the Hawaii 1-hour AAQS for carbon monoxide is four times more stringent than the comparable national limit. On the other hand, the current Hawaii AAQS for sulfur dioxide are probably less stringent than the national standards. During the early part of 2010, the national primary annual and 24-hour standards for sulfur dioxide were revoked in favor of a new national 1-hour standard which is considered to be more stringent than the Hawaii short-term standards. The Hawaii AAQS for sulfur dioxide have not yet been updated to bring them in line with the national standards.

In 1993, the state revised its particulate standards to follow those set by the federal government. During 1997, the federal government again revised its standards for particulate, but the new standards were challenged in federal court. A Supreme Court ruling was issued during February 2001, and as a result, the new standards for particulate were finally implemented during 2005. To date, the Hawaii Department of Health has not updated the state particulate standards.

In September 2001, the state vacated the state 1-hour standard for ozone and an 8-hour standard was adopted that was the same as the national standard. During 2008, the national standard for ozone was again revised and made more stringent. The Hawaii standard for ozone has not yet been amended to follow the national standard.

During the latter part of 2008, EPA revised the standard for lead making the standard more stringent. So far, the Hawaii Department of Health has not revised the corresponding state standard for lead.

During early 2010, a national 1-hour primary standard for nitrogen dioxide was implemented. To date, Hawaii has not promulgated a 1-hour standard for nitrogen dioxide, but the Hawaii annual standard for this pollutant is more stringent than the national annual standard.
4.0 REGIONAL AND LOCAL CLIMATOLOGY

Regional and local climatology significantly affect the air quality of a given location. Wind, temperature, atmospheric turbulence, mixing height and rainfall all influence air quality. Although the climate of Hawaii is relatively moderate throughout most of the state, significant differences in these parameters may occur from one location to another. Most differences in regional and local climates within the state are caused by the mountainous topography.

The topography of Maui is dominated by the great volcanic masses of Haleakala (10,023 feet) and the West Maui Mountains (5,788 feet). The island consists entirely of the slopes of these mountains and of a connecting isthmus. Haleakala is still considered to be an active volcano and last erupted about 1790. The project site is located on the isthmus between Haleakala and the West Maui Mountains at an elevation of about 130 feet above mean sea level.

Maui lies well within the belt of north-easterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east. Because the project area is located in the valley between Haleakala and the West Maui Mountains and the valley is unobstructed to the north, it receives relatively good ventilation much of the time from the northeast trade winds which tend to be channeled through the valley by the terrain. Local winds such as land/sea breezes and/or upslope/downslope winds also influence the wind patterns for the area when the trade winds are weak or absent. At night, winds are often drainage winds that move downslope and out to sea. During winter, occasional strong winds from the south or southwest occur in association with the passage of winter storm systems. Table 2 shows monthly mean wind speed and prevailing wind direction statistics for Kahului Airport, which is located about 7 miles to the north of the project site. Wind data from Kahului are at least semi-representative of winds at the project site. As indicated in the table, ventilation is good throughout the year with monthly mean speeds ranging from about 11 to 15 miles per hour. Wind speeds in summer tend to be strongest. The monthly prevailing wind direction year round is from the northeast.

Air pollution emissions from motor vehicles, the formation of photochemical smog, and smoke plume rise all depend in part on air temperature. Colder temperatures tend to result in higher emissions of contaminants from automobiles but lower concentrations of photochemical smog and ground-level concentrations of air pollution from elevated plumes. In Hawaii, the annual and daily variation of temperature depends to a large degree on elevation above sea level, distance inland and exposure to the trade winds. Average temperatures at locations near sea level generally are warmer than those at higher elevations. Areas exposed to the trade winds tend to have the least temperature variation, while inland and leeward areas often have the most. Historical data from the old Puunene Airport, the site of the proposed project, indicate that the average daily minimum and maximum temperatures for this area of Maui are 61°F and 86°F, respectively.

Small scale, random motions in the atmosphere (turbulence) cause air pollutants to be dispersed as a function of distance or time from the point of emission. Turbulence is caused by both mech-
ical and thermal forces in the atmosphere. It is often measured and described in terms of Pasquill-Gifford stability class. Stability class 1 is the most turbulent and class 6 is the least. Thus, air pollution dissipates the best during stability class 1 conditions and the worst when stability class 6 prevails. In the Puunene area, stability classes 5 or 6 typically occur during the nighttime or early morning hours when temperature inversions form due to radiational cooling or to drainage flow from the nearby mountains. Stability classes 1 through 4 occur during the daytime, depending mainly on the amount of cloud cover and incoming solar radiation and the onset and extent of the sea breeze.

Mixing height is defined as the height above the surface through which relatively vigorous vertical mixing occurs. Low mixing heights can result in high ground-level air pollution concentrations because contaminants emitted from or near the surface can become trapped within the mixing layer. In Hawaii, minimum mixing heights tend to be high because of mechanical mixing caused by the trade winds and because of the temperature moderating effect of the surrounding ocean. Low mixing heights may sometimes occur, however, at inland locations and even at times along coastal areas early in the morning following a clear, cool, windless night. Coastal areas also may experience low mixing levels during sea breeze conditions when cooler ocean air rushes in over warmer land. Mixing heights in Hawaii typically are above 3,000 feet (1,000 meters).

Rainfall can have a beneficial effect on the air quality of an area in that it helps to suppress fugitive dust emissions, and it also may "washout" gaseous contaminants that are water soluble.

Rainfall in Hawaii is highly variable depending on elevation and on location with respect to the trade wind. The climate of the project area is relatively dry. Historical records from the old Puunene Airport show that this area of Maui averages about only 13 inches of precipitation per year, with the summer months being the driest [1].

5.0 PRESENT AIR QUALITY

Present air quality in the project area is mostly affected by air pollutants from vehicular, industrial, natural, and/or agricultural sources. Table 3 presents an air pollutant emission summary for the island of Maui for calendar year 1993. This is the most recent year for which an island-wide emission inventory is available. The emission rates shown in the table pertain to manmade emissions only, i.e., emissions from natural sources are not included. As suggested in the table, most of the manmade particulate and sulfur oxides emissions on Maui originate from point sources, such as power plants and other fuel-burning industries. Nitrogen oxides emissions are roughly equally divided between point sources and area sources (mostly motor vehicle traffic). The majority of carbon monoxide emissions occur from area sources (motor vehicle traffic and sugar cane burning), while hydrocarbons are emitted mainly from point sources. Emissions today are probably higher than those shown in the table, but the proportional relationships are likely about the same.

The largest sources of air pollution in the immediate project area are most likely associated with agricultural operations. The are also a small number of industrial sources within a few miles, and air pollution emissions occur from automobile traffic using
Mokulele Highway to the west of the project site. Emissions from these sources consist primarily of particulate, carbon monoxide and nitrogen oxides. Volcanic emissions from distant natural sources on the Big Island also affect the air quality at times during Kona wind conditions. By the time the volcanic emissions reach the project area, they consist mostly of fine particulate sulfate.

Table 4 summarizes the data from the Kihei monitoring station. Two size fractions of particulate matter were measured at the station: particulate matter less than 10 microns diameter (PM-10) and particulate matter less than 2.5 microns diameter (PM-2.5). Annual second-highest 24-hour PM-10 concentrations (which are most relevant to the air quality standards) ranged from 60 to 119 micrograms per cubic meter (µg/m³) between 2005 and 2008. Average annual concentrations ranged from 20 to 26 µg/m³. One exceedance of the state standard was recorded during 2005. This was reported to be due to agricultural tilling operations in the area. Another exceedance of the standard was reported during 2007. This was considered an exceptional event due to a brush fire nearby. Monitoring of PM-10 at the Kihei monitoring station was discontinued in 2008.

As indicated in Table 4, annual 24-hour 98th percentile PM-2.5 particulate concentrations (which are most relevant to the air quality standards) ranged from 8 to 16 µg/m³ between 2005 and 2009. Average annual concentrations ranged from 4 to 6 µg/m³. One relatively high value was flagged during 2006 due to fireworks. No exceedances of the state standard were recorded during this period.

Given the limited air pollution sources in the area, it is likely that air pollution concentrations are near natural background levels most of the time, except possibly for locations adjacent to agricultural operations or near traffic-congested intersections.

6.0 SHORT-TERM IMPACTS OF PROJECT

Short-term direct and indirect impacts on air quality could potentially occur due to project construction. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project construction: (1) fugitive dust from vehicle movement and soil excavation; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term impacts from slow-moving construction equipment traveling to and from the project site, from a temporary increase in local traffic caused by commuting construction workers, and from the disruption of normal traffic flow caused by roadway lane closures.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The emission rate for fugitive dust emissions from construction activities is difficult to estimate accurately. This is because of its elusive nature of emission and because the potential for its generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The EPA [2] has provided a rough
estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions at the project site would likely be somewhere near that level, depending on the amount of rainfall that occurs. In any case, State of Hawaii Air Pollution Control Regulations [3] prohibit visible emissions of fugitive dust from construction activities at the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching, and/or using wind screens, may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem, such as road cleaning or tire washing, may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions. Monitoring dust at the project boundaries could be considered to quantify and document the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the annual standard for nitrogen dioxide is not likely to be violated by short-term construction equipment emissions. Also, the new short-term (1-hour) standard for nitrogen dioxide is based on a three-year average; thus it is unlikely that relatively short-term construction emissions would exceed the standard. Carbon monoxide emissions from diesel engines are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

Project construction activities could also obstruct the normal flow of traffic at times to such an extent that overall vehicular emissions in the project area will temporarily increase. The only means to alleviate this problem will be to attempt to keep roadways open during peak traffic hours and to move heavy construction equipment and workers to and from construction areas during periods of low traffic volume. Thus, most potential short-term air quality impacts from project construction can be mitigated.

7.0 LONG-TERM IMPACTS OF PROJECT
7.1 Roadway Traffic

After construction is completed, use of the proposed facilities will result in increased motor vehicle traffic in the project area, potentially causing long-term impacts on ambient air quality. Motor vehicles with gasoline-powered engines are
significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminants.

Federal air pollution control regulations require that new motor vehicles be equipped with emission control devices that reduce emissions significantly compared to a few years ago. In 1990, the President signed into law the Clean Air Act Amendments. This legislation required further emission reductions, which have been phased in since 1994. More recently, additional restrictions were signed into law during the Clinton administration, and these began to take effect during the next decade. The added restrictions on emissions from new motor vehicles will lower average emissions each year as more and more older vehicles leave the state's roadways. It is estimated that carbon monoxide emissions, for example, will go down by an average of about 20 percent per vehicle during the next 10 years due to the replacement of older vehicles with newer models.

To evaluate the potential long-term ambient air quality impact of motor vehicle traffic using the proposed new roadway facilities, computerized emission and atmospheric dispersion models can be used to estimate ambient carbon monoxide concentrations along roadways within the project area. Carbon monoxide is selected for modeling because it is both the most stable and the most abundant of the pollutants generated by motor vehicles. Furthermore, carbon monoxide air pollution is generally considered to be a microscale problem that can be addressed locally to some extent, whereas nitrogen oxides air pollution most often is a regional issue that cannot be addressed by a single project.

For this project, three scenarios were selected for the carbon monoxide modeling study: (1) year 2011 with present conditions, (2) year 2015 without the project, and (3) year 2015 with the project. To begin the modeling study of the three scenarios, critical receptor areas in the vicinity of the project were identified for analysis. Generally speaking, roadway intersections are the primary concern because of traffic congestion and because of the increase in vehicular emissions associated with traffic queuing. For this study, the one key intersection identified in the traffic study, Kamaaina Road at Mokulele Highway, was also selected for air quality analysis. These included the following intersections.

The traffic impact report for the project [4] describes the existing and projected future traffic conditions and laneage configurations of the study intersection in detail. In performing the air quality impact analysis, it was assumed that all recommended traffic mitigation measures would be implemented.

The main objective of the modeling study was to estimate maximum 1-hour average carbon monoxide concentrations for each of the three scenarios studied. To evaluate the significance of the estimated concentrations, a comparison of the predicted values for each scenario can be made. Comparison of the estimated values to the national and state AAQS was also used to provide another measure of significance.

Maximum carbon monoxide concentrations typically coincide with peak traffic periods. The traffic impact assessment report
evaluated morning and afternoon peak traffic periods. These same
periods were evaluated in the air quality impact assessment.

The EPA computer model MOBILE6.2 [5] was used to calculate
vehicular carbon monoxide emissions for each year studied. One of
the key inputs to MOBILE6.2 is vehicle mix. Unless very detailed
information is available, national average values are typically
assumed. For the existing case and for the future without project
scenario, national average values were assumed for all
intersection approaches except those indicated in the traffic
study which had predominantly heavy-duty truck traffic. In the
future with the project, it was assumed that all approaches would
have vehicle mixes somewhere near national average values. Based
on national average vehicle mix figures, the present vehicle mix
in the project area was estimated to be 35.4% light-duty gasoline-
powered automobiles, 51.7% light-duty gasoline-powered trucks and
vans, 3.6% heavy-duty gasoline-powered vehicles, 0.2% light-duty
diesel-powered vehicles, 8.6% heavy-duty diesel-powered trucks and
buses, and 0.5% motorcycles. For the future scenarios studied,
the vehicle mix was estimated to change slightly with fewer light-
duty gasoline-powered automobiles and more light-duty gasoline-
powered trucks and vans.

Ambient temperatures of 59 and 68 degrees F were used for morning
and afternoon peak-hour emission computations, respectively.
These are conservative assumptions since morning/afternoon ambient
temperatures will generally be warmer than this, and carbon
monoxide emission estimates given by MOBILE6.2 generally have an
inverse relationship to the ambient temperature.

After computing vehicular carbon monoxide emissions through the
use of MOBILE6.2, these data were then input to an atmospheric
dispersion model. EPA air quality modeling guidelines [6]
currently recommend that the computer model CAL3QHC [7] be used
to assess carbon monoxide concentrations at roadway
intersections, or in areas where its use has previously been
established, CALINE4 [8] may be used. Until a few years ago,
CALINE4 was used extensively in Hawaii to assess air quality
impacts at roadway intersections. In December 1997, the
California Department of Transportation recommended that the
intersection mode of CALINE4 no longer be used because it was
thought the model had become outdated. Studies have shown that
CALINE4 may tend to over-predict maximum concentrations in some
situations. Therefore, CAL3QHC was used for the subject
analysis.

CAL3QHC was developed for the U.S. EPA to simulate vehicular
movement, vehicle queuing and atmospheric dispersion of vehicular
emissions near roadway intersections. It is designed to predict
1-hour average pollutant concentrations near roadway
intersections based on input traffic and emission data,
roadway/receptor geometry and meteorological conditions.

Although CAL3QHC is intended primarily for use in assessing
atmospheric dispersion near signalized roadway intersections, it
can also be used to evaluate unsignalized intersections. This is
accomplished by manually estimating queue lengths and then
applying the same techniques used by the model for signalized
intersections. Currently, the one and only intersection studied
for this project is signalized.
Input peak-hour traffic data were obtained from the traffic study cited previously. This included vehicle approach volumes, saturation capacity estimates, intersection laneage and signal timings (where applicable). All emission factors that were input to CAL3QHC for free-flow traffic on roadways were obtained from MOBILE6.2 based on assumed free-flow vehicle speeds corresponding to the posted or design speed limits.

Model roadways were set up to reflect roadway geometry, physical dimensions and operating characteristics. Concentrations predicted by air quality models generally are not considered valid within the roadway-mixing zone. The roadway-mixing zone is usually taken to include 3 meters on either side of the traveled portion of the roadway and the turbulent area within 10 meters of a cross street. Model receptor sites were thus located at the edges of the mixing zones near the single intersection that was studied for all three scenarios. This implies that pedestrian sidewalks either already exist or are assumed to exist in the future. All receptor heights were placed at 1.8 meters above ground to simulate levels within the normal human breathing zone.

Input meteorological conditions for this study were defined to provide "worst-case" results. One of the key meteorological inputs is atmospheric stability category. For these analyses, atmospheric stability category 6 was assumed for the morning cases, while atmospheric stability category 4 was assumed for the afternoon cases. These are the most conservative stability categories that are generally used for estimating worst-case pollutant dispersion within rural areas for these periods. A surface roughness length of 10 cm and a mixing height of 1000 meters were used in all cases. Worst-case wind conditions were defined as a wind speed of 1 meter per second with a wind direction resulting in the highest predicted concentration. Concentration estimates were calculated at wind directions of every 5 degrees.

Existing background concentrations of carbon monoxide in the project vicinity are believed to be at low levels. Thus, background contributions of carbon monoxide from sources or roadways not directly considered in the analysis were accounted for by adding a background concentration of 0.5 parts per million (ppm) to all predicted concentrations for 2011. Although increased traffic is expected to occur within the project area within the next several years with or without the project, background carbon monoxide concentrations may not change significantly since individual emissions from motor vehicles are forecast to decrease with time. Hence, a background value of 0.5 ppm was assumed to persist for the future scenarios studied.

Predicted Worst-Case 1-Hour Concentrations

Table 5 summarizes the final results of the modeling study in the form of the estimated worst-case 1-hour morning and afternoon ambient carbon monoxide concentrations. These results can be compared directly to both state and the national AAQS. Estimated worst-case carbon monoxide concentrations are presented in the table for three scenarios: year 2011 with existing traffic, year 2015 without the project and year 2015 with the project. The locations of these estimated worst-case 1-hour concentrations all occurred at or very near the indicated intersection.
As indicated in the table, the highest estimated 1-hour concentration within the project vicinity for the present (2011) case was 5.1 ppm. This was projected to occur during the morning peak traffic hour near the intersection of Kamaaina Road at Mokulele Highway. The predicted worst-case 1-hour concentration for the 2011 scenario was well within both the national AAQS of 35 ppm and the state standard of 9 ppm.

In the year 2015 without the proposed project, the highest worst-case 1-hour concentration at the intersection of Kamaaina Road and Mokulele Highway was predicted to continue to occur during the morning with a value of 4.8 ppm. Compared to the existing case, the worst-case concentration decreased (improved), and worst-case concentrations remained well within the state and national standards.

Predicted 1-hour worst-case concentrations for the 2015 with project scenario increased only slightly compared to the without project case at the study intersection. Similar to the 2015 without project case, the maximum concentration was predicted to occur during the morning peak hour at the intersection of Kamaaina Road at Mokulele Highway, increasing to 5.3 ppm. Worst-case concentrations remained well within the state and federal standards.

**Predicted Worst-Case 8-Hour Concentrations**

Worst-case 8-hour carbon monoxide concentrations were estimated by multiplying the worst-case 1-hour values by a persistence factor of 0.5. This accounts for two factors: (1) traffic volumes averaged over eight hours are lower than peak 1-hour values, and (2) meteorological conditions are more variable (and hence more favorable for dispersion) over an 8-hour period than they are for a single hour. Based on monitoring data, 1-hour to 8-hour persistence factors for most locations generally vary from 0.4 to 0.8 with 0.6 being the most typical. One study based on modeling [9] concluded that 1-hour to 8-hour persistence factors could typically be expected to range from 0.4 to 0.5. EPA guidelines [10] recommend using a value of 0.7 unless a locally derived persistence factor is available. Recent monitoring data for locations on Oahu reported by the Department of Health [11] suggest that this factor may range between about 0.2 and 0.6 depending on location and traffic variability. Considering the location of the project and the traffic pattern for the area, a 1-hour to 8-hour persistence factor of 0.5 will likely yield reasonable estimates of worst-case 8-hour concentrations.

The resulting estimated worst-case 8-hour concentrations are indicated in Table 6. For the 2011 scenario, the estimated worst-case 8-hour carbon monoxide concentration for the single location studied (Kamaaina Road at Mokulele Highway) was 2.6 ppm. The estimated worst-case concentration for the existing case was well within both the state standard of 4.4 ppm and the national limit of 9 ppm.

For the year 2015 without project scenario, the worst-case concentration at the intersection of Kamaaina Road and Mokulele Highway was 2.4 ppm. This is slightly lower than the existing case and within the standards.
For the 2015 with project scenario, the estimated worst-case concentration increased only slightly compared to the without project case to a value of 2.6 ppm, indicating minimal project impact. The predicted 8-hour concentration for this scenario was well within both the national and the state AAOS.

Conservativeness of Estimates

The results of this study reflect several assumptions that were made concerning both traffic movement and worst-case meteorological conditions. One such assumption concerning worst-case meteorological conditions is that a wind speed of 1 meter per second with a steady direction for 1 hour will occur. A steady wind of 1 meter per second blowing from a single direction for an hour is extremely unlikely and may occur only once a year or less. With wind speeds of 2 meters per second, for example, computed carbon monoxide concentrations would be only about half the values given above. The 8-hour estimates are also conservative in that it is unlikely that anyone would occupy the assumed receptor sites (within 3 m of the roadways) for a period of 8 hours.

7.2 Industrial Sources

Air pollution emissions from industrial sources located within the proposed heavy industrial subdivision could potentially result in direct impacts on air quality. While the specific industrial residents of the proposed project have not yet been identified, it is possible that at least some of these will have the potential to emit significant amounts of air pollution. In general, the Maui County Code pertaining to heavy industrial use allows for industries that involve the manufacture or treatment of goods from raw materials. Examples of some of the permitted uses include: alcohol manufacture, automobile wrecking, canneries, chemical manufacture, concrete manufacture, factories, lumber yard, machine shops, paint manufacture, petroleum products manufacture and sugar mills and refineries. In general, areas zoned for heavy industry are intended for those uses which may be offensive or obnoxious because of odor, dust, smoke, gas, noise, vibration and the like. Some industries, however, are declared to be special uses and require a use permit. Some of these include: acid manufacture, ammonia manufacture, asphalt manufacture, crematories, explosives manufacture, fertilizer manufacture, fish canneries, quarry or stone mill, rock crushing, petroleum refinery, saw mill and animal slaughter.

Without specific information concerning stack heights and stack gas temperatures, exit velocities and emission rates, air quality impacts from the potential industrial facilities locating within the proposed industrial subdivision cannot be quantitatively estimated. At the present time, such detailed information is not available. However, Hawaii air pollution control rules [3] require that any activity that causes air pollution must obtain written approval from the director of the Hawaii Department of Health. This written approval generally involves applying for both a permit to construct and a permit to operate. At the time of application, detailed information must be provided by the applicant concerning the type and nature of any air pollution emissions and the emission control technology that would be utilized. Depending on the magnitudes of the project emissions and other factors, air quality impact analyses and/or air quality monitoring may be required before the application to construct/operate is approved. Thus, even though an assessment of
potential direct impacts from project air pollution emissions cannot be done at this time, state rules may require that such analyses be performed at a later date when specific businesses apply to locate at the proposed industrial subdivision.

8.0 CONCLUSIONS AND RECOMMENDATIONS

The existing air quality in the project area is predominantly good, although there have been incidents of relatively high particulate concentrations at the nearby Department of Health air quality monitoring station in Kihei. These incidents have been attributed to either agricultural tilling operations or to brush fires.

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Uncontrolled fugitive dust emissions from construction activities are estimated to amount to about 1.2 tons per acre per month, depending on rainfall. To control dust, active work areas and any temporary unpaved work roads should be watered at least twice daily on days without rainfall. Use of wind screens and/or limiting the area that is disturbed at any given time will also help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching or by the use of chemical soil stabilizers. Dirt-hauling trucks should be covered when traveling on roadways to prevent windage. A routine road cleaning and/or tire washing program will also help to reduce fugitive dust emissions that may occur as a result of trucks tracking dirt onto paved roadways in the project area. Establishment of landscaping early in the construction schedule will also help to control dust. Monitoring dust at the project boundary during the period of construction could be
considered as a means to evaluate the effectiveness of the project dust control program and to adjust the program if necessary.

During construction phases, emissions from engine exhausts (primarily consisting of carbon monoxide and nitrogen oxides) will also occur both from on-site construction equipment and from vehicles used by construction workers and from trucks traveling to and from the project. Increased vehicular emissions due to disruption of traffic by construction equipment and/or commuting construction workers can be alleviated by moving equipment and personnel to the site during off-peak traffic hours.

After the proposed project is completed, any long-term impacts on air quality in the project area due to emissions from project-related motor vehicle traffic should be negligible. Worst-case concentrations of carbon monoxide should remain within both the state and the national ambient air quality standards. Implementing any air quality mitigation measures for long-term traffic-related impacts is probably unnecessary and unwarranted.

At this time, sufficient detail is not available describing the facilities that may be located within the proposed industrial subdivision to perform any quantitative impact assessments. Some of the types of facilities allowed by county zoning could emit significant amounts of air pollution. In any case, before any air pollution sources can be built anywhere in the state, an application must be submitted to the Department of Health for a permit to construct the facility, and detailed information concerning any air pollution emissions will need to be provided in the application. If deemed necessary, the Department of Health may require the applicant to assess the air quality impact of the proposed emissions.
REFERENCES


8. CALINE4 - A Dispersion Model for Predicting Air Pollutant Concentrations Near Roadways, FHWA/CA/TL-84/15, California State Department of Transportation, November 1984 with June 1989 Revisions.


<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Units</th>
<th>Averaging Time</th>
<th>Maximum Allowable Concentration</th>
<th>National Primary</th>
<th>National Secondary</th>
<th>State of Hawai’i</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Matter</td>
<td>kg/m³</td>
<td>Annual</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>50²</td>
</tr>
<tr>
<td>(≤10 microns)</td>
<td></td>
<td>24 Hours</td>
<td>150⁵</td>
<td>150⁵</td>
<td>150⁵</td>
<td>-</td>
</tr>
<tr>
<td>Particulate Matter</td>
<td>μg/m³</td>
<td>Annual</td>
<td>15³</td>
<td>15³</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(≤2.5 microns)</td>
<td></td>
<td>24 Hours</td>
<td>35³</td>
<td>35³</td>
<td>-</td>
<td>-</td>
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<td>Sulfur Dioxide</td>
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<td>Annual</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td>24 Hours</td>
<td>-</td>
<td>-</td>
<td>0.14⁴</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Hour</td>
<td>0.075⁵</td>
<td>-</td>
<td>0.5⁵</td>
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<tr>
<td>Nitrogen Dioxide</td>
<td>ppm</td>
<td>Annual</td>
<td>0.050²</td>
<td>0.050³</td>
<td>0.04³</td>
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<tr>
<td></td>
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<td>1 Hour</td>
<td>0.100¹</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Carbon Monoxide</td>
<td>ppm</td>
<td>8 Hours</td>
<td>9⁶</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
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<td>1 Hour</td>
<td>3.5⁶</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Ozone</td>
<td>ppm</td>
<td>8 Hours</td>
<td>0.075⁵</td>
<td>0.075³</td>
<td>0.08¹</td>
<td>-</td>
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<tr>
<td>Lead</td>
<td>µg/m³</td>
<td>3 Months</td>
<td>0.15⁶</td>
<td>-</td>
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<td>-</td>
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<tr>
<td></td>
<td></td>
<td>Quarter</td>
<td>1.5⁶</td>
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<td>1.5⁶</td>
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<tr>
<td>Hydrogen Sulfide</td>
<td>ppm</td>
<td>1 Hour</td>
<td>-</td>
<td>-</td>
<td>35⁶</td>
<td>-</td>
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</tbody>
</table>

Notes:
1. Not to be exceeded more than once per year in any 3-year period.
2. Not to be exceeded more than once per month.
3. Three-year average of the weighted annual arithmetic mean.
4. Three-year average of the highest daily 1-hour maximum.
5. Three-year average of the highest daily 24-hour maximum.
6. Three-year average of the highest daily 8-hour maximum.
7. Three-year average of the highest daily 1-hour maximum.
8. Quarterly average.
### Table 3

AIR POLLUTION EMISSIONS INVENTORY FOR ISLAND OF MAUI, 1993

<table>
<thead>
<tr>
<th>Air Pollutant</th>
<th>Point Sources (tons/year)</th>
<th>Area Sources (tons/year)</th>
<th>Total (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate</td>
<td>63.275</td>
<td>7.030</td>
<td>70.305</td>
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<tr>
<td>Sulfur Oxides</td>
<td>6.419</td>
<td>nil</td>
<td>6.419</td>
</tr>
<tr>
<td>Nitrogen Oxides</td>
<td>7.312</td>
<td>8.618</td>
<td>15.930</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>4.612</td>
<td>20.050</td>
<td>24.662</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>1.991</td>
<td>234</td>
<td>2.225</td>
</tr>
</tbody>
</table>


### Table 4

ANNUAL SUMMARIES OF AIR QUALITY MEASUREMENTS FOR MONITORING STATIONS NEARLY FOREST HUNTING INDUSTRIAL MACHINERY PROJECT

<table>
<thead>
<tr>
<th>Parameter / Location</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate (PM-10) / Kilns</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-Hour Averaging Period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Samples</td>
<td>317</td>
<td>337</td>
<td>324</td>
<td>331</td>
<td>–</td>
</tr>
<tr>
<td>Highest Concentration (ug/m³)</td>
<td>112</td>
<td>109</td>
<td>111</td>
<td>114</td>
<td>130</td>
</tr>
<tr>
<td>2nd Highest Concentration (ug/m³)</td>
<td>117</td>
<td>109</td>
<td>111</td>
<td>114</td>
<td>130</td>
</tr>
<tr>
<td>No. of State AIDS Exceedances</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Annual Average Concentration (ug/m³)</td>
<td>112</td>
<td>109</td>
<td>111</td>
<td>114</td>
<td>130</td>
</tr>
</tbody>
</table>

| Particulate (PM-2.5) / Kilns |      |      |      |      |      |
| 24-Hour Averaging Period |      |      |      |      |      |
| No. of Samples       | 116  | 109  | 78   | 59   | 358  |
| Highest Concentration (ug/m³) | 10   | 10   | 11   | 14   | 28   |
| 2nd Highest Concentration (ug/m³) | 8    | 10   | 13   | 13   | 16   |
| No. of State AIDS Exceedances | 0    | 0    | 0    | 0    | 0    |
| Annual Average Concentration (ug/m³) | 10   | 10   | 11   | 14   | 28   |

*Exceptional event (brush fire)
*Data flagged due to fireworks

### Table 5
ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS ALONG ROADWAYS NEAR PUUNENE HEAVY INDUSTRIAL SUBDIVISION PROJECT (parts per million)

<table>
<thead>
<tr>
<th>Year/Scenario</th>
<th>2011/Present</th>
<th>2015/Without Project</th>
<th>2015/With Project*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Kamehameha Road at Makalele Highway</td>
<td>5.1</td>
<td>2.6</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Hawaii State AAQS: 9  
National AAQS: 35

*Including traffic mitigation.

### Table 6
ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS ALONG ROADWAYS NEAR PUUNENE HEAVY INDUSTRIAL SUBDIVISION PROJECT (parts per million)

<table>
<thead>
<tr>
<th>Year/Scenario</th>
<th>2011/Present</th>
<th>2015/Without Project</th>
<th>2015/With Project*</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM</td>
<td>PM</td>
<td>AM</td>
<td>PM</td>
</tr>
<tr>
<td>Kamehameha Road at Makalele Highway</td>
<td>2.0</td>
<td>4.4</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Hawaii State AAQS: 4.4  
National AAQS: 9

*Including traffic mitigation.
APPENDIX I
Archaeological Inventory Survey
AN ARCHAEOLOGICAL INVENTORY SURVEY
OF AN APPROXIMATE 917 METER (3,007.8 FEET) LONG ALTERNATE
ACCESS ROAD AND AN 86.029-ACRE PROPERTY IN PUUNENE,
PULEHU NUI AHUPUA'A, WAILUKU DISTRICT,
ISLAND OF MAUI, HAWAII
[TMK: (2) 3-8-008: POR. 005, POR. 006, AND 019]

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and
Michael F. Dega, Ph.D.
September 201
DRAFT

Prepared for:
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Project Coordinator
CMBY 2011 Investment, LLC
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Kahului, Hawaii 96733

ABSTRACT
Scientific Consultant Services, Inc. (SCS) conducted Archaeological Inventory Survey of an approximate 917 meter (3,007.8 feet) long alternate access road [TMK: (2) 3-8-008: por. 005 and 006] and the 86.029-acre subject property [TMK: (2) 3-8-008:019] in Pu`unene, Pulehu Nui Ahupua`a, Wailuku District, Island of Maui, Hawaii. The proposed project area was comprised of two areas separated by an asphalt road. The larger portion of the proposed project area and two thirds of the alternate access road were previously investigated, in 1999, by International Archaeological Research Institute Incorporated (Tomonari-Tuggle et al. 2001) as part of a larger Survey and designated as the former Naval Air Station Puunene as Housing Area A, Southern and Northeastern Portions. Within the proposed project area, the 1999 International Archaeological Research Institute Incorporated (IARI) study identified two archaeological sites comprised of a section associated with the former Naval Air Station Puunene, State Site 50-50-09-4164, and a post-World War II cattle ranching site, State Site 50-50-09-4801 (ibid) (Tomonari-Tuggle et al. 2001). The current research led to relocation of these two historic sites, assessed the presence/absence of features within two sites, and identified previously undocumented features within the two sites.

A majority of the historic features within the proposed project area have been heavily impacted by modern mechanical clearing and ensuing debris removal. In general, most of the features composing State Site 50-50-09-4164 were mechanically impacted, abandoned, and neglected. The historic features associated with State Site 50-50-09-4801 were abandoned and neglected, but not mechanically impacted. Archival research has indicated the northern half of the proposed project area had been utilized for a pig farm and scrap metal storage site, while the southern half of the subject property remained fallow. A total of fifteen (15) features, interpreted as either NAS Puunene-related or post war cattle ranching-related features, were not previously recorded. Of these 15 features recorded during the current study, three features were located in the State Site 50-50-09-4801 post-war cattle ranching area. The remaining twelve (12) features were located in the State Site 50-50-09-4164 former Naval Air Station Puunene area (Housing Area A).

To supplement the surface pedestrian survey, a total of twenty (20) stratigraphic trenches were mechanically excavated by SCS. Only one stratigraphic trench (ST-6) revealed the presence of subsurface architecture at Facility 177 (SCS Site T-25). The feature was initially utilized as a military workshop and converted for animal husbandry purposes.

The features recorded herein as relates to the former two sites remain significant under Criterion D. State Site 50-50-09-4164 has also been assessed as significant under Criterion A, as it has yielded information important to the history of Maui. These 15 features have been recorded and inventoried under the existing State site numbers. No further archaeological work is recommended for the larger portion of the proposed project area. Since an updated Archaeological Inventory Survey was not conducted past the perimeter of the alternate access road, archaeological features that were documented during the 1999 International Archaeological Research Institute Incorporated (IARI) survey on the east and west sides of the access road (see Tomonari-Tuggle et al. 2001) could be impacted should physical alteration be applied. Thus, Archaeological Monitoring is recommended for the alternate access road.
INTRODUCTION

At the request of CMBY 2011 Investment, LLC (CMBY), Scientific Consultant Services, Inc. (SCS), conducted an Archaeological Inventory Survey for the Puunene Heavy Industrial Subdivision Project (the proposed project area) on an approximately 917 meter (3,007.8 feet) long alternate access road [TMK: (2) 3-8-008: pars. 005 and 006] and on 86.029-acre of land [TMK: (2) 3-8-008: 019] within Pāʻukūlu, Waikapu District, Island of Maui, Hawai‘i (Figures 1, 2, and 3). According to the County of Maui Real Property Tax Division website, http://www.mauirealtytax.com/, the fee owner of the 86.029-acre subject property [TMK: (2) 3-8-008:019] is identified as CMBY. The fee owner of TMK: (2) 3-8-008:005 and 006 on which the 917 meter (3,007.8 feet) long alternative access road would be located, if necessary, is identified as Alexander & Baldwin, Inc.

Fieldwork was conducted between June 27 and 30, 2011 by SCS archaeologists Ian Bastford, B.A. and Guerin Tomes, B.A., under the direction of Michael F. Dega, Ph.D., Principal Investigator. An Archaeological Inventory Survey was performed to investigate the presence/absence of archaeological features on the subject parcel, and if found, assess feature function, construction methods, associated cultural deposits, and site significance.

The proposed project area was previously subject to archaeological inquiry. In 1999 International Archaeological Research Institute, Inc. (IARI) conducted an Archaeological Inventory Survey of a large area, part of which included the proposed project area (Tunmari-Tuggle et al. 2001). During the IARI survey, two archaeological sites, State Site 50-50-09-4164 (former World War II Naval Air Station Puunene) and State Site 50-50-09-4801 (post-World War II ranching site) were newly identified (ibid). During the current inventory survey, SCS archaeologists relocated these two previously identified archaeological sites and supplemented the initial study with the identification of additional, previously undocumented surface features within the two sites. Regarding the 917 meter 9 (3,007.8 feet) long alternative access road, although the 1999 IARI survey documented archaeological features set back from both sides of the road, the purpose of the current project was to focus only on the alternate access road and right of way, and not further beyond the footprint of the alternate access road.

GEOGRAPHIC SETTING

Although both portions of the proposed project area are separated by an existing asphalt road, the 917 meter (3,007.8 feet) long alternative access road and 86.029-acre parcel are situated approximately 2.0 miles inland from the Kihei coastline, between c. 80 to 120 feet (24 to 37

meters) above mean sea level (amsl), on the lower west slope of Haleakalā. The 917 meter (3,007.8 feet) long alternate access road is located in Tax Map Keys (2) 3-8-008:005 and 006 both of which are owned by Alexander & Baldwin, Inc. The north, east, and south flanks of the 86.029-acre portion of the proposed project area are bordered by private land owned by Alexander & Baldwin, Inc. [TMK: (2) 3-8-008:005]. The west side of the proposed project area is bordered by private land owned by Alexander & Baldwin, Inc. [TMK: (2) 3-8-008:030] and land owned by the State of Hawai‘i [TMK: (2) 3-8-008:037]. Vehicular access from Mokulele Highway to the 86.029-acre subject parcel will be provided via Kama‘aina road, South Firebreak Road, and Lower Kīhei Road via access and utility easements that are being requested from the State of Hawai‘i and Alexander & Baldwin, Inc. In the unlikely event the easements are not granted, access to the subject parcel will be provided by the 917 meter (3,007.8 feet) long alternate access road. At the time of this writing, there were several asphalt paved roads that divided the larger portion of the proposed project area into several unequal-sized sections; the names of the roads were not known.

The 917 meter (3,007.8 feet) long alternate access road was found in various conditions. With an average width of approximately 6.1 m (20 ft), the southern half consisted of a dirt road that was not in constant use while the northern half was comprised of a paved asphalt road that was being used by Hawaiian Cement and nearby sugarcane lands. A bridge constructed by Hawaiian Cement was observed in the asphalt section of the alternative access road. Otherwise, the roads on which the alternate access road was situated, sat fallow.

Most of the proposed project area contained undulating terrain. The larger portion was slightly undulated amongst patches of flat terrain. Trees on the proposed project area had attained heights of approximately 30 feet tall. Approximately 30 percent of the proposed project area had grown fallow since the departure of a pig farm and scrap metal storage site. Basalt boulders from the side of basketballs to the size of a 55-gallon drum littered the landscape and created physical obstacles (Figure 4).
The landscape condition of the proposed project area's larger portion was varied. The northern portion of the proposed project area was cleared up within the recent past, according to Ken Nomura of Alexander & Baldwin, Inc. Mr. Nomura relayed to the SCS field crew that following CMBY's purchase of the 86.829-acre property, Alexander & Baldwin, Inc. had cleared the land of debris associated with a pig farm and scrap metal storage site that had previously utilized the property. The result was that various portions of the project area were mechanically altered, on the surface and in subsurface contexts (Figure 5). Visibility of the mechanically altered ground surface was excellent. The mechanical clearance of the debris was not applied to the proposed project area, in its entirety. The areas that were not mechanically cleared were covered with dried, two to four feet tall grasses and vegetation. Nonetheless, man-made features were visible due to the mechanical clearance and the dried vegetation.

Figure 4: Photograph of Representative Basalt Boulders Amongst Tall Grass. View to Northeast.
SOILS

Based on Foote et al. (1972: 126-127; Map 106), the proposed project area is mainly situated within the Waiakea very stony silty clay loam (WID2) series with a small section at the southern end of the proposed project area containing A'a cobbly sandy loam (AcB) (Ibid: 26; Map 106). The Waiakea extremely stony silty-clay loam which occurs on 3 to 25 percent slopes and is eroded, with medium runoff and severe erosional hazard. Stones cover approximately 3 to 15 percent of this soil surface. With the exception of sugarcane, this soil type has been utilized for pasture and wildlife. The A'a cobbly sandy loam has a slow runoff, is a slight erosional hazard, and is typically utilized for pastureland and sugarcane.

Subsurface testing of the WID2 and AcB soils on the southern portion of the proposed project area revealed the presence of volcanic cinders strata that were interpreted during the current survey as strata. Naturally occurring rounded basalt cobbles and small boulders were also being exposed during the excavation of the proposed project area matrices.

VEGETATION

With the exception of few plant native species such as ‘ilima (Sida falax) and ‘ahinalo (Waltheria americana), vegetation in the proposed project area was generally composed of non-native introductions. Although decomposing grasses dominated the vegetation regime, large vegetation common to arid region such as kiawe (Prosopis pallida), koa ho'opi (Leucaena leucocephala), easter bean (Bignonia coccinea), lion’s ear (Leonotis nepetfolia), spiny amaranth (‘iuki: Amaranthus spinosus), tomato (Solanum sp.), goosefoot (Chenopodium sp.), golden crownbeard (Verbesina encelioides), kula (kula: Acacia farnesiana), balsam pear (Momordica charantia), koali koa hulu (Murraya acuminata), hairy abalio (ma‘o: Abalio grandifolium), and coast button (Tridax procumbens) were present.

CLIMATE

The project area lies near the dry, arid region of Maui's southwest coast. Rainfall indications, according to Price (1983:67), show that the project area receives no more than five inches per year, with accumulations occurring mostly during the months of December and January. Unlike lower, coastal elevations, higher elevations of Pā‘one Nui Ahupua‘a receive more precipitation due to fog drip and lower temperature climates. The frequency of the project area receiving upland wash is based on the amount of water accumulated upslope and the available water drainages created within or near the project area.

Given the lack of constant water resources within the proposed project area, Traditional-type (i.e., pre-1778 A.D.) crops such as dryland sweet potato may have been the only feasible
subsistence resource planted in the area prior to the advent of large-scale plantation-type irrigation systems. Of the twenty (20) stratigraphic trenches excavated during the current survey, only eight (8) trenches revealed no more than a single soil layer. The windy conditions of the proposed project area suggest soils within the proposed project area may have been adversely affected. Upland, gravitational wash also may have contributed to soil movement through the proposed project area environs during the Traditional-Period.

TRADITIONAL AND HISTORIC SETTING

Pāhehu Nui Ahupua‘a is located on the southwestern side of Maui in the modern districts of both Wailuku and Makawao. Prior to being named the District of Makawao, the same district was traditionally known as Kula District. The proposed project area would have been partially within the traditional District of Kula. As such, the proposed project area’s traditional and historic settings will be highlighted with events that occurred in the traditional District of Kula rather than in the modern District of Wailuku.

The proposed project area is situated near the leeward coast that is located on the lower, western slope of Maui’s largest volcano, Haleakalā, the latter which rises to over 3,848 meters (10,600 ft) asl. The coastal area, on which the proposed project area lies, is currently referred to as “Kihel,” which translates as “cape” or “cosh” in Hawaiian (Pukui et al. 1974:10).

TRADITIONAL TIMES

Oral documentation for pre-Contact activity exists for the district of Kula area that document activities such as chiefly (aliʻi) landings, battles, and catholic work practices such as fishing and planting (Sterling 1998). Documented oral accounts of pre-Contact activities and events occurring in the Kihel area, specifically naming Pāhehu Nui Ahupua‘a, are limited to events that occurred on a single, given period rather than long terms events (e.g., area used as a place of worship for an extended period of time). A. Fernandes, in Sterling (1998:233), reported that the area of Kihelwuku was the location “where peace was concluded and festive reunions took place of warlike encounters.” The festive reunions took place once Aluapunai, once Moi of Maui, found out that his nephew Kamehameha I succeeded him. A separate story dates to 1776 when Kahanu‘opu‘u landed his warring faction at Kiheluku‘a between Kealia and Kapua‘u thinking that “the Alapa were to drink of the waters of Wailuku. The Alapa were those who excelled at being warriors. Unfortunately for Kahanu‘opu‘u, his warriors lost when battling with forces of Kalanikuli at Wailuku.

HISTORIC TIMES

Although some accounts informally mention the possibility that Spanish traders may have known about the Hawaiian Islands two hundred years prior to the “discovery” by Captain James Cook on the H.M.S. Resolution, Cook was the first known Westerner to have recorded the Hawaiian Islands (Speckman 1978:19). When Cook “discovered” Maui in November 1778, he anchored near Kahului. Although attempting to travel to Maui’s western end, he never travelled to the leeward side of East Maui where the proposed project area lies. The first Western explorer credited with landing on Maui is Admiral Jean Francois Galaup, Comte de la Perouse of France. La Perouse, the name most used to recognize the French explorer, set foot in the area known today as La Perouse Bay, an area south of Makana.

From the early historic period, several industries became paramount in Kula: whaling, Irish potato cultivation, ranching, and sugar cane cultivation. Most of these endeavors transformed the upland landscape itself. The coastal areas were more impacted by commerce-related activities (e.g., businesses, hostels, stores). Kalb et al. (1997:68–69) state that Kalepolepo (i.e., Kihel) was an important provisioning area through the 1830s, when the area became “a hub of activity for all of Kula.” From the 1840s to 1860s a whaling station was maintained in Kihel. According to Colin et al. (14:2000), in 1849 John Holstead constructed “The Koa House” at Kalepolepo in Kihel, one of several such buildings supporting the whaling industry in Kihel. The Koa House served as a store, a residence, and a gathering place for whalers.

Following Contact, one of the greatest historic events impacting the population of the Hawaiian Islands was the Mähele of 1848. Thought to have been created under pressure from foreigners, Kaunakakai (Kamehameha III) enacted the Mähele, which altered the system of land transactions and legal land ownership processes for the entire population of the islands:

By mid-century, the fledgling Hawaiian Kingdom undertook the single most significant incursion to cultural change, the Great Mahele or division of lands between the king, chiefs, and government, establishing land ownership on a Western-style, fec- simple basis. From this single act, an entire restructuring of the ancient social, economic, and political order followed [Kirch 1985:309].

The Mähele statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. The proposed project area does not contain Land Commission Awards (LCAs). However, LCA 5230 is the closest to the proposed project area.
and is shown on TMK (2) 3-8-04 to exist north of the proposed project area on the plains of Pālehu Nui Ahupuaʻa’s (see Figure 2). LCA 5230 was awarded to Keaweamahi on September 28, 1853 with following Royal Patent numbers 8140 and 8252 being issued to the same individual on March 16, 1855 concluding a payment of $5.00 (Burgess and Spear 1997:5). On this LCA Keaweamahi claimed 5 apana (land portions), 7 la‘i (wet taro) and 2 kula (pastures). Saltwater-associated geography (i.e., shore and dunes) was also claimed by Keaweamahi as part of LCA 5230.

Based on a map contained within Sterling (1998:242) in conjunction with the tax map keys, the ahupuaʻa of Pālehu Nui is shown to continue northeast upslope on the northwest side of Halakula. LCA 5230 also extends into the upper portion of Pālehu Nui Ahupuaʻa. An overview of upland LCAs within the upland portion of Pālehu Nui Ahupuaʻa reveal that land at the higher elevations were utilized for sweet and Irish potatoes (Waihona ‘aina 2011). LCA 9019:3, claimed by Helehu, located just below the modern Kula Highway and between Holoapu and Pālehu Roads, had pasture lands claimed. As a side note, Irish potatoes were also existent at the time of the claim (i.e., the year 1848) although to pinpoint the location of such is difficult due to insufficient map sources. Above the Kula Highway, LCA 4567:4 claimed by Waihona in 1848, stated that Irish potatoes were present on his land and that sweet potatoes were also grown on his land, although not on the same piece of land (ibid). Supplemental ethnographic research concerning upland LCA usage includes Bertholomeu and Bailey (115:1994) who relay that “Hawaiians in higher elevations... traditionally grew sweet potatoes.” For an in-depth look of LCA usage in upland areas of adjacent ahupuaʻa, please see Kolb et al. 1997.

Based on the information provided by the Tax Map Key, it appears that LCA 5230 is quite extensive and extends over a large portion of the ahupuaʻa. It further indicates that LCA 5230 is the largest LCA awarded to Pālehu Nui Ahupuaʻa. Thus, it is difficult to ascertain where particular activities were conducted (e.g., la‘i, kula, apana) within the LCA.

In Sterling (1998:254–257) it was reported that the late Governor W. L. Melehona was an “owner” of Pālehu Nui Ahupuaʻa and the boundaries of the ahupuaʻa were somewhat vague. Through the information provided by the Māhele, it was acknowledged that Keaweamahi previously owned land within the ahupuaʻa. Oral testimonies from multiple sources contribute to somewhat more specific but general boundaries of the ahupuaʻa and conclusions were found in favor of the late governor.

From the mid-19th Century to the early 20th Century, coastal activity remained concentrated at Kalapana, but by the 1870s whaling diminished and the potato industry moved to the Uaupalakua area (Cook et al. 2006). Coastal Kula became somewhat of a dusty, “dirty place” (Wilcox 1921). As a result of industry movement out of the Kīhei area for a time or the vast expanses of land available, Halakula Ranch utilized most coastal portions of Kula in the later 1800s.

Like the rest of Hawai‘i (and the world) during the 1940s, Kīhei in Pālehu Nui Ahupuaʻa was interrupted by the advent of World War II (WWII). The coast from Māʻalaea to Makena was used by United States military forces as training areas in preparation for amphibious assaults that were to be made in the Pacific war theater (Davis and Fortini 2004, Tome and Dega 2004). The main military service operating along the coastal region of the Wailuku and Makawao (Kula) Districts was the United States Marine Corps’ 4th Marine Division, which used the coast during the latter part of 1944. The beautiful beaches of Kīhei and Wailea were transformed with the construction of concrete military bunkers to simulate enemy positions during amphibious combat operations. A non-4th Marine Division military unit that also trained along the coastline was the underwater demolition teams, known as UDT. Comprised of Army and Navy personnel, these people were trained to rig and detonate explosives on various obstacles in the way of the U.S. amphibious assaults.

Following WWII, the Kīhei coastline returned to its tranquil activities of ranching and the development of residential areas. During the 1960s, the Kīhei stage was set for development of the area as a vacation havens for tourists and homeowners which continues to the present day.

**PREVIOUS ARCHAEOLOGY IN GENERAL AREA**

Archaeological studies in the greater area began in the early 20th Century by T. Thrum (1909), J. Stokes (1909–1916), and W. M. Walker (1931). These surveys included areas of leeward Maui and inventoried both coastal and upland sites of the Kula District. In the ahupuaʻa of Pālehu Nui Walker listed two sites identified as Haleakalane Heiau and Nininiheia Heiau (see Sterling 1998:253).

Archival research indicates few archaeological projects have been conducted near the proposed project area. Although these projects occurred some distance from the subject parcel they are directly relevant. These studies provide background information to the current study.
area. The reader is referred to Tomonari-Tuggle et al. (2001:61-63) which provides a succinct summary of these studies.

Kennedy (1988) conducted a visual inspection of TMK: (2) 3-8-004-029 that did not identify archaeological sites. The absence of sites was attributed to prior development of the area for a construction baseyard with an installation of a large concrete culvert. In 1991 the Bishop Museum conducted an Archaeological Inventory Survey for the Kal Makani project that produced negative findings on the ground surface or subsurface contexts (Rotunno-Hazuka (1991)).

In 1992 Aki Sinoto Consulting conducted an Archaeological Inventory Survey of the proposed location for the Kihei Gateway Complex which led to the identification of State Site 50-50-09-31, a remnant, historic concrete bridge crossing Wailoa Stream. It was suggested that the bridge was probably related to a narrow gauge cane railroad that operated through the area and may have serviced Kihei Camp 1 (Sinoto and Pantalone 1992).

Between 1995 and 1999 Scientific Consultant Services, Inc. conducted an Inventory Survey (followed by two addenda) for the Puunene Bypass/Molokana Highway Improvement Corridor located in TMK: (2) 3-8-04, 03, 06, and 07; Burnett and Spear 1997; Chaffee et al. 1999). No additional archaeological sites were identified. However, one previously recorded site was relocated and identified as the Naval Air Station Puunene Dump Site (State Site 50-50-09-4164). Scientific Consultant Services, Inc. conducted an archaeological study on TMK: (2) 3-9-041;027, which included excavation of nine stratigraphic trenches. New sites were identified (Pestana and Dega 2002).

In 2005 Scientific Consultant Services, Inc. conducted an Archaeological Inventory Survey, including limited subsurface testing, was conducted on a 9.289-acre property in North Kihei, Maui, Hawaii (TMK: (2) 3-8-004-028) (Tome and Dega 2005). The proposed project area, located immediately adjacent and abutting the southern boundary of the Hale Piilani Park, had been partially modified by illegal dumping, utilization as an informal dirt bike course, and ranching activities. Two archaeological sites comprising four structural features were newly identified during this Inventory Survey. The sites were interpreted respectively as a World War II-related site (State Site 50-50-09-5801, WW II training site) and a traditional Hawaiian site (State Site No. 50-50-09-5802, pre-Contact agriculture/habitation complex). The two sites date utilization of the subject parcel from the pre-Contact Period (i.e., pre-1778) to the United States Marine Corps' 4th U.S. Marine Division training during the closing years of World War II.

PREVIOUS ARCHAEOLOGY IN THE PROPOSED PROJECT AREA

The proposed project area (TMK: (2) 3-8-008:019) represents a portion of a larger project area previously subject to an Archaeological Inventory Survey in 1999 by International Archaeological Research Institute Inc. (IARI) (Tomonari-Tuggle et al. 2001) (Figures 6 and 7). In addition to surveying the proposed project area (TMK: (2) 3-8-008:019) as part of the initial survey, IARI also surveyed the remaining parcels in TMK: (2) 3-8-008. International Archaeological Research Institute Inc. (Tomonari-Tuggle et al. 2001) found that TMK: (2) 3-8-008 was utilized by multiple commercial businesses at the time which included:

- agriculture [sugarcane; Hawaiian Commercial and Sugar Company (HC&S), Ltd.]
- rock quarrying [Hawaiian Cement, (Maui Concrete and Aggregate Division)]
- motorsports recreational areas (Maui Raceway Park)
- an animal shelter (Maui Humane Society)
- a pig farm (Maui Hog) and scrap metal storage site, and
- a crop dusting operation (Murray Air, Ltd.).

Spreading amongst the commercial businesses were five (5) archaeological sites.

- Former Naval Air Station Puunene (State Site 50-50-09-4164; Feature Amount: 163)
- Sugarcane Plantation Features (State Site 50-50-09-4800; Feature Amount: 7)
- Past-World War II Ranching Features (State Site 50-50-09-4800; two complexes of corrals, fences, troughs)
- Old Kihei Railroad Bed (State Site 50-50-09-4802; Feature Amount: 1)
- Kauikilua Hike and Reservoir (State Site 50-50-09-4802; Feature Amount: 5)

IARI determined that at least two of these archaeological sites were used for multiple historic activities (Tomonari-Tuggle et al. 2001). For example, the crop dusting operation utilized the former Naval Air Station Puunene's airstrip as a runway for their planes. A few of the standing military structures located on the proposed project area (TMK: (2) 3-8-008:019) were converted from military features to holding facilities for pigs.
The archaeological sites located in the proposed project area (TMK: 2) 3-8-008:019 consist of the former Naval Air Station Puunene, which was recognized as a World War II archaeological site and designated as State Site 50-50-09-4164, and two post-World War II cattle ranching complexes that were consolidated and designated as State Site 50-50-09-4801. The current Archaeological Inventory Survey led to relocation of most of the previously identified sites, as well as several newly identified features. These new features have been incorporated into the existing State site numbers (see Inventory Survey Results Section below).

SETTLEMENT PATTERN

Numerous settlement models for the traditional district of Honua‘ula (and its Kula extent such as the proposed project area) have been proposed by researchers, including those by Kirch (1970), Barrois (1974), Cleghorn (1975), Cordy (1977), Cordy and Athens (1988), and Gosser et al. (1993 and Gosser et al. 1995). Parallels may be drawn between the studies above with the project area based physiographic and archaeological characteristics.

Cordy and Athens (1988) suggested that although the traditional district of Honua‘ula seems to have had a fairly harsh environment; people settled in this district and coped successfully with the elements, both on the coast and inland. Early surveys indicated that the region between the coast and inland farming areas have been labeled the “barren zone,” which was used for temporary or seasonal habitation and agriculture. Cordy and Athens (1998) agreed that major land use patterns, initially generated by archaeologists in the 1970s, indicated that inland areas where rainfall was adequate were primarily farming zones. Permanent habitation and intensity of settlement correlated to rainfall amounts (Cordy and Athens 1988:23–24, 100–103; Gosser et al. 1993).

Prehistorically, crops in the inland areas were dryland taro, sweet potato, and banana (Barrois 1974; Cordy and Athens 1988:18). More relevant to the proposed project area is Handy and Handy’s description of environmental conditions on the leeward side of Haleakalā.

The great bulk and altitude of Haleakalā makes its southern flank practically a water less desert, and the southeast and west flanks relatively dry, so that there were no lo‘i (pond fields) cultivation at all. The arid country below the west and south slopes of Haleakalā, including Kula, Honua‘ula, Kahikinui, and Kaupo, were dependent on sweet potato (Handy and Handy 1972:488).

Irish potato became an important crop in the mid-1800s. Ranching became a significant enterprise in the uplands during historic times.

Based on a synthesis of previous archaeological work in the intermediate or barren zone of the Kula District where the proposed project area is located, the landscape was expected to contain a few prehistoric sites, such as scattered temporary or seasonal habitations and associated dryland agricultural sites. Site density in this area is likely very low. Farther inland in this region sites might include field shelters and special activity areas represented by small C-shaped structures, terraces, platforms, rock mounds, and caves. Construction of these features is expected to be less formal and more random than those along the coast (Gosser et al. 1993). Historic-period features have been recorded with perhaps more frequency in the barren zone, given limited habitation through time, making this an ideal training area. Historic period sites may include features related to WW II training such as C-shaped structures and concrete encasements/foundations, among others. Walls and enclosures representing the ranching era were also thought possible.

METHODOLOGY

FIELD METHODOLOGY

Multiple field tasks were completed during the Archaeological Inventory Survey program. First, pedestrian survey was conducted in order to identify archaeological sites and assess the proposed project area geographically/physiographically features. Transect spacing of twenty meters (65.62 feet) intervals was employed when surface visibility was high, primarily in the mechanically altered areas. Interval spacing of ten meters (32.81 feet) or less between SCS personnel was employed within the dried vegetation areas to ensure adequate area coverage during the survey. Once archaeological sites were located, they were marked with biodegradable fluorescent pink and blue flagging tape. During the pedestrian survey, results were compiled on standard graphing paper as well as with digital photography. Each site was given an SCS temporary site designation (e.g., T-1) and plotted on a United States Geological Survey (USGS) map with a handheld Garmin GPS Map 60 CSx global positioning system (GPS) unit. The datum and coordinate system used for the GPS unit was NAD83 and UTM (Universal Transverse Mercator). True north compass orientation was also employed. All measurements were recorded in metric. Individual sites were also documented in plan view. Site boundaries were primarily determined by feature architecture boundaries. Exploration of the exterior of the features yielded cultural materials and thus, each feature recorded herein was defined by their exterior architecture. Vegetation within the proposed project area was identified using Whistler (1995) and Neal (1965).
Mechanically excavated stratigraphic trenches were utilized to locate any associated subsurface midden deposits. A total of 20 trenches were excavated throughout the larger portion of the proposed project area. No excavation was conducted on the alternate access road. Soil stratigraphy encountered during excavation was documented utilizing metric graph paper and United States Department of Agriculture (USDA) Mussell soil color charts (Appendix A). Only portable archaeological cultural materials were found on the ground surface of the proposed project area. No portable archaeological cultural materials were found within the excavation of single trenches.

LABORATORY METHODOLOGY

All field notes, digital photographs, and collected archaeological materials were curated at the SCS laboratory in Honolulu. Representative stratigraphic profiles have been drafted for presentation within this report. Representative plan views sketches showing location and morphology of identified sites/features/deposits were illustrated. All retrieved artifact and sample collections were cleaned, sorted, and analyzed (Appendix B). No definitive archaeological food midden samples were observed. Thus, none are available for analysis. Significant artifacts are scanned or photographed and classified for qualitative analysis. All metric measurements and weights are also recorded for quantitative analysis. All data are carefully recorded on standard laboratory forms that included numbers and weights (as appropriate) of each constituent category. Laboratory results are presented in Appendix B of this report.

INVENTORY SURVEY RESULTS

An Archaeological Inventory Survey, including limited subsurface testing, was conducted on the 86.029-acre subject property in Puuanene, Island of Maui, Hawaii (TMK: 3-8-008: 019) (see Figures 1 and 2). The 917 meter (3,000 feet) long alternate access road (TMK: 3-8-008: por. 005 and 006) was not subjected to excavation since most of the access route was already established (i.e., there is a combination of a dirt and asphalt road), and the area that did not contain an established road contained active sugarcane cultivation. Although the 1999 IARII survey documented archaeological features close to the east and west sides of the alternate access road, no archaeological sites or features were observed in the alternate access road corridor. These features that were documented along the alternate access road were assigned to State Site 50-59-09-4801, interpreted as a post-World War II cattle ranching site.

As stated elsewhere in this report, the proposed project area was previously subject to an Archaeological Inventory Survey in 1999 by IARII (see Figures 6 and 7). The proposed project area, part of the larger former Naval Air Station Puuanene, was designated by the air station as Housing Area A, Southern and Northeastern portions. Within the larger portion of the proposed project area, the IARII survey identified two archaeological sites comprised of a section associated with the former Naval Air Station Puuanene (State Site 50-50-09-4164), as well as a post-World War II cattle ranching site (State Site 50-59-09-4801). The current survey relocated the two historic sites, assessed the presence/absence of those features within two sites, and identified previously undocumented features within the two sites (Figure 8). The newly identified features have been subsumed under the previous site number designations.

Most of the historic features within in the proposed project area were heavily impacted by modern mechanical clearing and ensuing debris removal. The majority of those mechanically impacted features belonged to the former Naval Air Station Puuanene (State Site 50-50-09-4164). Some of the historic features belonging to State Site 50-50-09-4164 did appear to have been mechanically impacted but also abandoned and neglected prior to any mechanical alterations. Prior to the mechanical disturbance, the north half of the proposed project area had been utilized for a pig farm (Pawde Hog) and a scrap metal storage site. The south half of the subject property remained fallow.

A total of fifteen (15) features, interpreted as either related to the NAS Puuanene or post-war cattle ranching period, were identified by SCS but not previously recorded during the IARII survey (Tomonari-Tuggle et al. 2001). Of the 15 features that were not re-examined, three (3) features were located in the State Site 50-50-09-4801 post-war cattle ranching area. The remaining twelve (12) features were located in the State Site 50-50-09-4164 former Naval Air Station Puuanene area (Housing Area A).

To supplement the surface pedestrian survey, a total of twenty (20) stratigraphic trenches were mechanically excavated across the larger portion of the proposed project area (Table 1; see Figure 8 and Appendix A). Only one stratigraphic trench (ST-6) revealed the presence of surface architecture. This trench was placed at Facility 177 (SCS Site T-25) and the evidence showed that the historic feature was re-utilized in the recent past for animal husbandry. Besides Facility 177, no other surface features were subjected to excavation. No subsurface features were observed in any of the other 19 stratigraphic trenches. The following details the total list of SCS temporary sites recorded during the current Archaeological Inventory Survey. These features are being subsumed under the previously acquired State site numbers. No subsurface testing was conducted of the alternate access road due to its establishment as an unimproved road and partial location in an active sugarcane field.
The criteria outlined in the Hawai‘i Administrative Rules §13-275-6 was used to evaluate the significance of State Site 50-50-09-4164 and State Site 50-50-09-4801 (see Significance Assessments and Recommendations Section).

Table 1: Trenching Data

<table>
<thead>
<tr>
<th>Strata/Stratigraphic Trench Identification</th>
<th>TPS Coordinates</th>
<th>Long Axis Orientation (Degrees and North-type)</th>
<th>Dimensions (L x W x Max. Depth)</th>
<th>Exposed Strata Amount</th>
<th>Cultural Material Observed in Stratum</th>
<th>Stratigraphic Interpretation</th>
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</thead>
<tbody>
<tr>
<td>ST-1 East 765116 North 2363582</td>
<td>69° 47' True</td>
<td>4.7 x 0.5 x 1.0</td>
<td>15.42 x 1.64 x 3.28</td>
<td>2</td>
<td>None</td>
<td>I-Natural II-Natural</td>
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<tr>
<td>ST-2 East 765184 North 2363438</td>
<td>62° 43' True</td>
<td>5.1 x 0.5 x 1.1</td>
<td>16.73 x 1.64 x 3.61</td>
<td>2</td>
<td>None</td>
<td>I-Natural II-Natural</td>
</tr>
<tr>
<td>ST-3 East 765164 North 2363343</td>
<td>89° 66' True</td>
<td>4.6 x 0.5 x 1.3</td>
<td>15.09 x 1.64 x 4.27</td>
<td>6</td>
<td>None</td>
<td>I-Natural II-Natural III-Natural IV-Natural V-Natural VI-Natural</td>
</tr>
<tr>
<td>ST-4 East 765229 North 2363382</td>
<td>68° 28' True</td>
<td>4.8 x 0.5 x 1.3</td>
<td>15.75 x 1.64 x 4.27</td>
<td>4</td>
<td>None</td>
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<td>5.3 x 0.5 x 0.85</td>
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<td>79° 25' True</td>
<td>10.0 x 0.5 x 1.0</td>
<td>32.81 x 1.64 x 3.28</td>
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<td>Concrete Slab (I), Basalt Gravel (II), Concrete Wall (III), Asphalt (IV)</td>
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<td>ST-7 East 765279 North 2363538</td>
<td>00° 18' True</td>
<td>4.5 x 0.5 x 0.8</td>
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<td>59° 23' True</td>
<td>4.3 x 0.5 x 1.1</td>
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<td>Asphalt (I)</td>
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<td>ST-9 East 765070 North 2383279</td>
<td>89° 26' True</td>
<td>4.0 x 0.5 x 0.6</td>
<td>13.52 x 1.64 x 1.97</td>
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<td>87° 56' True</td>
<td>3.2 x 0.5 x 1.6</td>
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<th>Stratigraphic Trench Identification</th>
<th>TPS Coordinates</th>
<th>Long Axis Orientation (Degrees and North-type)</th>
<th>Dimensions (L x W x Max. Depth)</th>
<th>Exposed Strata Amount</th>
<th>Cultural Material Observed in Stratum</th>
<th>Stratigraphic Interpretation</th>
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<td>4.6 x 0.5 x 0.9</td>
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STATE SITE 50-50-09-1164 FORMER N.A.S. PUUNENE HOUSING AREA A
SOUTHERN PORTION

Of the total 34 features identified by SCS during the current survey, thirty (30) features
(T-1 through T-17 and T-22 through T-34) were found to be associated with the former Naval Air
Station Puunene, which was previously designated as State Site 50-50-09-4164. Of these thirty
features, twelve (12) were not identified during the previous IARII survey. These twelve
features, designated herein as "temporary sites", consist of three (3) rock walls, one (1) loading
ramp (with platform), and eight (8) concrete foundations. The following provides descriptions of
all thirty features identified associated with State Site 50-50-09-4164, inclusive of an update for
those features previously recorded in 1999 by IARII.

SCS Temporary Site: T-1
GPS Coordinates: East 769412' North 2304270
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criteria Significance: D
Recommendations: No further work

SCS Site T-1 consisted of a rectangular concrete slab interpreted as a building
foundation. Located on relatively flat terrain amongst dried grasses, the feature measured
approximately 22.6 m long by 8.8 m wide (74.15 x 28.87 feet) with a long axis oriented
southeast-northwest (165°/43° True). The feature was constructed of concrete and steel rebar
and not recorded during the 1999 IARII survey. IARII noted that a building was missing where
T-1 was located. Cultural materials observed on the surface of the foundation were identified as
ferrous metal wire, window and bottle glass sherds, and a United States (US) 1944 "S" copper
wheat penny. T-1 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-2
GPS Coordinates: East 769439' North 2304264
Previous Archaeological Recordation: None
Features: 1
Feature Type: Wall

Figure 8: USGS 1992 Paia O Kali Quadrangle Map Showing SCS Archaeological Sites and
Trench Locations.
Feature Function: Boundary
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-2 consisted of a wall interpreted as possibly being constructed during World War II, during the existence of N.A.S. Puuene. Located on relatively flat terrain amongst dried grasses, live kiawe (Prosopis pallida) and ʻaoao ʻau ʻulu (Merremia aegyptia), the feature measured approximately 25.0 m long by 4.0 m wide (82.02 x 13.12 feet) and heights above ground surface ranged from 0.2 to 1.3 meters (0.66 x 4.27 feet), with up to five courses of dry laid, piled basalt rocks. The feature’s long axis was oriented southeast-northwest (174/354° True) and constructed of sub-angular and sub-rounded basalt pebbles, cobbles, and small boulders. In plan view, the west face of the wall is angular, and curvilinear on its east face. T-2 was not recorded during the 1999 IARII survey. Cultural materials observed on the wall were identified as a piece of a woven palm branch, a small glass bottle, and jag sherd; ferrum metal wire insulation, a whiteware cup base sherd with a painted blue and white design, and a U.S. 1944 "S" copper wheat penny. This feature was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-3
GPS Coordinates: East 764975/ North 2304226
Previous Archaeological Recordation: None
Features: 1
Feature Type: Wall
Feature Function: Boundary
Feature Structural Integrity: Fair
Feature Age Association: Unknown
Criterion Significance: D
Recommendations: No further work

SCS Site T-3 consisted of a concrete slab interpreted as a building foundation. Located on slight (3°) east to west slope amongst ʻaoao ʻau ʻulu (Leucaena leucocephala), caster bean (Ricinus communis), ʻaoao ʻau ʻulu (Merremia aegyptia), and dried grasses, the concrete slab measured approximately 23.0 m long by 9.0 m wide (75.46 x 29.53 feet). The feature’s long axis was oriented northeast-southwest (015/195° True) and constructed of concrete and rebar. T-3 was previously recorded during the 1999 IARII survey as Facility 125. Cultural materials observed on the foundation surface were identified as bottle and window glass sherd. SCS Site T-3 was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-4
GPS Coordinates: East 764975/ North 2304226
Previous Archaeological Recordation: None
Features: 1
Feature Type: Wall
Feature Function: Boundary
Feature Structural Integrity: Fair
Feature Age Association: Unknown
Criterion Significance: D
Recommendations: No further work

SCS Site T-4 consisted of a basalt rock wall. Located on small hilltop amongst ʻaoao ʻau ʻulu (Merremia aegyptia), kiawe (Prosopis pallida), and dried grasses, the rock wall was curvilinear and measured approximately 22.0 m long by 1.0 to 1.5 m wide (72.18 x 3.28 x 4.92 feet). The T-4 end points were oriented northeast-southwest (059/239° True) and constructed of small, sub-rounded and sub-angular basalt boulders. T-4 was not recorded during the 1999 IARII survey. No cultural materials were observed on or near the site, and the site was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-5
GPS Coordinates: East 764975/ North 2304226
Previous Archaeological Recordation: IARII (Facility 126)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks, later civilian quarters
Feature Structural Integrity: Good
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-5 consisted of an L-shaped concrete slab. This feature was interpreted as a building foundation. Located on a slightly elevated area amongst ʻaoao ʻau ʻulu (Merremia aegyptia)
SCS Temporary Site: T-6

GPS Coordinates: East 765002/ North 2304155

Previous Archaeological Recordation: IARI (Facility 135)

Features: 1

Feature Type: Concrete slab

Feature Function: Building foundation for Chief Petty Officer barracks, later civilian quarters

Feature Structural Integrity: Fair

Feature Age Association: World War II

Criterion Significance: A and D

Recommendations: No further work

SCS Site T-6 consisted of a concrete slab interpreted as a building foundation. Located in a shallow swale amongst spiny amaranth (Amaranthus spinosus), klu (Acacia farnesiana), hairy abortion (Abutilon grandifolium), golden crown beard (Vesuvius milioides), lion’s ear (Leonotis nepetifolia), coat buttons (Tridax procumbens), and dried grasses, the concrete slab measured approximately 22.4 m long by 8.4 m wide (73.49 x 27.56 feet). T-6’s long axis was oriented southeast-northwest (165/345° True) and constructed of concrete and steel rebar. T-6 was previously recorded during the 1999 IARI survey as Facility 135. Although not in use during the current survey, it was apparent that T-6 once had multiple rooms, as evident by the presence of multiple, mechanically altered low standing walls within the perimeter of the concrete slab. As each room had a cement trough, T-6 was interpreted as having been utilized by the pig farm that had recently occupied a portion of the proposed project area. Cultural material observed on the foundation surface was identified as bottle glass sherds, milled wood, galvanized nails, and a ceramic electrical insulator. T-6 was impacted by recent mechanical clearance of the proposed project area.

GPS Coordinates: East 764967/ North 2344164

Previous Archaeological Recordation: IARI (Facility 139)

Features: 1

Feature Type: Concrete slab

Feature Function: Building foundation for military barracks, later civilian quarters

Feature Structural Integrity: Fair

Feature Age Association: World War II

Criterion Significance: A and D

Recommendations: No further work

SCS Site T-7 consisted of a concrete slab interpreted as a building foundation. Located on a slightly elevated area amongst golden crown beard (Vesuvius milioides), goosefoot (Chenopodium sp.), and dried grasses, the concrete slab measured approximately 22.4 m long by 9.0 m wide (73.49 x 29.53 feet). T-7’s long axis was oriented northeast-southwest (039/206° True) and constructed of concrete and steel rebar. T-7 was previously recorded during the 1999 IARI survey as Facility 139. Although not in use during the current survey, it was apparent that T-7 once had multiple rooms, as evidenced by the presence of multiple, mechanically altered low standing walls within the perimeter of the concrete slab (Figure 9). As each room had a concrete trough, T-7 was interpreted as utilized by the pig farm that had recently occupied a portion of the proposed project area. Cultural material observed on the foundation surface was identified as plastic PVC pipe and an electrical rubber insulator. T-7 was impacted by recent mechanical clearance of the proposed project area.

GPS Coordinates: East 764971/ North 2304146

Previous Archaeological Recordation: None

Features: 1

Feature Type: Concrete slab

Feature Function: Possible building foundation

Feature Structural Integrity: Fair

Feature Age Association: Possible World War II

Criterion Significance: D

Recommendations: No further work

SCS Site T-8 consisted of a concrete slab interpreted as a building foundation. Located on a slightly elevated area amongst golden crown beard, spiny amaranth, tomato, kulee koe,
balsam pear (*Monardica charantia*), klu, lion's ear, and *koali laka hulu*, and dried grasses. The concrete slab measured approximately 17.2 m long by 6.4 m wide (56.43 x 21.0 feet). T-8's long axis was oriented northeast-southwest (004°/284° True) and constructed of concrete and steel rebar. T-8 was not recorded during the 1999 IARI survey. Although not in use during the current survey, it was apparent that T-8 was previously utilized by the pig farm because the exterior of the concrete slab's east and west sides were sloped inward, this for liquid drainage of animal waste. Cultural material observed on the foundation surface was identified as a green rubber hose, galvanized nails, ferrous metal, milled wood, and non-diagnostic plastic. T-8 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-9
GPS Coordinates: East 764922/ North 2304079
Previous Archaeological Recordation: IARI (Facility 140)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks, later civilian quarters
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-9 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on slight (~2°) northwest to southeast slope amongst golden crowns heart and dried grasses, T-9 measured approximately 22.5 m long by 9.0 m wide (73.82 x 29.5 feet) with a long axis oriented southeast-northwest (059°/239° True). T-9 was constructed of concrete and steel rebar and was previously recorded during the 1999 IARI survey. Cultural material observed on the surface of the foundation were identified as non-ferrous metal, bottle glass sherds, milled wood, galvanized nails, and a plastic container cap. T-9 was also impacted by recent mechanical clearance of the proposed project area.
SCS Temporary Site: T-10
GPS Coordinates: East 764894/ North 2304074
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-10 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively flat terrain amongst goosefeet and dried grasses, T-10 measured approximately 9.7 m long by 5.6 m wide (31.82 x 18.37 feet) with a long axis oriented southeast-northwest (169/349° True). T-10 was constructed of concrete and steel rebar and was not recorded during the 1999 IARI survey. Cultural material observed on the surface of the foundation was identified as bottle glass shards, basalt gravel, and a steel cable. T-10 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-11
GPS Coordinates: East 764882/ North 2304074
Previous Archaeological Recordation: IARI (Facility 141)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military recreation building and dispensary
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-11 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively flat terrain amongst goosefeet, 'ulua, hake kea, klu, and dried grasses, T-11 measured approximately 14.3 m long by 6.8 m wide (46.92 x 22.31 feet) with a long axis oriented southeast-northwest (169/349° True). T-11 was constructed of concrete and steel rebar and was recorded during the 1999 IARI survey. Cultural material observed during the current survey on the surface of the foundation was identified as ferrous metal nails, ceramic tile, plastic beverage bottles, and a green rubber hose. T-11 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-12
GPS Coordinates: East 765147/ North 2303813
Previous Archaeological Recordation: IARI (Facility 157)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks, later bachelor officer quarters
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-12 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively flat terrain amongst dried grasses, T-12 measured approximately 22.6 m long by 8.9 m wide (74.15 x 29.49 feet) with a long axis oriented southeast-northwest (170/250° True). T-12 was constructed of concrete and steel rebar and was recorded during the 1999 IARI survey. Cultural material observed during the current survey on the surface of the foundation was identified as ferrous metal, plastic, a wound bright blue glass bead, and woven animal bones; the glass bead was collected. T-12 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-13
GPS Coordinates: East 765078/ North 2303913
Previous Archaeological Recordation: IARI (Facility 153)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks, later mess attendant barracks
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-13 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively flat terrain amongst dried grasses, T-13 measured
approximately 42.5 m long by 8.9 m wide (139.44 x 29.2 feet) with a long axis oriented southeast-northwest (140/020° True). Constructed of concrete and steel rebar, T-13 was recorded during the 1999 IARII survey. Cultural material observed during the survey on the surface of the foundation was identified as plastic and a porcelain plate sherd. T-13 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-14
GPS Coordinates: East 765046/ North 2304079
Previous Archaeological Recordation: IARII (Facility 134)
Features:
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks, later civilian quarters
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-15 consisted of a rectangular-shaped concrete slab interpreted as a building foundation (Figures 10 and 11). Located on relatively flat terrain amongst lion’s ear, klawe, and dried grasses, T-14 measured approximately 19.5 m long by 9.0 m wide (63.98 x 29.53 feet) with a long axis oriented southeast-northwest (173/53° True). Constructed of concrete and steel rebar, T-14 was recorded during the 1999 IARII survey. Cultural material observed during the survey on the surface of the foundation was identified as window glass sheets. T-14 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-15
GPS Coordinates: East 765046/ North 2304218
Previous Archaeological Recordation: IARII (Facility 127)
Features: 1
Feature Type: Wall
Feature Function: Boundary
Feature Structural Integrity: Fair
Feature Age Association: Indeterminate
Criterion Significance: D
Recommendations: No further work

SCS Site T-16 consisted of a linear basalt rock wall interpreted as utilized for boundary purposes. Located on relatively level terrain amongst lion’s ear, klawe, and dried grasses, T-16 measured approximately 5.7 m long by 1.1 m wide (18.7 x 3.61 feet) and above ground surface heights of 0.6 to 1.1 m. T-16 wall was constructed of up to four (4) courses high of piled, dry-laid sub-rounded basalt cobbles and small boulders and had a long axis oriented southeast-northwest (53/23° True). T-16 was not recorded during the 1999 IARII survey. Cultural material observed during the survey on the site’s architecture was identified as a concrete fragment and a ferrous metal paint can. T-16 was not impacted by recent mechanical clearance of the proposed project area.

SCS Site T-16 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on an approximate 10 to 15° southwest to northeast slope amongst lion’s ear, spiny amaranth, tomato, golden crown beard, and dried grasses, T-15 measured approximately 22.4 m long by 8.8 m wide (73.49 x 28.87 feet) with a maximum above ground surface build of approximately 1.0 m. The long axis of the site was oriented southeast-northwest (149/32° True). Constructed of concrete and steel rebar, T-15 was recorded during the 1999 IARII survey. Cultural material observed during the survey on the surface of the foundation was identified as ferrous and non-ferrous metal (i.e., pipes and an air compressor fitting). On the mechanically affected ground surface located to the north of the site were ophihi (Cellana sp.) shells. These shell remnants were interpreted as modern marine food midden. T-15 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-16
GPS Coordinates: East 765040/ North 2304234
Previous Archaeological Recordation: None
Features: 1
Feature Type: Wall
Feature Function: Boundary
Feature Structural Integrity: Fair
Feature Age Association: Indeterminate
Criterion Significance: D
Recommendations: No further work

SCS Site T-16 consisted of a linear basalt rock wall interpreted as utilized for boundary purposes. Located on relatively level terrain amongst lion’s ear, klawe, and dried grasses, T-16 measured approximately 5.7 m long by 1.1 m wide (18.7 x 3.61 feet) and above ground surface heights of 0.6 to 1.1 m. T-16 wall was constructed of up to four (4) courses high of piled, dry-laid sub-rounded basalt cobbles and small boulders and had a long axis oriented southeast-northwest (53/23° True). T-16 was not recorded during the 1999 IARII survey. Cultural material observed during the survey on the site’s architecture was identified as a concrete fragment and a ferrous metal paint can. T-16 was not impacted by recent mechanical clearance of the proposed project area.
Figure 10: Photograph of SCS Site T-14 Foundation Over View. View to Southeast.

Figure 11: Plan View Drawing of SCS Site T-14 Foundation.
SCS Temporary Site: T-17
GPS Coordinates: East 765132/ North 2304204
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Poor
Feature Age Association: Indeterminate
Criterion Significance: D
Recommendations: No further work

SCS Site T-17 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively level terrain next to a mechanically created earthen ditch among kane and dried grasses, T-17 measured approximately 7.0 m long by 7.0 m wide (22.97 x 22.97 feet). The long axis of the site was oriented northeast-southeast (026/206° True). Constructed of concrete, T-17 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as basalt gravel, concrete fragments, and a two-hole marine shell button of which the button was collected. Mechanically displaced soil matrices had been relocated onto the surface of the site prior to the current survey and obscured the total surface area of the site.

SCS Temporary Site: T-22
GPS Coordinates: East 765229/ North 2303838
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Excellent
Feature Age Association: Indeterminate
Criterion Significance: D
Recommendations: No further work

SCS Site T-22 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively level terrain amongst dried grasses, T-22 measured approximately 18.4 m long by 6.8 m wide (60.37 x 22.31 feet). The long axis of the site was oriented southeast-northwest (136/316° True). Constructed of concrete and rebar, T-22 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as basalt gravel, steel nails, and concrete fragments. T-22 was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-23
GPS Coordinates: East 765068/ North 2303499
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Excellent
Feature Age Association: Indeterminate
Criterion Significance: D
Recommendations: No further work

SCS Site T-23 consisted of a rectangular concrete slab interpreted as a building foundation. Located on relatively level terrain amongst dried grasses, T-23 measured approximately 14.7 m long by 6.4 m wide (48.23 x 21.0 feet). The long axis of the site was oriented southeast-northwest (130/310° True). Constructed of concrete and rebar, T-22 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as window glass shards. Although T-23 was located near the IARII recorded Facility 173, the horizontal dimensions of T-23 do not match the horizontal dimensions of Facility 173. Thus, T-23 was not interpreted during the current survey as Facility 173. T-23 was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-24
GPS Coordinates: East 765140/ North 2303699
Previous Archaeological Recordation: IARII (Facility 164)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military barracks
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work
SCS Site T-24 consisted of an L-shaped concrete slab interpreted as a building foundation. Located on relatively level terrain amongst dried grasses, T-24 measured approximately 22.1 m long by 9.0 m wide (72.51 x 92.53 feet). The long axis of the site was oriented northeast-southwest (026°/206° True). Constructed of concrete and rebar, T-23 was recorded during the 1999 JARI Survey. Cultural material observed during the current survey on the surface of the foundation was identified as galvanized nails and concrete fragments. T-24 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-25
GPS Coordinates: East 765308' North 2303486
Previous Archaeological Recoduction: JARI (Facility 177)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for storehouse
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-25 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for a storehouse. Located on relatively level terrain amongst dried grasses, T-25 measured approximately 47.0 m long by 10.0 m wide (154.2 x 32.81 feet). The long axis of the site was oriented northeast-southwest (028°/208° True). Constructed of concrete and rebar, T-25 was recorded during the 1999 JARI Survey. During the current survey, what was interpreted as the top of the foundation was sloped from the west downward toward the east. The purpose of the slope was to drain away fluids related to animal waste. Stratigraphic Trench 6 was utilized to examine the site's method of construction that resulted in the exposure of subsurface architecture (Figures 12 and 13). Cultural material observed during the current survey on the surface of the foundation was identified as concrete bricks, aluminum cans, and bottle glass sherds. T-25 was impacted by recent mechanical clearance of the proposed project area.

Stratigraphic Trench 6
Stratigraphic Trench 6 (ST-6) was placed across the surface architecture of SCS Site T-25's (JARI Facility 177) west side to locate subsurface architecture and any cultural material that might aid in the interpretation of the site's function (see Figures 12 and 13). Measuring approximately 10.0 m long by a varying 0.5 to 1.0 m wide (32.81 x 1.64-3.28 feet), ST-6 was excavated to a depth of 2.80 m below the surface of the site's architecture. Although no cultural material was found in the excavation of ST-6, subsurface architecture was exposed and revealed the site's construction sequence. The excavation of ST-6 revealed the presence of seven (7) strata comprised of soil matrixes and site architecture (see Appendix A).

- Layer I (0-10 cm) was a secondary concrete slab that was constructed following the military departure of the former Naval Air Station Pauanene.
- Layer II (10-60 cm) was a compact, yellowish red (5YR 4/6, dry) silty clay with angular basalt pebbles and cobbles. Based on stratigraphic positioning, Layer II was interpreted as fill stratum that was utilized to elevate a future structure.
- Layer III (60-95 cm) was a primary concrete wall located above the ground surface. Layer III was observed in Layers IV, V, and VI.
- Layer IV (95-100 cm) was a black (10YR 2/1, dry) asphalt interpreted as imported fill for the site's parking lot. With the asphalt removed, the concrete wall that was arbitrarily labeled as Layer III was observed.
- Layer V (100-125 cm) was a brown (7.5YR 4/4, dry) silt with volcanic cinder. It is possible that Layer V is fill however, it could not be confirmed definitively as such due to the lack of geological testing within the proposed project area. With Layer V removed, the concrete wall arbitrarily labeled as Layer III, was observed below the ground surface.
- Layer VI (125-175 cm) was a compact, dark reddish brown (5YR 3/4, dry) silty clay. Layer VI was interpreted as a natural stratum. With Layer VI removed, the concrete wall arbitrarily labeled Layer III was observed and truncated at the bottom of Layer VI. Besides the concrete wall that was observed, no other cultural material or subsurface architecture was observed.
- Layer VII (175-285 cm) was a compact, dark brown (7.5YR 3/4 dry) silty clay. Layer VII was interpreted as a natural stratum. Constructed in the upper stratum of Layer VII was a concrete grade beam that was probably aid in a perimeter-like fashion in preparation for the laying of the concrete foundation. Besides the concrete grade beam that was observed, no other cultural material or subsurface architecture was observed.
Figure 12: Photograph of SCS Site T-25 Western Perimeter and Stratigraphic Trench 6 Over View. View to East.

Figure 13: Plan View Drawing of SCS Site T-25 Western Perimeter and Stratigraphic Trench 6.
Given that the excavation of Stratigraphic Trench 6 across SCS Temporary Site T-25 western structural perimeter revealed multiple construction phases, the following is an interpretation of the site's construction sequence:

1) A trench was excavated to create a rectangular shape and was filled with concrete that created a concrete based grade beam.

2) Once the concrete grade beam was dry, a concrete wall (Layer III) of approximately 90 cm (2.95 feet) high was constructed, utilizing wooden forms, on the concrete grade beam.

3) A concrete slab for the foundation was poured on the east side of the concrete wall.

4) The site was abandoned by the military following the end of World War II.

5) The site was re-utilized by civilians for as an animal pen. In the process, soil fill of approximately 50 cm thick was laid over the concrete foundation.

6) Near the top of the soil fill (i.e., Layer II), a shallow [approximately 20 cm (6.66 feet) deep] trench was excavated to facilitate the creation of a thin concrete grade beam of approximately 10 cm (0.33 feet) thick.

7) On the thin concrete grade beam, a concrete brick wall was constructed. These walls were likely the walls that separated animals.

8) Following the construction the walls that separated the animals, a thin (approximately 10 cm (0.33 feet) thick) sloped northwest to southeast concrete foundation was laid over the Layer II soil fill. The thin concrete foundation was sloped to facilitate the drainage of liquids associated with the site being utilized as for animal husbandry.

SCS Site T-26 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for squadron shops and a storehouse. Located on relatively level terrain amongst dried grasses, T-26 measured approximately 24.5 m long by 6.6 m wide (80.38 x 21.65 feet). The long axis of the site was oriented northeast-southwest (020/200° True). Constructed of concrete and rebar, T-26 was recorded during the 1999 IARI survey. Cultural material observed during the current survey on the surface of the foundation was identified as galvanized nails. T-26 was impacted by recent mechanical clearance of the proposed project area.

SCS Site T-27
GPS Coordinates: East 765253/ North 2303593
Previous Archaeological Recordation: IARI (Facility 168)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for a military storehouse
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-27 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for a military storehouse. Located on relatively level terrain amongst dried grasses, T-27 measured approximately 30.0 m long by 6.3 m wide (98.43 x 20.67 feet). The long axis of the site was oriented northeast-southwest (020/200° True). Constructed of concrete and rebar, T-27 was recorded during the 1999 IARI survey. Cultural material observed during the current survey on the surface of the foundation was identified as galvanized nails, concrete fragments, and aluminum cans. T-27 was not impacted by recent mechanical clearance of the proposed project area.
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-28 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for a military garage and maintenance. Located on relatively level terrain amidst dried grasses, T-28 measured approximately 24.3 m long by 6.2 m wide (80.15 x 20.34 feet). The long axis of the site was oriented northeast-southwest (020/200° True). Constructed of concrete and rebar, T-28 was recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as milled wood, ferrum metal nails and bolts, and a plastic pen. T-28 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-29
GPS Coordinates: East 764897/ North 2304194
Previous Archaeological Recordation: IARII (Facility 318)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for a military galley
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-29 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for a military galley. Located on relatively level terrain amidst lime’s ear, kineo, goosefoot, and dried grasses, T-29 measured approximately 30.0 m long by 12.5 m wide (98.43 x 41.01 feet). The long axis of the site was oriented northeast-southwest (010/190° True). Constructed of concrete and rebar, T-29 was recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as plastic, window glass shards, and basalt gravel. T-29 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-30
GPS Coordinates: East 764881/ North 2304141
Previous Archaeological Recordation: IARII (Facility 138)
Features: 1

Feature Type: Concrete slab
Feature Function: Building foundation for Chief Petty Officer barracks; later civilian quarters
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-30 consisted of a rectangular-shaped concrete slab interpreted as a building foundation for Chief Petty Officer barracks and later, civilian quarters. Located on relatively level terrain amidst haule lous, eastern bean, and dried grasses, T-30 measured approximately 23.0 m long by 9.0 m wide (75.46 x 29.53 feet). The long axis of the site was oriented northeast-southwest (005/185° True). Constructed of concrete and rebar, T-30 was recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as milled wood, window glass shards, basalt gravel, and steel nuts and bolts. T-30 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-31
GPS Coordinates: East 764922/ North 2304142
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-31 consisted of a rectangular-shaped concrete slab interpreted as a possible building foundation. Located on relatively level terrain amidst lion’s ear, spiny amaranth, tomatos, goosefoot, and dried grasses, T-31 measured approximately 15.0 m long by 6.2 m wide (52.49 x 20.34 feet). The long axis of the site was oriented northeast-southwest (109/289° True). Constructed of concrete and rebar, T-31 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as milled wood, mirror and window glass shards, and galvanized nails. T-31 was impacted by recent mechanical clearance of the proposed project area.
SCS Temporary Site: T-32
GPS Coordinates: East 764928/ North 2304169
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete ramp and platform
Feature Function: Possible loading dock
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-32 consisted of a single feature comprised of two components physically attached to each other. These two components were identified as a rectangular concrete ramp and square platform interpreted as a possible loading dock. Located on relatively level terrain amongst kalo, kalo, and dried grasses, T-32 measured approximately 14.5 m long by 3.7 m wide (47.57 x 12.14 feet). The long axis of the site was oriented northeast-southwest (020°/209° True). Constructed of concrete and rebar, T-32 was not recorded during the 1999 IARII survey. No cultural material observed during the current survey on the surface of the possible loading dock. Although T-32 was not impacted by recent mechanical clearance of the proposed project area, abandonment and neglect has collapsed the square platform.

SCS Temporary Site: T-33
GPS Coordinates: East 764979/ North 2303980
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-33 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively level terrain amongst dried grasses, T-33 measured approximately 7.4 m long by 6.0 m wide (24.28 x 19.69 feet). The long axis of the site was oriented northeast-southwest (79°/259° True). Constructed of concrete and rebar, T-33 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as non-diagnostic plastic, whiteware ceramic sherd, and a galvanized pipe. T-33 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-34
GPS Coordinates: East 765113/ North 2303972
Previous Archaeological Recordation: None
Features: 1
Feature Type: Concrete slab
Feature Function: Possible building foundation
Feature Structural Integrity: Fair
Feature Age Association: Possible World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-34 consisted of a rectangular-shaped concrete slab interpreted as a building foundation. Located on relatively level terrain amongst dried grasses, T-34 measured approximately 16.0 m long by 7.0 m wide (52.49 x 22.97 feet). The long axis of the site was oriented southeast-northwest (49°/329° True). Constructed of concrete and rebar, T-34 was not recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as concrete fragments, coral, basalt gravel, and calcareous sand. T-34 was not impacted by recent mechanical clearance of the proposed project area.

STATE SITE 50-50-09-4801 POST-WAR CATTLE RANCHING COMPLEXES
Four (4) SCS temporary sites (numbered T-18 through T-21) were identified in the easternmost area of previously assigned State Site 50-50-09-4801, a post-war cattle ranching complex. Of the four features found during the current work, T-19 was the only one not previously recorded during the 1999 IARII survey.

SCS Temporary Site: T-18
GPS Coordinates: East 762520/ North 2304161
Previous Archaeological Recordation: Unknown
Features: 1
SCS Site T-18 consisted of a rectangular-shaped trough interpreted as a water trough for cattle rehydration. Located on relatively level terrain amongst kīawe, lion’s ear, and dried grasses, T-18 measured approximately 2.05 m long by 1.03 m wide (6.66 x 3.38 feet) and constructed from concrete bricks high. The long axis of the site was oriented northeast-southwest (096/278° True). Constructed of cement brick bounded with cement, T-18 was not singularly described during the 1999 IARII survey. Thus, it is unknown if T-18 was present during the 1999 IARII survey. No cultural material was observed during the current survey on or near the site. T-18 was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-19
GPS Coordinates: East 765217/ North 2304108
Previous Archaeological Recording: IARII (Facility 131)
Features: 2
Feature Types: Concrete slab (Feature 1), water trough (Feature 2)
Feature Function: Building foundation for military barracks, later civilian quarters (Feature 1); cattle rehydration station (Feature 2)
Feature Structural Integrity: Excellent
Feature Age Association: World War II (concrete slab); post-World War II (water trough)
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-19 consisted of two features. The first is a rectangular-shaped concrete slab interpreted as a building foundation (Feature 1). The second feature consisted of a water trough (Feature 2) interpreted as a cattle rehydration station. Located on relatively level terrain amongst kīawe, lion’s ear, golden crown beard, and dried grasses, the T-19 Feature 1 foundation measured approximately 17.0 m long by 6.9 m wide (55.77 x 22.64 feet). The long axis of the Feature 1 foundation was oriented southeast-northwest (169/48° True). Constructed of concrete and steel rebar, the T-19 Feature 1 foundation was recorded during the 1999 IARII survey. Located on the same terrain is T-19 Feature 2, a water trough that was also rectangular-shaped and measuring approximately 6.1 m by 1.1 m and oriented southeast-northwest (079/259° True). Constructed of concrete brick and cement, the Feature 2 water trough was not singularly described, but rather previously described collectively as part of State Site 50-50-09-4801, due to its proximity to Feature 1. Cultural material observed during the current survey on the surface of T-19 was identified as plastic agriculture lines, basalt gravel, and sawn cow bones. Neither of the two features collectively described as T-19 were impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-20
GPS Coordinates: East 765200/ North 2304052
Previous Archaeological Recording: Not singularly
Features: 2
Feature Types: Feed trough (Feature 1), water trough (Feature 2)
Feature Function: Cattle nourishment (Feature 1) and rehydration station (Feature 2)
Feature Structural Integrity: Excellent
Feature Age Association: post-World War II (feed and water trough)
Criterion Significance: D
Recommendations: No further work
SCS Temporary Site: T-21
GPS Coordinates: East 765188/ North 3204018
Previous Archaeological Recordation: IARII (Facility 144)
Features: 2
Feature Types: Concrete slab (Feature 1), feed trough (Feature 2)
Feature Function: Building foundation for military barracks (Feature 1); cattle nourishment station (Feature 2)
Feature Structural Integrity: Excellent
Feature Age Association: World War II (concrete slab); post-World War II (feed trough)
Criterion Significance: A and D
Recommendations: No further work

SCS Site T-21 consisted of two features: a rectangular-shaped concrete slab interpreted as a building foundation (Feature 1) and a second, a water trough (Feature 2) interpreted as a cattle rehydration station. Located on relatively level terrain amongst kahve, lion’s ear, golden crown beard, and dried grasses, the T-21 Feature 1 foundation measured approximately 22.7 m long by 8.9 m wide (74.48 x 39.2 feet). The long axis of the Feature 1 foundation was oriented northeast-southwest (20/200* True). Constructed of concrete and steel rebar, the T-21 Feature 1 foundation was recorded during the 1999 IARII survey. Located on the same terrain is the T-21 Feature 2 feed trough, that was also rectangular-shaped and measured approximately 6.1 m by 1.1 m (20.01 x 3.61 feet) and oriented southeast-northwest (20/200 * True). Constructed of concrete brick and cement, the Feature 2 feed trough was not singularly described; it was described collectively as part of State Site 50-50-09-4801. Cultural material observed during the current survey on the surface of T-19 was identified as milled wood, galvanized nails, and ferrous metal. Neither of these two features was impacted during recent mechanical clearance of the proposed project area.

DISCUSSION AND CONCLUSION

Scientific Consultant Services, Inc. conducted Archaeological Inventory Survey of an approximate 917 meter (3,007.8 feet) long alternate access road [TMK: (2) 3-8-008: por. 005 and 006] and 86.029 acres of land located in TMK: (2) 3-8-008:019. The SCS research followed an earlier Archaeological Inventory Survey conducted in 1999 by IARII (Tomonari-Tuggle et al. 2001). During the IARII survey, two archaeological sites, State Site 50-50-09-4164 (former World War II Naval Air Station Puuone) and State Site 50-50-09-4801 (post-World War II cattle ranching site), were identified and recorded.

The current SCS study relocated the two previously identified archaeological sites and provided supplemental information in the form of documentation for fifteen (15) newly identified surface features occurring within the former two site boundaries. Of the 15 features that were newly recorded, three features were located within the State Site 50-50-09-4801 post-war cattle ranching area. The remaining twelve (12) features were located in the State Site 50-50-09-4164 former Naval Air Station Puuone area (Housing Area A Southern Portion). The mechanical excavation of twenty (20) test excavations revealed positive results in only one trench (ST-6), where subsurface architecture associated with Facility 25 (SCS Site T-25) was identified. The feature was originally used for military use, but had been re-used in more recent times for animal husbandry (pig farm). The fifteen features newly identified by SCS during the current survey are being subsumed under the original two State site numbers originally designated by IARII.

No pre-Contact archaeological sites were identified during the current study or during the previous investigation by IARII (Tomonari-Tuggle et al. 2001). The synthesis of previous archaeological work in the intermediate or barren zone of the Kala District suggests the landscape may have contained a few scattered temporary or seasonal habitations and associated dryland agricultural sites. However, given the extent of historic and modern land use in the area, it is likely that any traditional/early historic sites that may have existed, albeit likely few in number, would have been severely impact by use of the Naval Air Station and environs.

SIGNIFICANCE ASSESSMENTS AND RECOMMENDATIONS

The fifteen (15) newly identified features associated with State Site 50-50-09-4164 and State Site 50-50-09-4801 were assessed for their significance as outlined in Hawaii Administrative Rules §13-275-6. To be assessed as significant a site must be characterized by one or more of the following five criteria:

(A) It must be associated with events that have made a significant contribution to the broad patterns of our history, or be considered a traditional cultural property.

(B) It must be associated with the lives of persons significant in the past.

(C) It must embody distinctive characteristics of a type, period, or method of construction, or represent a significant and distinguishable entity whose components may lack individual distinction.
(D) It must have yielded or may be likely to yield, information important in prehistory or history.

(E) Have important value to native Hawaiian people or other ethnicities in the state, due to associations with cultural practices and traditional beliefs that were, or still are, carried out.

State Site 50-50-09-4164 and State Site 50-50-09-4801 were previously evaluated and found to be significant under Criterion D (Tomonari-Tuggle et al. 2001). The 15 features newly identified by SCS have also been evaluated and found to be significant under Criterion D. In addition, State Site 50-50-09-4164 has also been found to be significant under Criterion A, due to the important information it has yielded in association with military history on Maui.

Given that two Inventory Survey projects have been conducted in the proposed project area, it seems likely that little new information would be gleaned from additional study of the area. As such, no further archaeological work is recommended for the larger portion of the proposed project area identified as TMK: (2) 3-8-008:019. However, since the 917 meter (3,007.8 feet) long alternate access road was only subjected to pedestrian survey and that archaeological features were documented near the east and west sides of the road during the 1999 JARI survey, Archaeological Monitoring is recommended for the alternate access road should physical alteration (i.e., widening or excavation) be required as those features may be adversely impacted.

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### APPENDIX B: ARTIFACT ANALYSIS

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<th>SITE</th>
<th>COLLECTED AREA</th>
<th>MEASURED</th>
<th>IDENTIFIED</th>
<th>REMARKS</th>
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</thead>
<tbody>
<tr>
<td>T-11</td>
<td>Surface</td>
<td>Diameter 15 cm, Thickness 0.5 cm, Weight 1.3 kg</td>
<td>United States 1850s, varnish, wood</td>
<td>Corrugated, split bottom, varnish on wood.</td>
</tr>
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<td>T-12</td>
<td>Surface</td>
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<td>United States 1850s, varnish, wood</td>
<td>Corrugated, split bottom, varnish on wood.</td>
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<td>T-17</td>
<td>Surface</td>
<td>Diameter 15 cm, Thickness 0.5 cm, Weight 1.3 kg</td>
<td>United States 1850s, varnish, wood</td>
<td>Corrugated, split bottom, varnish on wood.</td>
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**GENERAL PROJECT AREA**

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<th>Collected Area</th>
<th>Measured</th>
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<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Diameter 15 cm, Thickness 0.5 cm, Weight 1.3 kg</td>
<td>United States 1850s, varnish, wood</td>
<td>Corrugated, split bottom, varnish on wood.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Site</th>
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<tr>
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<td>Diameter 15 cm, Thickness 0.5 cm, Weight 1.3 kg</td>
<td>United States 1850s, varnish, wood</td>
<td>Corrugated, split bottom, varnish on wood.</td>
</tr>
</tbody>
</table>
SCS Project 1219 Artifacts
1. United States 1944 “S” Copper Wheat Penny (Bag 1)
2. United States 1944 “S” Copper Wheat Penny (Bag 2)
3. Glass Bead (Bag 3)
4. Marine Shell Button (Bag 4)
5. Ferrous Metal Square Nail (Bag 5)
6. Aluminum Kheil School 3 Cent Cafeteria Token (Bag 6)
APPENDIX I-1
SHPD Approval of Inventory Survey
June 18, 2012

Robert L. Spear, Ph. D., Principal Investigator
Scientific Consulani Services, Inc.
711 Kapiolani Blvd., Suite 975
Honolulu, Hawaii 96793

Dear Dr. Spear:

Subject: Chapter 6E-42 Historic Preservation Review
Archaeological Inventory Survey of 86.029 Acres within the Puunene Naval Air Station
Pulehu Nui Ahupua'a, Wailuku District, Island of Maui
TMK: (2) 3-8-008:005 (por.), 006 (por.) and 019

Thank you for submitting the subject report titled Draft Archaeological Inventory Survey of an Approximate 91.7 meter (3,007.8 feet) Long Alternate Access Road and an 86.029-Acre Property in Puunene, Pulehu Nui Ahupua'a, Wailuku District, Island of Maui, Hawai'i [TMK: (2) 3-8-008: Por. 005, Por. 006, and 019], G. Tome and M. Dega September 2011. We received a draft dated October 7, 2011, and we apologize for the delay in completing this review.

This report documents the re-investigation of a project area that was included in a prior survey of a larger acreage (Tomonari-Tuggle, et al. 2001). The 2001 report documented two archaeological sites within the current project area: Housing Area A of the former Naval Air Station Puunene (SIHP Site 50-50-09-4164) and a post-war cattle ranching area (SIHP Site 4801). During the current study, twelve additional features were documented for Site 4164, and three new features were documented for Site 4801.

In addition to a full pedestrian survey, twenty (20) mechanical trenches were excavated during the survey. One trench uncovered structural remains (ST-6) related to Facility 177 (a feature of Site 4164). ST-6 consisted of a worn concrete slab interpreted as a building foundation; it was sufficiently recorded in this report.

Sites 4164 and 4018 were previously recommended as significant under HRHP Criterion "d" while Site 4164 was also recommended as significant under Criterion "a." This report does not recommend any changes to those findings and further recommends the newly documented features for no further work; we concur with those recommendations. However, given the lack of subsurface excavations in the area of the possible future site of an alternate access road, we agree that archaeological monitoring is recommended for work related to an alternate road. Should that alternate roadway be planned we recommend that an archaeological monitoring plan be submitted to SHPD for review and approval prior to the issuance of any permits related to ground-altering activity.

The report contains appropriate background information and documentation of the identified historic properties is adequate. The report is approved in accordance with Hawaii Administrative Rule §13-276. Please send one hardcopy of the document to both the Maui and Oahu offices marked FINAL, along with a copy of this review letter. Please send a text-searchable PDF file on CD to Kapolei with the hard copy. Please contact me at (808) 933-7653 or Theresa.K.Donham@hawaii.gov if you have any questions about this letter.

Aloha,

[Signature]

Theresa K. Donham
Archaeology Branch Chief
APPENDIX J
Archaeological Monitoring Plan
AN ARCHAEOLOGICAL MONITORING PLAN FOR A 917 METER (3,007 FEET) LONG ALTERNATE ACCESS ROAD AND AN 86.029-ACRE PROPERTY IN PUUNENE, PULEHU NUI AHUPUA'A, WAILUKU DISTRICT, ISLAND OF MAUI, HAWAI'I
(TMK: (2) 3-8-008:005, 006, AND 019)

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Revised September 2012
FINAL

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INTRODUCTION

At the request of CMBY 2011 Investment, LLC, Scientific Consultant Services (SCS), Inc. prepared this Archaeological Monitoring Plan (AMP) for the proposed Paunene Heavy Industrial Subdivision Project on a 917 meter (3,000 feet) long alternate access road and on 86.029-acres of land within Pālēhu Nui Ahupua'a, Wailuku District, Island of Maui, Hawai'i [TMK: (2) 3-8-008:095, 006, and 019] (Figures 1, 2, and 3). This varied Monitoring program follows an Archaeological Inventory Survey (AIS; Tome and Dega 2011) of the proposed project area in which features associated with two known historic-era sites were newly documented (see below).

Archaeological Monitoring “shall entail the archaeological observation of, and possibly intervention with, ongoing activities which may adversely affect historic properties” (§13-279-4, HAR). Thus, Monitoring will also ensure that significant cultural resources, if identified in the proposed project area are documented through profiles and plan view maps, possibly sampled through excavation of exposed features, and evaluated for their historical significance. This Monitoring Plan will also ensure that if human remains are identified during subsurface work, appropriate and lawful protocol concerning the Inadvertent Discovery of Human Remains (pursuant to §13-300-40a, b, c, HAR) is followed. As will be made aware to the construction team, the archaeological Monitor has the authority to halt any ground disturbing activities during this project in the immediate area of a find in order to appropriately carry out the provisions of this plan.

This AMP is varied in that full-time Monitoring will be conducted if the alternate access road is improved. For the remainder of the project area, intermittent Monitoring is recommended as the area has undergone two Inventory Survey studies (see below), has been subject to intensive land alterations through time, and contains only minimal probability that subsurface deposits would be identified. This AMP will require the approval of the State Historic Preservation Division (SHPD) prior to any land altering activities on the parcel. The following text provides more detailed information on the reasons for monitoring, potential site types to be encountered during excavation, monitoring conventions and methodology for both field and laboratory work, and discusses curation and reporting of cultural material recovered.

PROJECT AREA AND VICINITY

The project is located within Pālēhu Nui Ahupua'a, Wailuku District, Island of Maui, Hawai'i. According to the County of Maui Real Property Tax Division website, http://www.mauiproperties.com/ the fee owner of the 86.029-acre parcel [TMK: (2) 3-8-008:019] is identified as CMBY 2011 Investment, LLC. The fee owner of TMK: (2) 3-8-
008:005 and 006 on which the 917 meter (3,007 feet) long alternative access road is located, is identified as Alexander & Baldwin, Inc.

Although both portions of the project area are separated by an existing asphalt road, the alternative access road and 86.029-acre parcel are situated approximately 2.0 miles inland from the Kilai coastline, between c. 80 to 120 feet (24 to 37 meters) above mean sea level (amsl), on the lower west slope of Haleakalā. The alternate access road is located in Tax Map Keys (2) 3-8-008:005 and 006 of which both are owned by Alexander & Baldwin. The north, east, and south flanks of the 86-029-acre portion of the project area are bordered by private land owned by Alexander & Baldwin [TMK: (2) 3-8-008:005]. The west side of the project area is bordered by private land owned by Alexander & Baldwin [TMK: (2) 3-8-008:030] and land owned by the State of Hawaii [TMK: (2) 3-8-008:037]. At the time of this writing, there were several asphalt paved roads that divided the larger portion of the project area into several unequal-sized sections.

Most of the project area contained undulating terrain. The larger portion was slightly undulated amongst patches of flat terrain. Trees on the project area had attained heights of approximately 30 feet tall. Approximately 30 percent of the project area had grown fallow since the departure of a pig farm and scrap metal storage site. Basalt boulders from the size of basketballs to the size of a 55-gallon drum littered the landscape and created physical obstacles.

The landscape condition of the project area's larger portion was varied. The northern portion of the project area was cleaned up within the recent past, according to Ken Nomura of Alexander & Baldwin. Mr. Nomura relayed to the field crew that following CMBY's purchase of the 86-029-acre property, Alexander & Baldwin had cleared the land of debris associated with a pig farm and scrap metal storage site that had previously utilized the property. The result was that various portions of the project area were mechanically altered, on the surface and in subsurface contexts (Figure 5). Visibility of the mechanically altered ground surface was excellent. The mechanical cleanse of the debris was not applied to the entire project area. The areas that were not mechanically cleared were covered with dried, two to four feet tall grasses and vegetation. Nonetheless, man-made features were visible due to the mechanical cleanse and the dried vegetation.

REASON FOR MONITORING

Archaeological Monitoring will occur on a full-time basis if improvements are made to the alternative access road and on an intermittent basis during all other ground altering activities (i.e., excavation). There is only a slight probability of identifying additional cultural resources in the overall proposed project area. Thus, intermittent monitoring is recommended. If the alternative access road is graded or widened, full-time Monitoring is recommended, given that the area was not previously subjected to Inventory Survey-level testing. There still remains only a slight chance for encountering cultural resources along the alternate road corridor. Overall, Historic-period land use, and existing features left from the era of the Puunene Naval Air Field, remain in the proposed project area. Given the intensive historic use of the general area, Intermittent Monitoring will provide another opportunity to fully document and assess any additional cultural resources related to the two known historic sites (see below).

GENERAL PROJECT AREA HISTORICAL BACKGROUND

PROJECT AREA SOILS

Based on Foote et al. (1972: 126–127; Map 106), the project area is mainly situated within the Waiakoa very stony silty clay loam (WID2) series with a small section at the southern end of the project area containing Ahae cobble sandy loam (AcB) (ibid: 26; Map 106). The Waiakoa extremely stony silty clay-loam which occurs on 3 to 25 percent slopes and is eroded, with medium runoff and severe erosional hazard. Stones cover approximately 3 to 15 percent of this soil surface. With the exception of sugarcane, this soil type has been utilized for pasture and wildlife. The Ahae cobble sandy loam has a slow runoff, is a slight erosional hazard, and is typically utilized for pastureland and sugarcane.

Subsurface testing of the WID2 and AcB soils on the southern portion of the project area revealed the presence of volcanic cinders strata that were interpreted during the current survey as natural strata. Normally occurring rounded basalt cobbles and small boulders were also being exposed during the excavation of the project area matrices.

PROJECT AREA VEGETATION

With the exception of few plant native species such as ʻiliʻili (Sida fallax) and ʻahuʻau (Waltheria americana), vegetation in the project area was generally composed of non-native introductions. Although decomposing grasses dominated the vegetation regime, larger vegetation common to arid regions such as klane (Prosopis pallida), koe haua (Laeceae leucocephala), castor bean (Ricinus communis), lion's ear (Leonotis nepetifolia), spiny amaranth (Amaranthus spinosus), tomato (Solanum sp.), goosefoot (Chenopodium sp.), golden
crownbeard (Verbesina encelioides), kula (kula; Acacia farnesiana), balsam pear (Momordica charantia), kuali kua kula (Merremia egyptia), hairy abutilon (ma‘i; Abutilon grandifolium), and coat buttons (Frieder procumbens) were present.

CLIMATE
The project area lies near the dry, arid region of Maui’s southwest coast. Rainfall indicators, according to Price (1983:62), show that the project area receives no more than five inches per year, with accumulations occurring mostly during the months of December and January. Unlike lower coastal elevations, higher elevations of Pūlehu Nui Ahupua‘a receive more precipitation due to fog drift and lower temperature climates. The frequency of the project area receiving upland wash is based on the amount of water accumulated upslope and the available water drainages created within or near the project area.

Given the lack of constant water resources within the project area, Traditional-type (i.e., pre-1778 A.D.) crops such as dryland sweet potato may have been the only feasible subsistence resource planted in the area prior to the advent of large-scale plantation-type irrigation systems. Of the twenty (20) stratigraphic trenches excavated during the current survey, only eight (8) trenches revealed no more than a single soil layer. The windy conditions of the project area suggest soils within the project area may have been adversely affected. Upland, gravitational wash also may have contributed to soil movement through the project area environs during the Traditional-Period.

TRADITIONAL AND HISTORIC SETTING
Pūlehu Nui Ahupua‘a is located on the southwestern side of Maui in the modern districts of both Wailuku and Makawao. Prior to being named the District of Makawao, the same district was traditionally known as Kula District. The project area would have been partially within the traditional District of Kula. As such, the project area’s traditional and historic settings will be highlighted with events that occurred in the traditional District of Kula rather than in the modern District of Wailuku.

The project area is situated near the leeward coast that is located on the lower, western slope of Maui’s largest volcano, Haleakalā, the latter which rises to over 3,048 meters (10,000 ft) amsl. The coastal area on which the project area lies, is currently referred to as “Kihei,” which translates as “cape” or “clasp” in Hawaiian (Pukui et al. 1974:119).

TRADITIONAL TIMES
Oral documentation for pre-Contact activity exists for the district of Kula as a whole that document activities such as chiefly (ali‘i) landings, battles, and candy work practices such as fishing and planting (Sterling 1998). Documented oral accounts of pre-Contact activities and events occurring in the Kīhei area, specifically naming Pūlehu Nui Ahupua‘a, are limited to events that occurred on a single, given period rather than long-term events (e.g., area used as a place of worship for an extended period of time). A. Farnander, in Sterling (1998:235), reported that the area of Kīhei kūo was the location where peace was concluded and festivities took place of warlike encounters. The festivities took place once Ala‘apoinu, once Mōi of Maui, found out that his nephew Kamahamahamau succeeded him. A separate story dates to 1776 when Kalanirōpu‘u landed his warning faction at Kīhei kūo’s between Kealii and Kapa‘ahu thinking that the Ahalapu were to drink of the waters of Wailuku. The Ahalapu were those who excelled at being warriors. Unfortunately for Kalanirōpu‘u, his warriors lost when battling with forces of Kahekili at Wailuku.

HISTORIC TIMES
Although some accounts informally mention the possibility that Spanish traders may have known about the Hawaiian Islands two hundred years prior to the “discovery” by Captain James Cook on the H.M.S. Resolution. Cook was the first known Westerner to have recorded the Hawaiian Islands (Spaulding 1978:19). When Cook “discovered” Maui in November 1778, he anchored near Kahunui. Although attempting to travel to Maui’s western end, he never travelled to the leeward side of East Maui where the project area lies. The first Western explorer credited with landing on Maui is Admiral Jean Francois Galaup, Comte de la Pérouse of France. La Pérouse, the name most used to recognize the French explorer, set foot in the area known today as La Pérouse Bay, an area south of Makena.

From the early historic period, several industries became paramount in Kīhei: whaling, Irish potato cultivation, ranching, and sugarcane cultivation. Most of these endeavors transformed the upland landscape itself. The coastal areas were more impacted by commerce-related activities (e.g., businesses, hostels, stores). Kolb et al. (1997:68–69) state that Kālepolepo (i.e., Kīhei) was an important provisioning area through the 1830s, when the area became “a hub of activity for all of Kīhei.” From the 1840s to 1860s a whaling station was maintained in Kīhei. According to Colin et al. (14:2000), in 1849 John Haidstein constructed “The Kua House” at Kālepolepo in Kīhei, one of several such buildings supporting the whaling industry in Kīhei. The Kua House served as a store, a residence, and a gathering place for whalers.
Following Contact, one of the greatest historic events impacting the population of the Hawaiian Islands was the Māhele of 1848. Thought to have been created under pressure from foreigners, Kauikauai (Kamehameha III) enacted the Māhele, which altered the system of land transactions and legal land ownership processes for the entire population of the islands:

By mid-century, the fledgling Hawaiian Kingdom undertook the single most significant inducement to cultural change, the Great Māhele or division of lands between the king, chiefs, and government, establishing land ownership on a Western-style, fee-simple basis. From this single act, an entire restructuring of the ancient social, economic, and political order followed (Kīhik 1985:209).

The Māhele statute paved the way for the private ownership of land [awarded claims were called Land Commission Awards]. The present project area does not contain Land Commission Awards (LCAs). However, LCA 5230 is the closest to the project area and is shown on TMK (2) 3-B-04 to exist north of the project area on the plains of Pālehau Nui Alupua’a (see Figure 2). LCA 5230 was awarded to Keaweameahi on September 28, 1853 with following Royal Patent numbers 8140 and 8252 being issued to the same individual on March 16, 1855 concluding a payment of $5.00 (Burnett and Spear 1997:5). On this LCA Keaweameahi claimed 5 apana (land portions), 7 ka’i (water tao) and 2 łaʻī (pastures). Saltwater-associated geography (i.e., shore and dunes) was also claimed by Keaweameahi as part of LCA 5230.

Based on a map contained within Sterling (1998:242) in conjunction with the tax map keys, the apana of Pālehau Nui is shown to continue northeast along the northwestern side of Haleakalā. LCA 5230 also extends into the upper portion of Pālehau Nui Alupua’a. An overview of upland LCAs within the upland portion of Pālehau Nui Alupua’a reveal that land at the higher elevations were utilized for sweet and Irish potatoes (Waihona Aina 2011). LCA 9019:2, claimed by Heelihau, located just below the modern Kula Highway and between Iiloapuni and Pālehau Roads, had pasture lands claimed. As a side note, Irish potatoes were also extant at the time of the claim (i.e., the year 1848) although to pinpoint the location of such is difficult due to insufficient map sources. Above the Kula Highway, LCA 4567:4 claimed by Waheine in 1848, stated that Irish potatoes were present on his land and that sweet potatoes were also grown on his land, although not on the same piece of land (ibid.). Supplemental ethnographic research concerning upland LCA usage includes Bartholomew and Bailey (115:1994) who relay that “Hawaiians in higher elevations... traditionally grew sweet potatoes.”

For an in-depth look of LCA usage in upland areas of adjacent alupua’a, please see Koib et al. 1997.

Based on the information provided by the Tax Map Key, it appears that LCA 5230 is quite extensive and extends over a large portion of the alupua’a. It further indicates that LCA 5230 is the largest LCA awarded in Pālehau Nui Alupua’a. Thus, it is difficult to ascertain where particular activities were conducted (e.g., ia’i, kula, apana) within the LCA.

In Sterling (1998:254–257) it was reported that the late Governor W. L. Moeheona was an “owner” of Pālehau Nui Alupua’a and the boundaries of the alupua’a were somewhat vague. Through the information provided by the Māhele, it was acknowledged that Keaweameahi previously owned land within the alupua’a. Oral testimonies from multiple sources contribute to somewhat more specific but general boundaries of the alupua’a and conclusions were found in favor of the late governor.

From the mid-19th Century to the early 20th Century, coastal activity remained concentrated at Kaelepolepo, but by the 1870s whaling diminished and the potato industry moved to the Upupalauka area (Colin et al. 26:2000). Coastal Kula became somewhat of a dusty, “dirty place” (Wilcox 1921). As a result of industry movement out of the Kihei area (for a time) or the vast expanses of land available, Haleakalā Ranch utilized many coastal portions of Kula in the later 1800s.

Like the rest of Hawai‘i (and the world) during the 1940s, Kīhei in Pālehau Nui Alupua’a was interrupted by the advent of World War II (WWII). The coast from Mā'alaea to Makana was used by United States military forces as training areas in preparation for amphibious assaults that were to be made in the Pacific war theater (Davis and Fortini 2604, Tome and Dega 2004). The main military service operating along the coastal region of the Wailuku and Makawao (Kula) Districts was the United States Marine Corps’ 4th Marine Division, which used the coast during the latter part of 1944. The beautiful beaches of Kīhei and Wailea were transformed with the construction of concrete military bunkers to simulate enemy positions expected during amphibious combat operations. A non-4th Marine Division military unit that also trained along the coastline was the underwater demolition teams, known as UDT. Comprised of Army and Navy personnel, these people were trained to rig and detonate explosives on various obstacles in the way of the U.S. amphibious assaults.
Following WWII, the Kihei coastline returned to its tranquil activities of ranching and the development of residential areas. During the 1960s, the Kihei stage was set for development of the area as a vacation haven for tourists and homebuyers which continues to the present day.

PREVIOUS ARCHAEOLOGY IN GENERAL AREA

Archaeological studies in the greater area began in the early 20th Century by T. Thrum (1909), J. Stokes (1909-1916), and W. M. Walker (1931). These surveys included areas of leeward Maui and inventoried both coastal and upland sites of the Kula District. In the hupua’o of Pāʻelehu Nai Walker listed two sites identified as Haleokane Heiau and Nininiwai Heiau (see Sterling 1998:255).

Archival research indicates few archaeological projects have been conducted near the current project area. Although these projects occurred some distance from the current parcel they are directly relevant. These studies provide background information to the current study area. The reader is referred to Tomanari-Tuggle et al. (2001:61-63) which provides a succinct summary of these studies.

Kennedy (1988) conducted a visual inspection of TMK: (2) 3-8-004-029 that did not identify archaeological sites. The absence of sites was attributed to prior development of the area for a construction baseyard with an installation of a large concrete culvert. In 1991 the Bishop Museum conducted an Archaeological Inventory Survey for the Kāi Makani project that produced negative findings on the ground surface or subsurface contexts (Rotumho-Haruka (1991).

In 1992 Aki Sinoto Consulting conducted an Archaeological Inventory Survey of the proposed location for the Kihei Gateway Complex which led to the identification of State Site 50-59-09-31, a remnant, historic concrete bridge (crossing Waiakoa Stream. It was suggested that the bridge was probably related to a narrow gauge cane railroad that operated through the area and may have serviced Kihei Camp 1 (Sinoto and Pantaleo 1992).

Between 1995 and 1999 Scientific Consultant Services, Inc. conducted an Inventory Survey (followed by two addenda) for the Puunene Bypass/ Mokulei Highway Improvements Corridor located in TMK: (2) 3-8-04, 05, 06, and 07; Burgert and Spear 1997; Chaffee et al. 1999). No additional archaeological sites were identified. However, one previously recorded site was relocated and identified as the Naval Air Station Puunene Dump Site (State Site 50-59-09-4164). Scientific Consultant Services, Inc. conducted an archaeological study on TMK: (2) 3-9-041-027, which included excavation of nine stratigraphic trenches. No new sites were identified (Pestana and Dega 2002).

In 2005 Scientific Consultant Services, Inc. conducted an Archaeological Inventory Survey, including limited subsurface testing, was conducted on a 9.289-acre property in North Kihei, Maui, Hawaii [TMK: (2) 3-8-004-028] (Tome and Dega 2005). This project area, located immediately adjacent and abutting the southern boundary of the Hale Pilani Park, had been partially modified by illegal dumping, utilization as an informal dirt bike course, and ranching activities. Two archaeological sites comprising four structural features were newly identified during this Inventory Survey. The sites were interpreted respectively as a World War II-related site (State Site No. 50-59-09-5801, WW II training site) and a traditional Hawaiian site (State Site No. 50-59-09-5802, pre-Contact agricultural habitation complex). The two sites date utilization of the subject parcel from the pre-Contact Period (i.e., pre-1778) to the United States Marine Corps' 4th U.S. Marine Division training during the closing years of World War II.

PREVIOUS ARCHAEOLOGY IN THE CURRENT PROJECT AREA

An Archaeological Inventory Survey, including limited subsurface testing, was conducted on an 86.029-acre property in Puunene, Island of Maui, Hawaii [TMK: (2) 3-8-008-005, 006, and 019]. Fieldwork was conducted between June 27 and 30, 2011 by SCS archaeologists Ian Bestford, B.A. and Guerin Tome, B.A., under the direction of the Principal Investigator Michael Dega, Ph.D (Tome and Dega 2011 in prep).

The 917 meter (3,007 feet) long alternate access road was not subjected to excavation since most of the access route was already established (i.e., there is a combination of a dirt and asphalt road), and the area that did not contain an established road contained active sugarcane cultivation. Although the 1999 IARII survey documented archaeological features close to the east and west sides of the alternate access road, no archaeological sites or features were observed in the alternate access road corridor. These features that were documented along the alternate access road were assigned to State Site State Site 50-59-09-4891, interpreted as a post-World War II cattle ranching site.

As stated elsewhere in this report, the current project area was previously subject to an Archaeological Inventory Survey in 1999 by IARII (see Figures 4 and 5). The current project area, part of the larger former Naval Air Station Puunene, was designated by the air station as Housing Area A, Southern and Northeastern portions. Within the larger portion of the current
project area, the IARII survey identified two archaeological sites comprised of a section associated with the former Naval Air Station Pauuene (State Site 50-50-09-4164), as well as a post-World War II cattle ranching site (State Site 50-50-09-4801). The current survey relocated the two historic sites, assessed the presence/absence of those features within two sites, and identified previously undocumented features within the two sites (Figure 8). The newly identified features have been submitted under the previous State site number designations.

Most of the historic features within the current project area were heavily impacted by modern mechanical clearing and ensuing debris removal. The majority of those mechanically impacted features belonged to the former Naval Air Station Pauuene (Site 4164). Some of the historic features belonging to Site 4164 did appear to have been mechanically impacted but also abandoned and neglected prior to any mechanical alterations. Prior to the mechanical disturbance, the north half of the current project area had been utilized for a pig farm (Maui Hog) and scrap metal storage site. The south half of the subject property remained fallow.

A total of fifteen (15) features, interpreted as either related to the NAS Pauuene or post-war cattle ranching period, were identified by SCS but not previously recorded during the IARII survey (Tomonari-Tuggle et al. 2001). Of the 15 features that were not recorded, three (3) features were located in the State Site 50-50-09-4801 post-war cattle ranching area. The remaining twelve (12) features were located in the State Site 50-50-09-4164 former Naval Air Station Pauuene area (Housing Area A).

The current project area [TMK: (2) 3-8-008:019] represents a portion of a larger project area previously subject to an Archaeological Inventory Survey in 1999 by International Archaeological Research Institute Inc. (IARII) (Tomonari-Tuggle et al. 2001) (Figures 6 and 7). In addition to surveying the current project area [TMK: (2) 3-8-008:019] as part of the initial survey, IARII also surveyed the remaining parcels in TMK (2) 3-8-008. International Archaeological Research Institute Inc. (Tomonari-Tuggle et al. 2001) found that TMK: (2) 3-8-008 was utilized by multiple commercial businesses that included:

- agriculture (sugarcane; Hawaiian Commercial and Sugar Company (HC&S), Ltd.),
- rock quarrying (Hawaiian Cement, Maui Concrete and Aggregate Division),
- motorsports recreational areas (Maui Raceway Park),
- an animal shelter (Maui Humane Society),
- a pig farm (Maui Hog) and scrap metal storage site, and
- a crop dusting operation (Murray Air, Ltd.).

Spread amongst the commercial businesses were five (5) archaeological sites:

- Former Naval Air Station Pauuene (State Site 50-50-09-4164; Feature Amount: 165)
- Sugarcane Plantation Features (State Site 50-50-09-4808; Feature Amount: 7)
- Post-World War II Ranching Features (State Site 50-50-09-4802: two complexes of corrals, fences, roughs)
- Old Kula Railroad Bed (State Site 50-50-09-4802; Feature Amount: 1)
- Haiku Ditch and Reservoir (State Site 50-50-09-4802; Feature Amount: 1)

IARII determined that at least two of these archaeological sites were used for multiple historic activities (Tomonari-Tuggle et al. 2001). For example, the crop dusting operation utilized the former Naval Air Station Pauuene's airstrip as a runway for their planes. A few of the standing military structures located on the current project area [TMK: (2) 3-8-008:019] were converted from military features to holding facilities for pigs.

The archaeological sites located in the current project area [TMK: (2) 3-8-008:019] consist of the former Naval Air Station Pauuene, which was recognized as a World War II archaeological site and designated as State Site 50-50-09-4164, and two post-World War II cattle ranching complexes that were consolidated and designated as State Site 50-50-09-4801. The current Archaeological Inventory Survey led to relocation of most of the previously identified sites, as well as several newly identified features. These new features have been incorporated into the existing State site numbers.

**POTENTIAL SITE TYPES TO BE ENCOUNTERED**

Archaeological and documentary evidence in and around the project area illustrates the types of sites that may be encountered during Archaeological Monitoring. The two inventory survey projects, noted above, showed the area to contain much historical information regarding the former Naval Station and cattle ranching complexes. No other time periods, beyond modern debris and land clearing, were identified. Potential sites to be encountered would thus include cultural deposits (historic metal, glass, etc. debris) and architecture (concrete foundations, rock walls, etc.) directly related to construction and use of the Naval Station and cattle complexes. There appears at present very little probability of identifying prehistoric cultural resources or burials.
MONITORING CONVENTIONS AND METHODOLOGY

This AMP has been prepared in accordance with DLNR/SHPD administrative “Rules Governing Standards for Archaeological Monitoring Studies and Reports” (§ 13-279, DLNR- SHPD 2002). Archaeological Monitors will adhere to the following guidelines during monitoring:

1. A qualified archaeologist intimately familiar with the project area and the results of previous archaeological work conducted in the Puna area will intermittently monitor subsurface construction activities in the proposed project area. Full-time Monitoring is only recommended should the alternate road access be created. During Monitoring, one archaeologist will be required per each piece of ground altering machinery in use. No ground altering activities will occur on the parcel until this AMP has been accepted by SHPD.

If significant deposits or features are identified and additional field personnel are required, the archaeological consultants conducting the Monitoring will notify the contractor or representatives thereof before additional personnel are brought to the site.

2. If features or cultural deposits are identified during Monitoring, the on-site archaeologist will have the authority to temporarily suspend construction activities at the significant location so that the cultural feature(s) or deposit(s) may be fully evaluated and appropriate treatment of the cultural deposit(s) is conducted. SHPD will be contacted to establish feature significance and potential mitigation procedures. Treatment activities primarily include documenting the feature/Deposit through plotting its location on an overall site map, illustrating a plan view map of the feature/Deposit, profiling the deposit in three dimensions, photographing the finds with the exception of human burials, artifact and soil sample collection, and triangulation of the finds. Construction work and/or back-filling of excavation pits or trenches will only continue in the same location when all documentation has been completed.

3. Control stratigraphy in association with subsurface cultural deposits will be noted and photographed, particularly those containing significant quantities or qualities of cultural materials. If deemed significant by SHPD and the contracting archaeologist, these deposits will be sampled, as determined by the same.

4. In the unlikely event that human remains are encountered, all work in the immediate area of the find will cease; the area will be secured from further activity until burial protocol has been completed. The SHPD Island archaeologist and SHPD Cultural Historian will both be immediately identified as to the inadvertent discovery of human remains on the property. Notification of the inadvertent discovery will also be made to the Maui/Lanai Island Burial Council by the SHPD Maui staff or the contracting archaeologist. A determination of minimum number of individuals (MNI), age(s), and sex of the burial(s) will be ascertained in the field by the archaeological consultants conducting the Monitoring. Rules outlined in Chapter 6e, Section 43 shall be followed. Profiles, plan view maps, and illustrative documentation of skeletal parts will be recorded to document the burial(s). The burial location will be identified and marked. If a burial is disturbed during trench excavations, materials excavated from the vicinity of the burial(s) will be manually screened through 1/8” wire mesh screens to recover any displaced skeletal material. If the remains are to be removed, the work will be in compliance with HRS 6E-43.6, Procedures Relating to Inadvertent Discoveries after approval from all parties (SHPD, Burial Council).

5. To ensure that contractors and the construction crew are aware of this Archaeological Monitoring Plan and possible site types to be encountered on the parcel, a brief coordination meeting will be held between the construction team and monitoring archaeologist prior to initiation of the project. The construction crew will also be informed as to the possibility that human burials could be encountered and how they should proceed if they observe such remains.

6. The archaeologist will provide all coordination with the contractor, SHPD, and any other groups involved in the project. The archaeologist will coordinate all Monitoring and sampling activities with the safety officers for the contractors to ensure that proper safety regulations and protective measures are met. Close coordination will also be maintained with construction representatives in order to adequately inform personnel of the possibility that open archaeological units or trenches may occur in the project area.

7. As necessary, verbal reports will be made to SHPD and any other agencies as requested.

8. Acceptance of this Archaeological Monitoring Plan will be done in writing by the SHPD within 45-days of receipt. If no written response is forwarded by the SHPD after 45-days, concurrence with this documented shall be accepted and work will proceed pursuant to 6E-42 HRS, Chapter 13-284 HAR.
LABORATORY ANALYSIS

All samples collected during the project, except human remains, will undergo analysis at the SCS Maui laboratory. In the event that human remains are identified and the SHPD-Maui/Lanai Island Burial Council authorizes their removal, they will be curated on Maui. Photographs, illustrations, and all notes accumulated during the project will be curated at the laboratory of the archaeological consultants conducting the Monitoring. All retrieved artifacts and midden samples will be thoroughly cleaned, sorted, and analyzed. Significant artifacts will be photographically recorded, sketched, and classified (qualitative analysis). All metric attributes and weights will be recorded (quantitative analysis). These data will be presented in tabular form within the final monitoring report. Midden samples will be minimally identified to major “class” (e.g., bivalve, gastropod mollusk, echinoderm, fish, bird, and mammal). All data will be clearly recorded on standard laboratory forms that include number and weight (as appropriate) of each constituent category. These counts will also be included in the final report.

Should any samples unamenable to dating be collected from a significant cultural deposit, they will be prepared in the laboratory of the archaeological consultants conducting the Monitoring and submitted for specialized radiocarbon analysis. While primary emphasis for dating is placed on charcoal samples, we do not preclude the use of other material such as marine shell or nonhuman bone materials. The archaeological consultants conducting the Monitoring will consult with SHPD and the client if radiocarbon dates are deemed necessary.

All stratigraphic profiles will be drafted for presentation in the final report. Representative plan view sketches showing the location and morphology of identified sites/features/deposits will be compiled and illustrated.

CURATION

If requested by the landowner, archaeological consultants conducting the Monitoring will curate all recovered materials in the laboratory of the archaeological consultants conducting the Monitoring (except human remains) until a permanent, more suitable curation center is identified. The landowner may request to curate all recovered cultural materials once analysis has been completed. Human remains will be stored on-site in a secure location until a Burial Treatment Plan has been prepared and accepted.

REPORTING

An Archaeological Monitoring report documenting the project findings and interpretation, following SHPD guidelines for Archaeological Monitoring reports, will be prepared and submitted within 180 days after the completion of fieldwork.

If cultural features or deposits are identified during fieldwork, the sites will be evaluated for historical significance and assessed under State and Federal Significance Criteria. The Archaeological Monitoring report will be in draft form until accepted by SHPD and will be submitted to both SHPD and the client.
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Vancouver, George
August 24, 2012

Dr. Michael Dega  
Scientific Consultant Services, Inc (SCS)  
Via email: mke@sceshawaii.com

Aloha Dr. Dega:

SUBJECT:  Chapter 6E-42 Historic Preservation Review- Maui County  
Archaeological Monitoring Plan for a 917 Meter Access Road and 86.029 Acres  
Pulehu-Nui Ahupua’a, Wailuku District, Island of Maui  
TMK (2) 3-8-008:005, 006, and 019

Thank you for the opportunity to review the draft plan titled An Archaeological Monitoring Plan for A 917 Meter (3,007 feet) Long Alternate Access Road and an 86.029-Acre Property in Puunene, Pulehu Nui Ahupua’a, Wailuku District, Island of Maui, Hawaii [TMK (2) 3-8-008:005, 006, and 019] by Chaffee and Dega (October 2011). This document was received by our staff on October 11, 2011. We recently accepted an archaeological inventory survey report for the subject project (Log. 2011.2267, Doc. 1206MD01).

The archaeological inventory survey reported the re-investigation of two documented sites (SIHP 50-50-09-4164 and 4801) which were included in an earlier survey for the larger acreage (Tomanari-Tuggle, et al. 2001). Twelve additional features were added to Site 4164, the Puunene Naval Air Station, and three additional features were added to Site 4801, a post-war cattle ranching area. The existing access road was not subject to subsurface archaeological testing, so archaeological monitoring was recommended for any sub-surface construction work on the proposed alternate access road project. The plan outlines the proposed objectives and procedures that will be implemented to prevent damage to unknown sites, including the identification and documentation of any newly discovered archaeological and cultural features.

The plan meets the requirements of HAR 13-279 and is accepted by SHPD. However, we request that the following minor corrections be made for the Final submittal:

1. Change all of the references to the associated accepted SCS AIS report from the pending status.
2. Remove “see Inventory Survey Results Section below” on page 16 (no AIS results Section identified)

Please send one hardcopy of the final document including the requested minor revisions, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library. Please contact Jenny Pickett at (808) 243-5169 or Jenny.L.Pickett@Hawaii.gov if you have any questions regarding this letter.

Mahalo,

Theresa K. Donham  
Archaeology Branch Chief

cc: County of Maui, Department of Planning via email: planning@mauicounty.gov  
County of Maui DSA via fax to: (808) 270-7972  
Ms. Blanca Lafolette, Project Coordinator 1300 N Holopono Street, Suite 201 Kihei HI 96753
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A CULTURAL IMPACT ASSESSMENT REPORT FOR APPROXIMATELY 86 ACRES, LAND OF PŪLEHU NUI, WAILUKU DISTRICT, MAUI, HAWA'I [TMK: (2) 3-8-08:019]

Prepared by:
Leann McCarthy, B.A.
and
Robert L. Spear, Ph.D.
September 2011
FINAL

Prepared for:
Ms. Blunto Lafolette
Project Coordinator
CMBY 2011 Investment, LCC
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INTRODUCTION

At the request of CMBY 2011 Invesment, LLC (CMBY), Scientific Consultant Services (SCS), Inc., conducted a Cultural Impact Assessment (CIA) on approximately 86 acres in the lands of Pulehu Nui, Wailuku District, Maui Island, Hawai‘i [TMK: 3-8-1; (Figures 1 and 2)]. The CIA was conducted in preparation for the proposed Pu‘unene Heavy Industrial Subdivision.

The Constitution of the State of Hawai‘i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 (2000) requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ali‘i pono tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778.” In spite of the establishment of the foreign concept of private ownership and western-style government, Kanemakelii (Ka‘au‘enaouli) preserved the peoples traditional right to subsistence. As a result In 1856, the Hawaiian Government confirmed the traditional access rights to native Hawaiian ali‘i pono tenants to gather specific natural resources for customary uses from undeveloped private property and waterways under the Hawaiian Revised Statutes (HRS) 7-1. In 1992, the State of Hawai‘i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights…may extend beyond the ali‘i pono in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Papy, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawai‘i (2000) with House Bill (HB) 2895, relating to Environmental Impact Statements, proposes that:

...there is a need to clarify that environmental assessments or environmental impact statements should identify and address effects of activities, culture, and traditional and customary rights...[H.B. NO. 2895].

Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs and practices, and resources of native Hawaiians as well as other ethnic groups. Act 50 also requires state agencies and other developers to assess the effects of proposed land use or shore line developments on the "cultural practices of the community and State" as part of the HRS Chapter 343 (2001) environmental review process.
It also re-defined the definition of "significant effect" to include "the sum of effects on the quality of the environment including actions impact a natural resource, limit the range of beneficial uses of the environment, that are contrary to the State's environmental policies ... or adversely affect the economic welfare, social welfare or cultural practices of the community and State" (H.B. 2895, Act 50, 2000). Cultural resources can include a broad range of often overlapping categories, including places, behaviors, values, beliefs, objects, records, stories, etc. (H.B. 2895, Act 50, 2000).

Thus, Act 50 requires that an assessment of cultural practices and the possible impacts of a proposed action be included in Environmental Assessments and Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, "the broad geographical area, e.g. district or ahupua'a" (OEQC 1997). It was decided that the process should identify "anthropological" cultural practices, rather than 'social' cultural practices. For example, limu (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

Therefore, the purpose of a Cultural Impact Assessment is to identify the possibility of on-going cultural activities and resources within a project area, or its vicinity, and then assessing the potential for impacts on these cultural resources. The CIA is not intended to be a document of in-depth archival-historical land research, or a record of oral family histories, unless those records contain information about specific cultural resources that might be impacted by a proposed project.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, which support such cultural beliefs.
The meaning of "traditional" was explained in National Register Bulletin:

"Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property then is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices... [Parker and King 1990:1]

**METHODOLOGY**

This Cultural Impact Assessment was prepared as much as possible in accordance with the suggested methodology and content protocol in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the "Cultural Impact Assessment Methodology", the OEQC states that:

"...information may be obtained through scoping, community meetings, ethnographic interviews and oral histories..."

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. Copies of the letters of inquiry are presented below in Appendix A; copies of posted legal notices are presented in Appendix B; and copies of the second group of letters of inquiry are presented below in Appendix C. This Cultural Impact Assessment was prepared in accordance with the suggested methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997), whenever possible. The assessment concerning cultural impacts may include, but not be limited to, the following matters:

1. A discussion of the methods used to obtain information concerning the cultural resources of the project area.

2. A description of methods used to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken; if conducted, interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;

3. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

4. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

5. A discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;

6. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

7. An explanation of confidential information that has been withheld from public disclosure in the assessment;

8. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

9. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

10. The inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

If an ongoing cultural activity and/or resources are identified within the project area, assessments of the potential effects on the cultural resources in the project area and recommendations for mitigation of these effects can be proposed.
ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps, land records, such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological reports.

INTERVIEW METHODOLOGY

Interviews are conducted in accordance with Federal and State laws, and guidelines, when knowledgeable individuals are able to identify cultural practices in, or in close proximity to, the project area. If they have knowledge of traditional stories, practices and beliefs associated with a project area or if they know of historical properties within the project area, they are sought out for additional consultation and interviews. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information concerning particular cultural resources. Often people are recommended for their expertise, and indeed, organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs (OHA), historical societies, Island Trail clubs, and Planning Commissions are depended on for their recommendations of suitable informants. These groups are invited to contribute their input, and suggest further avenues of inquiry, as well as specific individuals to interview. It should be stressed again that this process does not include formal or in-depth ethnographic interviews or oral histories as described in the OEQC's Guidelines for Assessing Cultural Impacts (1997). The assessments are intended to identify potential impacts to ongoing cultural practices, or resources, within a project area or in its close vicinity.

If knowledgeable individuals are identified, personal interviews are sometimes taped and then transcribed. These draft transcriptions are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the interview available for this study. When telephone interviews occur, a summary of the information is usually sent for correction and approval, or dictated by the informant and then incorporated into the document. If no cultural resource information is forthcoming and no knowledgeable informants are suggested for further inquiry, interviews are not conducted.

Letters were sent to organizations whose jurisdiction included knowledge of the area. Consultation was sought from the History and Culture Branch Chief of the State Historic Preservation Division; Office of Hawaiian Affairs (OHA), O’ahu Branch; Central Maui Hawaiian Civic Club; Kīmoke Kapaulehua; Maui SHPD, Cultural Branch; County of Maui, Department of Planning, Cultural Resources Commission; OHA Maui Branch; and Hale Mahaolu (Appendix A). In addition, a Cultural Impact Assessment Notice was published in The Honolulu Star-Advertiser, and The Maui News, on July 20, 21, and 24, as well as in the August issue of the OHA newspaper, Ka Wai Ola (Appendix B). These notices requested information of cultural resources or activities in the area of the proposed project, stated the TMK number, and where to respond with pertinent information. Based on the responses, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

If ongoing cultural activities and/or resources are identified within the project area, assessments of the potential effects on the cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The project area is located in the land of Pālehu Nui Aluapa‘a, about 1.4 miles east of Mokulele Highway and adjacent to the Old Pu‘unene Airport. Access from Mokulele Highway to the project area will be provided by a 56-foo wide access easement along Kama‘ana Road, South Firebreak Road, and Lower Kihei Road. An alternate access route around the north and east side of an HCS irrigation reservoir was also examined. Both access routes were assessed as part of the CFA. (see Figure 3).

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. Pu‘u Kukui, forming the west end of the island (1,215 m above mean sea level), is composed of large, heavily eroded uplifted valleys that contain well-developed permanent stream systems that watered fertile agricultural lands extending to the coast. The deep valleys of West Maui and their associated coastal regions have been witness to many battles in ancient times and were coveted productive landscapes. These are joined together by an isthmus containing dry, open country (kalo), and the land of Pālehu Nui, among others.
PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui Island into districts (moku) and subdivisions was performed by a kahuna (priest, expert) named Kahilu‘ū‘ū, during the time of the ali‘i Kāka‘ako‘ōlo. (Beckwith 1940:383; Fornander places Kāka‘ako‘ōlo at the end of the 19th century or the beginning of the 20th century (Fornander 1919-20, Vol. 6:248). Land was considered the property of the king or ali‘i ‘ai moku (the ali‘i who eats the island district), which he held in trust for the gods. The title of ali‘i ‘ai moku ensured rights and responsibilities pertaining to the land, but did not confer absolute ownership. The king kept the parcels he wanted, his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The moku ʻāina (commoners) worked the individual plots of land.

In general, several terms, such as moku, ʻahupaʻa, ʻili or ʻili ʻāina were used to delineate various land sections. A district (moku) contained smaller land divisions (ʻahupaʻa) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the ʻahupaʻa were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each ʻahupaʻa to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The ʻili ʻāina or ʻili were smaller land divisions next to importance to the ʻahupaʻa and were administered by the chief who controlled the ʻahupaʻa in which it was located (ibid 33; Lucas 1995:40). The moʻo ʻāina were narrow strips of land within an ʻili. The land holding of a tenant or hoa ʻāina residing in a ʻahupaʻa was called a hulea (Lucas 1995:1). The project area is located in the lands of Pōhaku Nui which translated literally means “large pōhaku,” but since pōhaku means “bouldered,” it might refer to the degree of bouldering one could receive from the sun in this area (Pukui et al. 1993).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various ʻahupaʻa. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiology. River valleys provided ideal conditions for wetland kalo (Colocasia esculenta) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as kū (sugar cane, Saccharum officinarum) and ma‘a (banana, Musa sp.), were also grown and, when appropriate, such crops as ‘ula (sweet potato, Ipomoea batatas) were produced. This was the typical agronomic pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1983). It must be noted that Handy 1948:105 stated that, “... the bounds of cultivation... were strictly drawn by limitation of water for irrigation.” The word “ʻula” meant “open country, or plain”, according to Handy and Handy, and was often used to differentiate between dry, or kalo, land, and wet-taro land. The height and size of Hialesaili to the east, prevents moisture from reaching its southern and western flanks, causing desert-like conditions throughout the region (Handy and Handy 1972).

This is an essential characteristic of Kula, the central plain of Maui which is practically devoid of streams. Kula was always an arid region, throughout its long, low southeast, vast storey kalo lands, and broad uplands (ibid:510)

As to the occupation of this vast plain, Handy and Handy stated:

Both on the coast, where fishing was good, and on the lower westward slopes of Haleakala a considerable population existed. So far as we could learn Kula supported no Hawaiian taro, and the fishermen in this section must have depended for vegetable food mainly on poi brought from the wet lands of Wailuku and Wailuku to westward across the plain to supplement their usual sweet-potato diet (ibid:511).

An early witness to its lack of productivity was George Vancouver. During his second visit to Hawai‘i in 1793 as a Captain, he anchored in Mālaea Bay:

The appearance of this side of Mowee was scarcely less forbidding than that of its southern parts, which we had passed the preceding day. The shores, however, were not so steep and rocky, and were mostly composed of a sandy beach; the land did not rise so very abruptly from the sea towards the mountains, nor was its surface so much broken with hills and deep chasms; yet the soil had little appearance of fertility, and no cultivation was to be seen. A few habitations were promiscuously scattered near the water side, and the inhabitants who came off to us, like those seen the day before, had little to dispose of (1984:352)

Not much had changed 24 years later (1817) when Peter Cuming sailed this way, bound for O‘ahu. He made special reference to Kālia Pond (now the Kālia Pond and Wildlife Refuge), a short distance southwest of the project area.
Next morning we passed Murokenae (Motokini), and made sail up Mackerel (Maalana) bay. This bay is very deep and wide, and nearly divides the island, there being but a narrow neck of land and very low, keeping the two parts of the island together. On this neck of land are their principal salt pans, where they make most excellent salt [Corey 1965:70-71]

EARLY HISTORY

The Waikiku District was a center of political power often at war with its rival in Hana. Between 1775 to 1779, there was almost continual fighting between Kahekili, chief of Maui and Kalani‘ōpu‘u, Chief from Hawai‘i Island, who was often in residence at Hana (Kamakau 1961). After several skirmishes in which Kalani‘ōpu‘u had been defeated by the warriors of Kahekili, Kalani‘ōpu‘u retired to Hawai‘i Island. He spent the next year gathering men from each of the six districts on the island, forming six divisions of warriors. His prime troops consisted of chiefs from his own group of attendants, which were named the ‘Alapa and Pi‘ipi‘i. Leaving nothing to chance, Kalani‘ōpu‘u then built heiau for his war gods, assuring success, and when all was ready (1776), he and his men returned to Maui (ibid.).

Rather than landing at Hana on the east side, the warriors came around the southern coast of Maui. They first landed at Keone‘ōio Bay and navigated the country side giving Kahekili notice and time to prepare his fighting men (ibid.). Kalani‘ōpu‘u’s men traveled up the coast by sea and landed at Kheipoko‘a at Ke‘elua, confident that the victory was to be theirs (ibid.) The 800 ‘Alapa and Pi‘ipi‘i warriors marched across the plain (in which is the project area) to Waikiku where Kahekili and his warriors were waiting. Kamakau said:

They slew the Alapa on the sand hills at the southeast of Kaah. There the dead lay in heaps strown like tailu [branches]; corpses lay heaped in death; they were slain like fish enclosed in a net... [ibid.:85-89].

An interesting anecdote is recounted by George W. Bates during his journey from Waikiku to Kahului in 1854:

Leaving Wai-luu-tu [town], and passing along toward the village Kahului, a distance of three miles, the traveler passes over the old battle-ground named after the village. It is distinctly marked by moving sand-hills, which owe their formation to the action of the northeast trades. Here these winds blow almost with the violence of a gale and, clouds of sand are carried across the northern side of the island to a height of several hundred feet. These sand-hills constitute a huge “Clotho” for thousands of warriors who fell in ancient battles. In places laid bare by the action of the winds, there were human skeletons projecting, as if in the act of struggling for resurrection from their hard sepulchers. In many portions of the plain who cart-loads were exposed in this way. Judging of the numbers of the dead, the contest of the old Hawaiians must have been exceedingly bloody... [Sandwich Island Notes, 309]

The 1775 encounter between Kahekili and Kalani‘ōpu‘u resulted in a temporary truce which was broken in 1790 by the battle of Ke’ahului, when Kamakau consolidated his control over Maui Island.

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Ka‘auena (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame‘elehiwa 1992:169-70; 176; Kelly 1983:45, 1998:4; Dawe 1962:111; Kuykendall 1938 Vol. 1:145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the maka‘ānana (commons), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, ‘ekipu (on O‘ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame‘elehiwa 1992:265; Kīhe‘ī and Sablin 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16).

The ahupua‘a of Pāle‘u Hui extended across the Kula plain up through Makawao, to the edge of Haleakalā and would have included fruitiful sections, not just the arid plains (Figure 4). There were 13 kuleana claimed in the ahupua‘a of Pāle‘u Hui. LCA 05230, consisting of 912 acres and belonging to Keawemaua, appears to contain the portion of
Pāliku Nui where the project area is located. On this LCA Kauawamāhi claimed 5 apana (land portions), 7 lo'a (wet taro) and 2 kula (pastures). Saltwater-associated geography (i.e., shore and dunes) was also claimed by Kauawamāhi as part of LCA 5230 (Waikoa 'Aina Database, 2011). However, of these 5 apana are listed in the project area.

HISTORIC LAND USE

SUGAR YEARS

As the sugar industry developed in the mid-1800s, more and more land was leased or purchased for what had become an intensely profitable endeavor. Water was an issue, but in 1876, the Hamakua Ditch Company (Alexander and Baldwin) was formed and within two years was bringing water from the streams of Hāleakalā to four plantations in East Maui (Dorrance and Morgan, 2000).

Also in 1876, the Reciprocity Treaty's ratification notice arrived by steamer, along with Claus Spreckles, California's sugar magnate, who viewed the sugar situation and decided two years later to turn the dry plains of Maui into a garden of cultivated cane (Van Dyke, 2008). By various questionable means, he was able to acquire half interest in 16,000 acres of land in Wākapū commons and was able to lease 24,000 acres of Crown Lands on the Wailuku plains in central Maui for $1,000 (ibid.). Figure 4 above, shows the survey line of the property extending across Pāliku Nui, Claus Spreckles obtained from Henry Cornwall.

Having seen the success of the recently completed Hamakua Ditch now bringing mountain water to the otherwise dry, and unproductive East Maui fields, and having lost his battle to control this ditch water, Spreckles formed the Hawaiian Commercial Company and decided to construct a ditch system of his own on East Maui above the Hamakua Ditch, for his newly acquired land (Wilcox, 1996). Spreckles' Hāiku Ditch extended 30 miles, from Honomanu Stream to the Kīhei boundary and the water was used to irrigate his cane lands in the central Maui plains (ibid.). Presently, the Hāiku Ditch ends at the Hāiku reservoir abutting the project area to the north (see Figure 1).

In 1882, Spreckles reorganized his company into a California corporation, called Hawaiian Commercial and Sugar Company, or HC&S (Wilcox, 1996). Later he constructed another water system known as the Wailea Ditch in West Maui. It brought
water from 15 miles away, starting at an elevation of 435 feet, to Kalua where it emptied into HC&S Waiale reservoir (ibid.).

The ensuing years brought trials and tribulations between Speckles, his associates, and the Maui sugar planters, resulting finally in the 1898 sale of his HC&S stock, at an all time low, to James Castle in partnership with Alexander and Baldwin, and the departure of Claus Speckles from Hawai‘i (Dorrance and Morgan 2000; Wilcox 1966).

Henry Baldwin and Lorrin Thurston formed the Kīhei Sugar Company in 1899, to grow cane on their ranch lands in south-central Maui, which included the project area (Dorrance and Morgan 2000). It was sent to the mill at Pa‘auhi to be ground, but, although production was high, it was not enough to cover the costs (ibid.).

After the annexation in 1898, some of the planters on Maui, including Alexander and Baldwin, had decided to combine plantations to reaps maximum profit. They formed the Maui Agricultural Company, a co-partnership that initially encompassed seven plantations and two mills. In 1904, five new plantations became part of the Maui Agricultural Company, as Kulu Plantation Company, Makawao Plantation Company, Pālehū Plantation Company, Kaliu Plantation and Kalainui Plantation Company were newly formed by carving up the unprofitable Kīhei Plantation lands (Dorrance and Morgan 2000). Figure 3 shows the lands in Kula, previously Kīhei Plantation Company, which became the “five companies” of the Maui Agricultural Company surveyed in 1904 by Arthur Alexander. The newly formed Makawao Plantation included the section of Pālehū Nui containing the project area (figure 6). Maui Agricultural Company merged with HC&S in 1948 (Dorrance and Morgan 2000).

WORLD WAR II
A portion of the cane fields to the west of the project area was turned into a civil airfield for the Territory of Hawai‘i in 1937, as the one located at Ma‘alaea had become too small to accommodate (www.airfields-freeman.com/III/Airfields_III_Maui.htm). Two years later, inter-island Airways began service to Maui, conveniently landing at Pa‘auhi Airport. As war loomed on the horizon (1940), the Navy began using the airport, along with a small Army Air Corps support base at the airfield (ibid.). At this time, the air station was being used to support Squadron VU-3, to tow targets and operate
Figure 8 shows a 1944 map of the Naval Air Station, including the Haiku Reservoir and the project area, in 1943. By 1945, the base consisted of a total of 2,202 acres, supporting over 3,200 personnel, and 271 aircraft. There were two paved runways, taxiways, ramps, hangars, and auxiliary buildings (ibid.).

The airfield was released by the Navy back to the Territory of Hawai‘i in 1947 and was apparently used as the official inter-island Airport until at least 1952 when the Kahului Airport was available for civil use (ibid.). However, the Maui Pā‘ūnē airstrip, as it was known, serviced crop-dusters and other smaller aircraft and wasn’t abandoned as a landing strip until sometime between 1961 and 1977 (ibid.). Overgrown military facilities were left in the area, including bunkers, revetments, and other bits and pieces. This is when the old airstrips were used for impromptu racing. All the land, except 222 acres, was sold back to HC&S by the State of Hawai‘i. The 222 acres were deeded to the Maui County and the 2002 master plan for this land, included a racetrack park, county fair grounds, Hawai‘i National Guard, Maui Correctional Center and 3.5 (as the northeast end of the drag strip acres set aside for a naval memorial park at the northeast end of the drag strip (ibid.). Management is provided by the County Parks and Recreation Department and a portion of the airstrip is presently being used by the Maui Raceway Park Drag Strip, the Paradise Speedway Dirt Track, and the Maui Remote Airplane Club (ibid.).
In recent times, the northern half of the 86-acre parcel had been used for a pig farm and as a scrap-metal storage site, while the southern half of the property remained fallow.

**SUMMARY**

The "level of effort undertaken" to identify potential effect by a project to cultural resources, places or beliefs (DEQC 1997) has not been officially defined and is left up to the investigator. A good faith effort can mean contacting agencies by letter, interviewing people who may be affected by the project or who know its history, research identifying sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. Sending inquiring letters to organizations concerning development of a piece of property that has already been totally impacted by previous activity and is located in an already developed industrial area may be a "good faith effort". However, when many factors need to be considered, such as in coastal or mountain development, a good faith effort might mean an entirely different level of research activity.

In the case of the present parcel, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from the History and Culture Branch Chief of the State Historic Preservation Division; Office of Hawaiian Affairs (OHA); Oahu Branch; Central Maui Hawaiian Civic Club; Kimookeo Kupukulua; Maui SHPO; Cultural Branch; County of Maui, Department of Planning, Cultural Resources Commission; OHA Maui Branch; and Hale Mahana. In addition, a Cultural Impact Assessment Notice was published in The Honolulu Star-Advertiser, and The Maui News, on July 20, 21, and 24, as well as in the August issue of the OHA newspaper, Ka Wai Ola (page 29).

Historical and cultural source materials were extensively used and can be found listed in the References Cited portion of the report. Such scholars as I'i, Kamakau, Berckwitz, Chinien, Kame'eleichiwa, Formander, Kuykendall, Kelly, Handy and Handy, Pakua' and Elbert, Truax, Sterling, and Cordy have contributed, and continue to contribute to our knowledge and understanding of Hawai'i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Wai'inoa 'Aina 2007 Data base.

**ARCHAEOLOGY**

In-depth archaeological information concerning the project area and vicinity can be found in the appropriate Archaeology section of the Environmental Impact Statement that covers the archaeological studies associated with this project. Individual reports can be found on file at the State Historic Preservation Division.

Briefly, International Archaeological Research Institute, Inc. (IARI) conducted Archaeological Inventory Survey in 1999 of a large area, part of which included the current subject property (Tomanari-Tuggle et al. 2001). During the IARI survey, two archaeological sites, State Site 50-50-09-4164 (former World War II Naval Air Station Puunene) and State Site 50-50-09-4801 (post-World War II cattle ranching site) were newly identified. IARI determined that at least two of these archaeological sites were used for multiple historic activities (Tomanari-Tuggle et al. 2001). For example, the crop dusting operation utilized the former Naval Air Station Puunene's airstrip as a runway for their planes. A few of the standing military structures located on the current project area (TMK(2)-3-8-008:019) were converted from military features to holding facilities for pigs.

In 2011, SCS relocated these two archaeological sites and supplemented the initial study with the identification of additional, previously undocumented surface features within the two State sites identified by IARI (Tome and Dega 2011). Archival research indicated the northern half of the project area had been utilized for a pig farm and as a scrap-metal storage site, while the southern half of the subject property remained fallow. A total of fifteen (15) features, interpreted as either NAS Puunene-related or post-war cattle ranching-related features, had not been previously recorded. Of these 15 features, recorded during this 2011 study, three features were located in the State Site 50-50-09-4801 post-war cattle ranching area. The remaining twelve (12) features were located in the State Site 50-50-09-4164 former Naval Air Station Puunene area.

Archaeology deals with material remains, and although cultural beliefs are often reflected through some sort of architecture, like heiau or ko'a, there are many examples of cultural associations still important to the community with no physical structures to mark their significance. One such place, Ulukukui O Lawikiko, located on Moloka'i, is considered an extremely sacred spot. Another might be Kilauea and Halema'uma'u, home of Pele on Hawai'i Island. These places have become important sites supporting a traditional belief system still held by the many peoples of Hawai'i. They contain no...
identified archaeological features, however they are highly meaningful "...because of [their] association with cultural practices or beliefs of a living community ..." (King 2003:3).

**CIA INQUIRY RESPONSE**

As stated above, consultation was sought from the History and Culture Branch Chief of the State Historic Preservation Division; Office of Hawaiian Affairs (OHA), O'ahu Branch; Central Maui Hawaiian Civic Club; Kimo Kapaulehua; Maui SHPD, Cultural Branch; County of Maui, Department of Planning, Cultural Resources Commission; OHA Maui Branch; and Hale Mahalal. In addition, the Cultural Impact Assessment Notice was published in The Honolulu Star-Advertiser and The Maui News on July 20, 21, and 24, as well as in the August issue of the OHA newspaper, Ka Wai Ola. In addition, contact was made with long time resident, Hugh Stace, who sent copies of reference documents and a map pertaining to the WWII use of the area. A letter was received from OHA, dated July 28, 2011, with no additional CIA referrals, but a number of suggestions concerning environmental aspects of the project that SCS passed on the client for their consideration (Appendix C).

No further comments, or information was received from the other letters of inquiry concerning the potential for cultural resources or cultural activities to occur in the project area (TMK 3-8-08:019), or with additional suggestions for further contacts.

**CULTURAL ASSESSMENT**

Analysis of the potential effect of the project on cultural resources, practices or beliefs, its potential to isolate cultural resources, practices or beliefs from their setting, and the potential of the project to introduce elements which may alter the setting in which cultural practices take place is also a suggested guideline of the OEQC (No. 10, 1997). To our knowledge, the project area has not been used for traditional cultural purposes within recent times.

Based on the above research, it is reasonable to conclude that, pursuant to Act 50, the exercise of native Hawaiian rights, or any ethnic group, related to gathering, access or other customary activities will not be affected by development activities on a portion of Parcel 019. Because there were no cultural activities identified within the project area, there are no adverse effects. The visual impact of the project from surrounding vantage points, e.g. the highway, mountains, and coast is minimal.
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APPENDIX A: CIA CONSULTATION LETTERS - 1ST BATCH 8 JULY 2011
Dear Mr. Cayzar:

Scientific Consultant Services, Inc. (SCS) has been contracted by Pacific Rim Land Inc., to conduct a Cultural Impact Assessment (CIA) of a land parcel in Pu‘unene, Pāhulani Aloha’s, Wailuku District, Maui Island [TMK: (2) 3-8-005(019) (Figures 1 and 2). According to documents supplied by Pacific Rim Land Inc., the project area consists of approximately 86 acres, which Pacific Rim Land Inc. plans to develop into a heavy industrial subdivision. Scientific Consultant Services is in the process of conducting an Archaeological Inventory Survey of the subject property and is assessing the probability of impacting cultural values and rights within the project area and its vicinity. A search of the Wailana ‘Alaia Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Kawanaahii. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

According to the Guidelines for Assessing Cultural Impacts (Office of Environmental Quality Control, Nov. 1997):

- The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious or spiritual customs...
- The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might assist us in gathering knowledge of traditional activities, or traditional rights that might be impacted by development of the property. The results of our assessments rely greatly on the assistance and response of individuals and organizations such as you. Enclosed are maps showing the location of the proposed project area. Please contact me or Leon McGarty at our SCS Honolulu office at (808) 597-1182; with any information or recommendations concerning this Cultural Impact Assessment.

Thank you in advance for your comments and help. We look forward to hearing from you.

Sincerely,

Cathleen A. Diego
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachment:
Figure 1: USGS Quadrangle (Wailuku) Map Showing Project Area Location.
Figure 2: Tax Map Key (TMK: (2) 3-8-005) Showing Project Area Location.
Land Commission Award 5230
Dear Sir or Madame:

Scientific Consultant Services, Inc. (SCS) has been contracted by Pacific Rim Land Inc., to conduct a Cultural Impact Assessment (CIA) of a land parcel in Pu‘unene, Pāihanu Akupua‘a, Wāliaku District, Maui Island (TMK: (2) 3-8-000-019) (Figures 1 and 2). According to documents supplied by Pacific Rim Land Inc., the project area consists of approximately 86 acres, which Pacific Rim Land Inc. plans to develop into a heavy industrial subdivision. Scientific Consultant Services is in the process of conducting an Archaeological Inventory Survey of the subject property and is assessing the probability of impacting cultural values and rights within the project area and its vicinity. A search of the Wailana ‘Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Kaeo‘nani. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

According to the Guidelines for Assessing Cultural Impacts (Office of Environmental Quality Control, Nov. 1997):

- The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might assist us in gathering knowledge of traditional activities, or traditional rights that might be impacted by development of the property. The results of our assessments rely greatly on the assistance and response of individuals and organizations as you are.

Enclosed are maps showing the location of the proposed project area. Please contact me or Leona McCarty at our SCS Honolulu office at (808) 597-1182, with any information or recommendations concerning this Cultural Impact Assessment.

Thank you in advance for your comments and help. We look forward to hearing from you.

Sincerely,

[Signature]

Calibrot A. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachments:

- Figure 1: USGS Quadrangle (Waikiku) Map Showing Project Area Location.
- Figure 2: Tax Map Key (TMK: (1) 3-8-008) Showing Project Area Location.
- Land Commission Award 5230
Dear [Name],

Scientific Consultant Services, Inc. (SCS) has been contracted by Pacific Rim Land Inc., to conduct a Cultural Impact Assessment (CIA) of a land parcel in Pu'ukole, Wailuku District, Maui Island [TMK: (3) 3-1-003-019] (Figures 1 and 2). According to documents supplied by Pacific Rim Land Inc., the project area consists of approximately 86 acres, which Pacific Rim Land Inc. plans to develop into a heavy industrial subdivision. Scientific Consultant Services is in the process of conducting an Archaeological Inventory Survey of the subject property and is assessing the probability of impacting cultural values and rights within the project area and its vicinity. A search of the Wailuku Ainu Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Kaeawamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

According to the Guidelines for Assessing Cultural Impacts (Office of Environmental Quality Control, Nov. 1997):

- The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs...
- The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might assist us in gathering knowledge of traditional activities or traditional rights that might be impacted by development of the property. The results of our assessments rely greatly on the assistance and response of individuals and organizations such as yours. Enclosed are maps showing the location of the proposed project area. Please contact our Leanne McGarvey at our SCS Honolulu office at (808) 597-1182; with any information or recommendations concerning this Cultural Impact Assessment.

Thank you in advance for your comments and help. We look forward to hearing from you.

Sincerely,

[Name]

Catholic A. Daghr
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachments:
Figure 1: USGS Quadrangle (Wailuku) Map Showing Project Area Location.
Figure 2: Tax Map Key (TMK: (3) 3-1-003) Showing Project Area Location.
Land Commission Award 5230
July 8, 2011

Hinalo Rodrigues, Cultural Historian
IDNR Maui Office Annex
120 Mahalu Street
Waianae, Hawaii 96791

Dear Hinalo:

Scientific Consultant Services, Inc. (SCS) has been contracted by Pacific Rim Land, Inc., to conduct a Cultural Impact Assessment (CIA) of a land parcel in Pu‘unēnē, Pāhulani Aupuni, Waikakalani District, Maui Island (TMK: (2) 3-8-080E019) (Figures 1 and 2). According to documents supplied by Pacific Rim Land, Inc., the project area consists of approximately 86 acres, which Pacific Rim Land Inc. plans to develop into a heavy industrial subdivision. Scientific Consultant Services is in the process of conducting an Archaeological Inventory Survey of the subject property and is assessing the probability of impacting cultural values and rights within the project area and its vicinity. A search of the Wahiawa Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Kauaiwaa. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

According to the Guidelines for Assessing Cultural Impacts (Office of Environmental Quality Control, Nov. 1997): The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs... The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural which support such cultural beliefs...

We are asking you for any information that might assist us in gathering knowledge of traditional activities, or traditional rights that might be impacted by development of the property. The results of our assessment rely greatly on the assistance and response of individuals and organizations such as yours. Enclosed are maps showing the location of the proposed project area. Please contact me or Leana McGarty at our SCS Honolulu office at (808) 597-1182; with any information or recommendations concerning this Cultural Impact Assessment.

Thank you in advance for your comments and help. We look forward to hearing from you.

Sincerely,

Cathleen A. DiGilio
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachment:
Figure 1: USGS Quadrangle (Waikakalani) Map Showing Project Area Location.
Figure 2: Tax Map Key (TMK: (2) 3-8-080E019) Showing Project Area Location.
Land Commission Award 5230

Cathleen A. DiGilio
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachment:
Figure 1: USGS Quadrangle (Waikakalani) Map Showing Project Area Location.
Figure 2: Tax Map Key (TMK: (2) 3-8-080E019) Showing Project Area Location.
Land Commission Award 5230
CULTURAL IMPACT ASSESSMENT NOTICE:
Information requested by SCS of cultural resource or on-going cultural activities on or near a land parcel in Pu'upueo, Pilikiau, Aiea, Waikiki District, West End, Hawai'i (TMK: 2) 3-31-481, 01
Please respond within 30 days to SCS at (808) 597-1182

Kia Wai Ola
Hawaii Advertiser
Maui News

FAX OR TRANSMITTAL MEMORANDUM

To: SCS Project
   Address: Legal Dept

From: SCS Project
   Address: Legal (68-777671)

Date: 7/14/2013

Fax: 524-8314

The following is being sent to you: By Fax

SCS Project Number: 122

Scanned and signed:

SWS Dates 7/20/7/21/724

More sound than usual

Kia Wai Ola, Hawaii Advertiser, Maui News
STATE OF HAWAII
County of Maui

Phoebe K. Kumakiri, being duly sworn, deposes and says that she is the Advertising Sales Manager for the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii, that the order for publication is

CULTURAL IMPACT ASSESSMENT NOTICE

of which the server is a true and correct printed notice, was published once in THE MAUI NEWS, startix, commencing on the 20th day of July 2011, and ending on

the 26th day of July 2011, both days inclusive, to-wit on

July 20-24, 2011

and that in full is not a party to or in any way interested in the above

entitled matter:


This 1 page of Cultural Impact Assessment Notice

July 20, 2011,

was subscriber and sworn to before me this 26th day of

July 2011, in the Second Circuit of the State of Hawaii,

by

Phoebe K. Kumakiri

Notary Public, Second Judicial Circuit, State of Hawaii

FILED:

By

Phoebe K. Kumakiri

Clerk of Court
Second Judicial Circuit,
State of Hawaii

FILED:

By

Phoebe K. Kumakiri

Clerk of Court
Second Judicial Circuit,
State of Hawaii

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Second Judicial Circuit,
State of Hawaii

FILED:

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Phoebe K. Kumakiri

Clerk of Court
Second Judicial Circuit,
State of Hawaii

FILED:

By

Phoebe K. Kumakiri

Clerk of Court
Second Judicial Circuit,
We have no additional comments or referrals to individuals or organizations who may be interested in participating in consultation for this project. We refer you to the above. Thank you for completing the consultation. We look forward to reviewing the CEA and providing additional comments at that time. Should you have any questions or concerns, please contact Keith Lim on 547-6264 or keith@oha.org.

O'wai hano ke ohia 'ia'

Cheryl K. Nakamura
Chief Executive Officer

C H A - M a e C O C
Phase I
Environmental
Site Assessment
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ETC Project No. 11-1001
March 2011

March 2011

Phase I Environmental Site Assessment
Former Paunene Piggery Site
ETC Project No. 11-1001
EXECUTIVE SUMMARY

This report presents the results of a Phase I Environmental Site Assessment (ESA) performed by EnviroServices & Training Center, LLC (ETC) in conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E-1527-05. This Phase I ESA was completed for A&B Properties, Inc. (A&B) for the Subject Property located at South Fire Break Road, Puunene, Maui, Hawaii and identified as Tax Map Key (TMK) identification number (2) 3-8-008: Parcel 019. Review of tax records revealed that the Subject Property is currently owned by A&B - Hawaii, Inc.

The Subject Property consists of an approximate 86-acre portion of land identified as land parcel 19. The Subject Property was most recently used as a piggery and an unpermitted solid waste management facility. In October 1998, the Subject Property was inspected by the Hawaii Department of Health (DOH) Solid Waste Section (SWS). As a result, on November 27, 1998, the DOH SWS issued Mr. Larry Poffenroth, operator of the Subject Property, a letter indicating several violations at the Subject Property. In addition, the letter ordered Mr. Poffenroth to cease and desist all salvaging operations, and stated that a formal Notice of Violation (NOV) would be issued if he did not respond within 15-days. The DOH SWS reportedly issued a second letter, dated December 23, 1998 regarding the closure of the illegal solid waste management operations at the Subject Property. Since no response was received for the November and December 1998 letters, the DOH SWS issued a “warning letter” on May 5, 1999 indicating that if closure of the facility is not completed as requested, the DOH may institute an administrative or civil action for the current and prior solid waste violations. No apparent further action was taken or pursued by the DOH SWS from May 1999 to June 2005. When an anonymous complaint was reported to the DOH SWS that Mr. Poffenroth was accepting white goods and baling white goods and cars at the piggery.

As a result of the anonymous complaint, the DOH SWS conducted a site inspection of the Subject Property in September 2005. The inspection report indicated an accumulation of solid waste (i.e. scrap metal, green waste, construction and demolition waste, etc.) was observed on the Subject Property. Subsequently, the DOH SWS issued Mr. Poffenroth a “Letter of Intent,” dated September 19, 2005, requesting that removal and proper disposal of the solid waste on the Subject Property be completed within one year. A&B subsequently initiated and completed cleanup activities, which were completed in February 2011. Clearance from the DOH SWS is currently pending. As part of the planned cleanup activities, A&B also agreed to conduct a “comprehensive site assessment” of the Subject Property. Specifically, A&B contacted ETC to prepare a site investigation work plan to investigate whether the surface soils at the Subject Property have been impacted by the former solid waste management activities. Site investigation activities were conducted concurrently with this Phase I ESA and will be reported under separate cover. Based on this information, ETC cannot disprove the fact that Subject Property soils may have been impacted by the former solid waste management activities.
Historic maps and documents provided by the landowner indicated that the Subject Property was part of the former Punnene Naval Air Station (PNAS). Review indicated that a "machine gun range" was formerly located on or partially on the southernmost portion of the Subject Property. "Earth revetments," presumably at the impact zone of the gun range, were formerly located near the current southern property line, and it is unclear whether these revetments were within or just outside of the Subject Property boundary. The remaining areas of the former PNAS on the Subject Property appeared to be used primarily for quarters, office space, and barracks. Past environmental investigations and cleanups have been conducted on areas of the base west of the Subject Property. Although no evidence of past investigations of the gun range was identified, residual heavy metals are common contaminants associated with former military firing ranges. As such, this finding is considered a historical recognized environmental condition (REC). While the "earth revetments" are no longer present and there is evidence that soil in the presumed gun range impact zone has been excavated at some time in the past, based on information provided by the landowner coupled with ETC's telephone correspondence with DOH HEER Office personnel, ETC cannot dismiss the potential presence of residual contamination from this historical REC and as such the former "machine gun range" is considered a current REC for the Subject Property.

ETC performed a site reconnaissance on February 17, 2011 and March 1, 2011 in order to complete a visual survey to identify the use and/or storage of hazardous materials. With the exception of the radio tower and other appurtenant structures, no visible structures were observed on the Subject Property. Note that several apparent building foundations in the form of concrete slabs were observed on the Subject Property. ETC personnel observed a non-potable water well located on the central portion of the Subject Property. The southernmost portion of the Subject Property appeared to be used for current sugarcane cultivation activities. ETC observed limited quantities of cathode ray tubes (CRTs), batteries, and other wastes within a metal storage bin located on the northwest portion of the Subject Property. According to the landowner, these materials are being prepared for shipment and proper disposal. The bin is situated on an apparent concrete slab. No releases were observed in the vicinity of this bin. In addition, limited quantities of apparent metal debris were observed on the Subject Property. ETC understands that all remaining metal debris and wastes contained within the metal bin are planned for removal and disposal.

The Subject Property was not listed in any of the government databases by the contracted database search. The contracted database search identified one (1) Formerly Used Defense Site, and three (3) Orphan sites within the specified radii. Based on these findings, ETC reviewed select facility files and/or correspondence with personnel from the Hawaii Department of Health (DOH) Solid and Hazardous Waste Branch (SHWB) and DOH Hazard Evaluation and Emergency Response (HEER) Office. Findings indicate that a portion of the former Maui Airport Military Reservation (also known as the FNAS) was located on the Subject Property. Although not identified by the contracted database, information provided by the landowner coupled with the available online RCRA database information revealed that Subject Property was identified as a RCRA Large Quantity Generator (LQG). Specifically, the "Former Peffenroth Piggery" is listed as a RCRA LQG with no apparent RCRA violations.

In summary, ETC performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-05 on the Subject Property. This assessment has revealed no evidence of RCs in connection with the Subject Property except for the following:

- Potential presence of residual contaminants associated with former solid waste management activities on the Subject Property.
- Potential presence of residual contamination associated with historic usage of the southernmost portion of the Subject Property as a "machine gun range."
2.0 INTRODUCTION

Enviroservices & Training Center, LLC (ETC) was contracted by A&B Properties, Inc. (Client) to complete a Phase I Environmental Site Assessment (ESA) for the Subject Property located at South Fire Break Road, Puunene, Maui, Hawaii. The Subject Property is identified as Tax Map Key (TMIK) identification number (3) 3-8-008. Parcel 019.

This Phase I ESA was performed in accordance with the ASTM International Standard E1527-05 entitled Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (referred to herein as the ASTM Practice). The ASTM Practice is intended for use by parties who wish to assess the environmental condition of commercial real estate with respect to contaminants within the scope of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and petroleum products. As such, the ASTM Practice was designed to satisfy "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined in 42 United States Code (U.S.C.) §9601(35)(B).

2.1 Background

Under CERCLA, persons may be held liable for cleaning up hazardous substances at properties that they either currently own or operate, or owned or operated at the time of disposal. Strict liability in the context of CERCLA means that a potentially responsible party may be liable for environmental contamination based solely on ownership and without regard to fault or negligence.

In 1986, the Superfund Amendments and Reauthorization Act (SARA) amended CERCLA by creating an "innocent landowner" defense to CERCLA liability for those persons who could successfully demonstrate, among other requirements, that they "did not know and had no reason to know" prior to purchasing the property that any hazardous substance that is the subject of a release or threatened release was disposed of on, in, or at the property. Persons, to demonstrate that they had "no reason to know" must have undertaken, prior to, or on the date of acquisition of the property, "all appropriate inquiries" into the previous ownership and uses of the property consistent with good commercial or customary standards and practices.

The Small Business Liability Relief and Brownfields Revitalization Act (referred to as "the Brownfields Amendments") was enacted in January 2002 to amend CERCLA. These amendments included providing funds to assess and clean up brownfields sites, clarifying CERCLA liability provisions for certain landowners, and providing funding to enhance state and tribal cleanup programs.

Subtitle B of Title I11 of the Brownfields Amendments revised CERCLA, clarifying the requirements necessary to establish the innocent landowner defense. The Brownfields Amendments also added protections from CERCLA liability for "bona fide prospective purchasers" and "contiguous property owners" who meet certain statutory requirements. Each of the CERCLA liability provisions for innocent landowners, bona fide prospective purchasers, and contiguous property owners (referred to collectively as "landowner liability protections," or LLPs) requires that, among other requirements, persons claiming the liability protections conduct all appropriate inquiries into prior ownership and use of a property prior to or on the date a person acquires a property.

A key provision of the Brownfields Amendments was to finalize regulations setting federal standards for the conduct of all appropriate inquiries. Such federal standards were promulgated in the Standards and Practices for All Appropriate Inquiries, Final Rule. 40 CFR Part 312, referred to as the AAI Final Rule.

Section 312.11 of the AAI Final Rule indicates that the ASTM International Standard E1527-05, entitled Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, may be used to comply with the requirements set forth in Sections 312.23 through 312.31 of the AAI Final Rule. Therefore, this Phase I ESA was performed in conformance with the ASTM International Standard E1527-05.

2.2 Purpose

The purpose and goal of this Phase I ESA is to conduct an inquiry designed to identify recognized environmental conditions in connection with the Subject Property, to the extent feasible pursuant to the process described in the ASTM Practice. The term recognized environmental condition (REC) is defined as:

"the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be de minimis are not recognized environmental conditions."
2.3 Scope of Services

The scope of work included the following:

- Development of a site description for the Subject Property including site background, physical characteristics and historical site conditions;
- Evaluation of user provided information including but not limited to environmental laws, activity and use limitations, specialized knowledge, violation reduction of environmental issues, and other information pertaining to the property;
- Evaluation of information in programs such as NPL, CERCLIS, FINDS, ERNS, RCRA notifiers, and other governmental information systems within specific radii of the property to identify sites that would have the potential to impact the property;
- Visual evaluation of current site conditions (as applicable) including compliance with appropriate regulations as they pertain to the presence of facility storage tanks, drums, and containers; and transformers and other electrical equipment potentially containing PCBs;
- Visual evaluation of the adjacent properties to identify high-risk neighbors and the potential for a chemical to migrate onto the property; and
- Interviews with owner(s), site manager(s), occupant(s), local government official(s), and/or other individuals with past and prior use history of the property.
- Evaluation of non-scope consideration pertaining to the solid and hazardous waste compliance status of the former Subject Property operations.

2.4 Significant Assumptions

This Phase I ESA is limited by the availability of information at the time of the assessment. Interviews were conducted and interviewee’s responses were assumed to be provided in good faith, to the extent of his/her actual knowledge. In addition, since no hydrogeological data was available for the Subject Property, the groundwaters was assumed to flow in the direction of the surface topography of the Subject Property and surrounding areas.

2.5 Conditions and Limitations

ETC has completed this Phase I ESA for the Subject Property in accordance with the scope and limitations of ASTM Practice E1527-05. ETC’s findings and conclusions contained herein are professional opinions based solely upon visual observations, interviews, and interpretation of the historical information and documents available to ETC at the time this Phase I ESA was conducted. Opinions stated in this report do not apply to changes that may have occurred after the services were performed.

ETC has performed specified services for this project with the degree of care, skill and diligence ordinarily exercised by professional consultants performing the same or similar services. No other warranty, guarantee, or representation, expressed or implied, is included or intended; unless otherwise specifically agreed to in writing by both ETC and ETC’s Client.

2.6 User Reliance

This report is intended for the sole use of ETC’s Client, exclusively for the project site indicated. ETC’s Client may use and release this report, including making and retaining copies, provided such use is limited to the particular site and project for which this report is provided. However, the services performed may not be appropriate for satisfying the needs of other users. Release of this report to third-parties will be at the sole risk of Client and/or said user, and ETC shall not be liable for any claims or damages resulting from or connected with such release or any third party’s use or reuse of this report.

2.7 Environmental Professional Certification

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in §312.10 of 40 CFR Part 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Subject Property. We have developed and performed the all appropriate inquires in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared by:

[Signature]
Shara Nakashima
Environmental Professional
EnviroServices & Training Center, LLC

Date:
March 16, 2011
3.0 SITE DESCRIPTION

3.1 Location and Description

The Subject Property consists of an 86-acre portion of land parcel 19 located off of South Fire Break Road, Puunene, Maui, Hawaii, and situated on the central portion of the island of Maui. The site is located approximately 0.9 miles east of State Highway 311 (Mokulele Highway).

3.2 Physical Setting

Groundcover at the Subject Property generally consists of bare soil and sparse to dense vegetation with limited areas of concrete (building foundation remnants) and asphalt (interior Subject Property roads).

3.2.1 Site Topography

Topographic map coverage of the Subject Property vicinity is provided by the United States Geological Survey Island of Maui, Hawaii 7.5-minute Map O Kali Quadrangle, 1983. The elevation of the Subject Property is approximately 110 to 140 feet above mean sea level (msl). Topography at the Subject Property is relatively flat with a very slight downslope gradient to the west towards Mokulele Highway.

3.2.2 Regional Geology

The island of Maui is the second largest of the Hawaiian islands. Maui consists of two shield volcanoes with a connecting isthmus. The volcanic rocks of the West Maui Mountains (West Maui Volcano) are divided into three series. The oldest is the Waialua Volcanic Series, followed by the Honolua and Lahaina Volcanic Series. The Waialua Series built the major shield volcano comprised of basaltic lava flows and associated pyroclastic deposits. The Lahaina Series then covered the western slopes of the West Maui Volcanic.

The Haleakala Volcano last erupted around 1790 and is presently dormant. The shield of the volcano is composed of andesite and pahoehoe lava flows of tholeiitic, tholeiitic olivine basalt, and andesite known as the Honomanu Volcanic Series. The Kula Volcanic Series overlies the Honomanu Series and is comprised of basaltic, alkalic olivine basalt, and andesite. Lava flows from the Haleakala volcano formed the Maui isthmus and are made up of permeable basalt and cross-sectional deposits (Macdonald, et al., 1983).

3.2.3 Site Geology

Soil at the Property is classified by the U.S. Department of Agriculture (USDA) Soil Conservation Service as Waiakea extremely stony silty clay loam, 3 to 25 percent slopes (WID2). As described by the USDA, WID2 soils consist of moderately deep, well-drained soils from weathered rock. In a representative profile, the surface layer consists of extremely stony silty clay loam, the subsoil is a stony clay loam, and the substratum consists of bedrock. Annual rainfall amounts to 15 inches. WID2 soils are generally used for pasture and irrigated sugarcane (USDA, 1972).

3.2.4 Regional Hydrogeology

The primary drinking water in the Hawaiian Islands is drawn from basal groundwater. Basal groundwater is formed by rainwater percolating through the residual soils and permeable volcanic rock. The portion of the island situated below sea level, except within rift zones of the volcanoes, is saturated with ocean salt water and thus forms a basal lens called the "Glyben-Harzberg" lens. A zone of transition between the fresh groundwater and the ocean salt water occurs due to the constant movement of the interface as a result of tidal fluctuations, seasonal fluctuations in recharge and discharge and aquifer development (Macdonald, et al., 1983).

Downward percolation of rainwater may be stopped by impermeable layers such as dense lava flows, alluvial clay layers and volcanic ash. The groundwater then forms a perched or high level aquifer, which is not in contact with salt water. Recharge of the aquifer occurs in areas of high rainfall, which are the interior mountainous areas. The groundwater flows from the recharge areas to the areas of discharge along the shoreline. Frictional resistance to groundwater flow causes it to pile up within the island until it attains sufficient hydraulic head to overcome friction. Thus, basal groundwater tends to slope toward the shoreline.

3.2.5 Site Hydrogeology

The site is underlain by the Paia Aquifer System, which is part of the Central Aquifer System on the island of Maui. The aquifer is classified by Mink and Liu, 1990, with the system identification number 60302114 (23221). This system includes an unconfined, high-level aquifer in a perched layer. The aquifer is described as having no potential use and is neither a drinking water resource nor ecologically important. The groundwater is also described as containing groundwater with a low salinity (250 to 1,000 mg/l Cl) and is considered replaceable with a high vulnerability to contamination (Mink and Liu, 1990).

The site is further underlain by a second aquifer of the same system. The aquifer is an unconfined aquifer underlain with basalt of the Honomanu volcanic series covered by andesite rocks of the Kula volcanic series, and is classified with the system identification number 60302111 (11112). The aquifer is described as a currently used, drinking water source, containing groundwater with a fresh salinity (<250 mg/l Cl). It is also described as replaceable with a moderate vulnerability to contamination (Mink and Liu, 1990). Groundwater is anticipated at approximately 120- feet bgs.

3.2.6 Nearest Surface Water Bodies

The nearest surface water body is the Haiku Ditch Reservoir located on the northern adjoining property across Cruiser Road. A gulch runs along the southern adjoining property flowing west-southwest toward the Kealia Pond National Wildlife Refuge and draining into the Pacific Ocean at Mauka'e Bay.
3.3 Current Use of the Subject Property

The southernmost portion of the Subject Property is currently used for sugarcane cultivation. There is a fenced area consisting of a radio tower and other appurtenant structures (i.e., small building structure and shipping container). With the exception of the metal storage bins, all other areas of the Subject Property are currently vacant with no visible structures. All former structures have been demolished and/or removed; however, several concrete foundations and remnants of former building foundations are present on the Subject Property.

3.4 Current Uses of the Adjoining Properties

ETC visually inspected the neighboring properties and their operations from the Subject Property and publicly accessible areas. The Subject Property is bordered to the north by a roadway, beyond which is a reservoir, to the east by a roadway, beyond which is the Manu Raceway Park; and to the east and south by sugarcane fields. Other land uses observed in the vicinity consisted of cement quarry and agricultural lands.

4.0 USER PROVIDED INFORMATION AND DOCUMENT REVIEW

4.1 Required Information

This section is intended to provide information obtained from the user of this Phase 1 ESA that will help identify RECs associated with the Subject Property. The information provided does not require the user to have the technical expertise of an environmental professional and is generally not provided by the environmental professional performing the Phase 1 ESA.

In order to qualify for one of the LLFs offered by the Brownfields Amendments, the user must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete. Mr. Sean O'Keefe, Director of Environmental Affairs, Alexander & Baldwin, Inc. ("user"), provided ETC with the following information.

4.1.1 Environmental Liens

The user indicated that no environmental liens for the Subject Property, however there were at least four governmental notifications relating to past or recurrent violations of environmental laws with respect to the Subject Property. These letters are discussed further in Section 4.3.

4.1.2 Activity and Use Limitations

The user had no knowledge of any activity and land use limitations filed or recorded in a registry under federal, tribal, state or local law.

4.1.3 Specialized Knowledge

The user indicated that as a representative of the Subject Property owner, the user has specialized knowledge regarding the Subject Property and nearby properties. Specifically, the Subject Property owner either owns, leases, and/or occupies much of the surrounding areas.

4.1.4 Valuation Reduction for Environmental Issues

The user indicated that the purchase price of the Subject Property reflects the fair market value of the Subject Property.

4.1.5 Commonly Known or Reasonably Ascertainable Information

The user provided numerous documents and information pertaining to the past uses, storage practices, spills, and environmental cleanups of the Subject Property. This information is discussed in Section 4.3.
4.1.6 Degree of Obviousness of Potential Contamination

With the exception of *de minimis* petroleum releases and any potential contamination related to the past operation of an unpermitted solid waste management facility, the user had no knowledge of any obvious indicators that point to the presence or likely presence of contamination at the property based on their knowledge and experience related to the Subject Property. An investigation of the potential impacts of the former solid waste management activities is currently on-going.

4.2 Other Information Pertaining to the Subject Property

The user had no additional concerns regarding the Subject Property or any adjoining properties.

4.2.1 Reason for Performing Phase I ESA

The Phase I ESA is being performed as part of the due diligence associated with the potential sale of the Subject Property.

4.2.2 Title Records

The user did not provide any title records for the Subject Property. Note that an environmental lien search was conducted for the Subject Property and is discussed in Section 5.4.

4.2.3 Owner, Property Manager, and Occupant Information

The Subject Property owner is A&B Properties, Inc. and the area is currently managed by Mr. Jason Koga, Tel: 808-877-4645. The Subject Property is currently unoccupied.

4.3 Document Review

ETC reviewed several due diligence documents, environmental reports, and correspondence for the Subject Property. These documents were either provided by A&B Properties, Inc. (A&B), or reviewed at the Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office and/or DOH Solid Waste Section (SWS).

4.3.1 Former Piggery and Solid Waste Management Activities

The Subject Property was most recently used as a piggery and an unpermitted solid waste management facility. The piggery operations span greater than 25 years, while the solid waste management activities were assumed to have started in 1995 when Mr. Larry Poffenroth took over piggery operations as part of an agreement with the former tenant. Mr. Poffenroth reportedly began conducting solid waste management activities without the knowledge or consent of the Subject Property landlord, A&B. From 1996 to 2007, A&B attempted to force Mr. Poffenroth to cease both the solid waste management activities and piggery operations and to vacate the site. Initially, Mr. Poffenroth’s solid waste management activities were limited to scrap metal storage and processing; however, he subsequently expanded and began accepting green waste, construction/demolition waste, and other miscellaneous waste streams. In addition, large amounts of food waste were brought to the Subject Property as pig food, which resulted in discarded empty food packaging materials being spread throughout much of the north portion of the Subject Property.

In October 1998, the Subject Property was inspected by the DOH SWS. As a result, on November 27, 1998, the DOH SWS issued Mr. Larry Poffenroth, operator of the Subject Property, a letter indicating several violations at the Subject Property. In addition, the letter ordered Mr. Poffenroth to cease and desist all salvaging operations, and stated that a formal Notice of Violation (NOV) would be issued if he did not respond within 15-days.

The DOH SWS reportedly issued a second letter, dated December 23, 1998 regarding the closure of the illegal solid waste management operations at the Subject Property. Since no response was received for the November and December 1998 letters, the DOH SWS issued a “warning letter” on May 5, 1999 indicating that if closure of the facility is not completed as requested, the DOH may institute an administrative or civil action for the current and prior solid waste violations. No apparent further action was taken or pursued by the DOH SWS from May 1999 to June 2005, when an anonymous complaint was reported to the DOH SWS that Mr. Poffenroth was accepting white goods and baling white goods and cars at the piggery.

As a result of the anonymous complaint, the DOH SWS conducted a site inspection of the Subject Property in September 2005. The inspection report indicated that an accumulation of solid waste (i.e. scrap metal, green waste, construction and demolition waste, etc.) was observed on the Subject Property. Subsequently, the DOH SWS issued Mr. Poffenroth a “Letter of Interest,” dated September 19, 2005, requesting that removal and proper disposal of the solid waste on the Subject Property be completed within one year.
In late 2007, A&B was able to evict Mr. Poffenroth and all the remaining pigs were subsequently removed from the Subject Property in 2008. Immediately following the eviction, A&B began solid waste cleanup activities at the Subject Property; however, these efforts were hindered by the bankruptcy filing and associated legal issues. Following the bankruptcy court orders allowing cleanup of scrap metal from the Subject Property, A&B requested a solid waste management permit exemption for the cleanup activities. Subsequently, the DOH SWS granted the exemption and cleanup activities commenced. ETC understands that solid waste cleanup activities were completed in February 2011.

As part of the planned cleanup activities, A&B proposed to conduct a "comprehensive site assessment" of the Subject Property. Specifically, A&B contracted ETC to prepare a site investigation work plan to investigate whether the ground soils at the Subject Property have been impacted by the former solid waste management activities. On February 28, 2011, the DOH SWS issued a letter to A&B indicating that sampling activities described in the work plan may proceed. Site investigation activities were conducted concurrently with this Phase 1 ESA and will be reported under separate cover.

4.3.2 Former Pauunene Naval Air Station

The Subject Property was reportedly part of the former Pauunene Naval Air Station (also known as the Maui Airport Military Reservation). The Pauunene Naval Air Station (PNAS) was built from 1936 to 1939 and was used by the U.S. Navy from 1940 to 1946. The PNAS was used as a naval air station that also supported U.S. Army operations. The PNAS facilities historically included underground fuel storage tanks, a transformer building, and a former landfill, none of which were located on the Subject Property. The review indicated that a "machine gun range" was formerly located on or partially on the southernmost portion of the Subject Property. "Earth revetments," presumably at the impact zone of the gun range, were formerly located near the current southern Subject Property boundary, and it is unclear whether these revetments were within or just outside of the Subject Property boundaries. The remaining areas of the former PNAS on the Subject Property appeared to be used primarily for quarters, office space, and barracks.

Although the Subject Property portion of the former PNAS has not been officially investigated, other areas of the PNAS are currently being investigated or have been investigated and/or remediated. PCB contamination associated with a "former building" located west of the Subject Property was investigated and/or remediated. Mr. Maris Reyes and Mr. Steven Mow of the DOH Hazard Evaluation and Emergency Response Office indicated that PCB cleanup activities have been completed and the facility is listed as a "no further action" site. Note that PNAS was listed as a Formerly Used Defense Site (FUDS) by the contracted database. Furthermore, investigation and/or remediation of other areas of the PNAS is currently ongoing.

5.0 RECORDS REVIEW

5.1 Standard Environmental Record Sources

To obtain information concerning recognized environmental conditions at or near the Subject Property, ETC contracted Environmental Data Resources, Inc. (EDR) to conduct an environmental database search. EDR is a company that specializes in the review of public regulatory environmental databases. The regulatory agency report provided (Appendix IV) is based on an evaluation of the data collected and compiled by a contracted data research company. The report is a radius search report, which focuses on both the Subject Property and adjacent properties that may impact the Subject Property. Adjacent properties listed in government environmental records are identified within a specific search radius (Table 1). The search radius varies depending on the particular record being researched. The search is designed to meet the requirements of the current industry approach as described in ASTM Practice E1537-05. The information provided is assumed to be correct and complete, unless noted otherwise.

Table 1: ASTM Practice Environmental Record Sources and Recommended Search Distances

<table>
<thead>
<tr>
<th>Environmental Database Sources</th>
<th>ASTM Practice Search Distances (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal NPL Site List</td>
<td>1.0</td>
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5.1.1 Federal NPL and Delisted NPL
The National Priorities List (NPL) is the Environmental Protection Agency’s (EPA) database of uncontrolled or abandoned hazardous waste properties, which are considered to pose an immediate threat to human health and the environment. These properties are identified for priority remedial response actions under the Superfund Program. The Subject Property was not identified as a NPL site or a delisted NPL site. The database did not identify any delisted NPL sites within a 0.5-mile radius of the Subject Property. In addition, the database did not identify any NPL sites within a 1-mile radius of the Subject Property.

5.1.2 Federal CERCLIS and CERCLIS NFRAP
The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database contains information on various aspects of potentially uncontrolled or abandoned hazardous waste properties from initial screening and assessment phases to listing on the NPL. The Subject Property was not identified as an active CERCLIS site or a CERCLIS No Further Remedial Action Planned (NFRAP) site. The database did not identify any active CERCLIS sites or any CERCLIS NFRAP sites within a 0.5-mile radius of the Subject Property.

5.1.3 Federal RCRA CORRACTS
RCRA Corrective Action Sites (CORRACTS) database contains Resource Conservation Recovery Information System (RCRIS) sites with reported corrective action. The Subject Property was not identified as a CORRACTS facility. The database search did not identify any CORRACTS sites within a 1-mile radius of the Subject Property.

5.1.4 Federal RCRA (non-CORRACTS) TSD Facilities
The EPA’s RCRA program identifies and tracks hazardous waste from the point of generation to the point of final disposal. The RCRA Treatment, Storage or Disposal (TSD) facility database compiles those reporting facilities that treat, store, or dispose of hazardous waste. The Subject Property was not identified as a RCRA TSD facility. The database search did not identify any RCRA TSD facilities within a 0.5-mile radius of the Subject Property.

5.1.5 Federal RCRA Generator
The RCRA Generator database is a compilation by EPA’s RCRIS of regulated facilities that generate hazardous waste. The Subject Property was not identified as a RCRA Small Quantity Generator (SQG) or Large Quantity Generator (LQG). The database search did not identify any RCRA LQG or RCRA SQG sites located on potential adjoining/adjacent properties.

Although not identified by the contracted database, information provided by the landowner coupled with the available online RCRA database information revealed that Subject Property was identified as a RCRA Large Quantity Generator (LQG).

5.1.6 Federal Institutional Control/Engineering Control Registers
Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health. Institutional Controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on a site. The EPA Institutional Control and Engineering Control registry maintains a listing of sites with Institutional or Engineering Controls in place. The Subject Property was not identified as having institutional or engineering controls in place.

5.1.7 Federal ERNS
The Emergency Response Notification System (ERNS) tracks the initial notification of reported oil and hazardous material spills. The database contains information regarding the discharger, release date, material, amount released, incident location and release action taken. The Subject Property was not identified as an ERNS facility.

5.1.8 State Equivalent NPL and CERCLIS
The CERCLIS List is a compilation of known or suspected uncontrolled or abandoned hazardous waste sites. These sites either have not been investigated or are currently under investigation by the EPA for the release, or threatened release, of hazardous substances. Once a site is placed in CERCLIS, it may be subject to several levels of review and evaluation and ultimately placed on the National Priorities List. The State of Hawaii does not have a formal “State Superfund” program; therefore, the State Hazardous Waste Sites (SHWS) are the State of Hawaii’s equivalent to the federal EPA’s CERCLIS database. Additionally, because this information is acquired from the Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office, these sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup that use state funds (state equivalent superfund) are identified along with sites where cleanup is paid for by the potentially responsible parties. The Subject Property was not identified on the SHWS database. The database search did not identify any SHWS sites within a 1-mile radius of the Subject Property.

5.1.9 State Landfill and/or Solid Waste Disposal
The State of Hawaii has records of all facilities that have received a solid waste management permit, including solid waste landfills, transfer stations, and incineration. The Subject Property was not identified as a Solid Waste Facility/Landfill (SWF/LF) facility. The database search did not identify any SWF/LF facilities within a 0.5-mile radius of the Subject Property.
5.1.10 State Leaking Underground Storage Tanks

The DOH Underground Storage Tank (UST) Program maintains a listing of all reported leaks and releases from USTs. The Subject Property was not identified as a leaking underground storage tank (LUST) facility. The database search did not identify any LUST facilities within a 0.5-mile radius of the Subject Property.

5.1.11 State Registered Underground Storage Tanks

The DOH Underground Storage Tank (UST) Program registration system tracks known and registered UST systems. The Subject Property was not identified as a UST facility. The database search did not identify any UST facilities located on potential adjacent/adjoining properties.

5.1.12 State Institutional Control Registry

Institutional Controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on a site. The State Institutional Control listing includes Voluntary Response Program and Brownfields sites with institutional controls in place. The Subject Property was not identified as having institutional controls in place.

5.1.13 State Voluntary Cleanup/Response Sites

The Hawai’i Voluntary Response Program (VRP) was created on July 7, 1997 by amendments made to Hawai’i’s Environmental Response Law (ERL). The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily clean up properties. The VRP facilitates the cleanup process and, in certain situations, provides relief from the strict liability provisions of the Federal CERCLA and Hawai’i ERL. The Subject Property was not identified as a VRP site. The database search did not identify any VRP sites located within a 0.5-mile radius of the Subject Property.

5.1.14 State Brownfields

A Brownfields site is land which the expansion, redevelopment, or reuse of may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant. The Subject Property was not identified as a Brownfields site. The database search did not identify any Brownfields sites located within a 0.5-mile radius of the Subject Property.

5.1.15 Unmappable/Orphan Sites

Three (3) unmappable sites were identified in the Orphan Summary of the EDR Report. Unmappable sites are not platted due to poor or inaccurate address information. Due to the inaccurate or incomplete information provided by the respective agency, these sites cannot be plotted with confidence. Review of the addresses and site names coupled with ETC site reconnaissance findings indicated that neither the Subject Property nor any adjacent or nearby properties were identified in the Orphan Summary of the database report.

5.2 Additional Environmental Record Sources

The EDR database also included a number of other regulatory databases that are not specified by the ASTM Practice. The EDR database identified one (1) Formerly Used Defense Site (FUDS) located on the Subject Property and adjoining properties.

In addition, the database search did not identify the Subject Property in any of the following databases:

- Proposed NPL – Proposed National Priority List Sites
- NPL LIENS – Federal Superfund Liens
- NPL RECOVERY – Federal Superfund Liens
- LIENS 2 – CERCLA Lien Information
- DOD – Department of Defense Sites
- HMIRS – Hazardous Materials Information Reporting System
- US Brownfields – A Listing of Brownfields Sites
- CONSENT – Superfund (CERCLA) Consent Decrees
- ROD – Records of Decision
- UMTA – Uranium Mill Tailings Sites
- ODI – Open Dump Inventory
- TRIS – Toxic Chemical Release Inventory System
- TSCA – Toxic Substances Control Act
- FTTS – FIFO/TSCA Tracking System
- SSTT – Section 7 Tracking Systems
- ICIS – Integrated Compliance Information System
- LUCIS – Land Use Control Information System
- CDL – Clandestine Drug Labs
- RAININFO – Radiation Information Database
- PADS – PCB Activity Database System
PCB Transformer – PCB Transformer Registration Database
MLTS - Material Licensing Tracking System
MINES - Mines Master Index File
FINDS - Facility Index System Facility Registry System
RAATS - RCRA Administrative Action Tracking System
SPILLS - Release Notification
UIC - Underground Injection Well Listing
DRCLEANERS - Permitted Drycleaner Facility Listing
AIRS - List of Permitted Facilities
Manufactured Gas Plants – EDR Property Manufactured Gas Plants

5.3 Historical Use Information on the Subject and Adjoining Properties

Historical uses of the Subject Property and adjoining properties were investigated through the review of documentation available from public land records and State of Hawaii archived information. In addition, available aerial photographs, plat maps, Sanborn maps, and building permits were reviewed.

5.3.1 Aerial Photograph Review

Aerial photographs from the EDR Aerial Photo Decade Package were reviewed. A total of three aerial photographs were found that included the Subject Property. These photographs were dated 1954, 1976, and 1992.

The Subject Property and adjacent areas were not clearly visible in the 1954 aerial photograph. Review indicated that the Subject Property and adjacent properties appeared to be improved with numerous structures. In addition, an apparent air strip or runway was visible west of the Subject Property. The Subject Property and adjacent properties were not clearly visible in the 1976 aerial photograph. Although site structures were not clearly visible, in general, the 1976 aerial photograph appeared similar to the 1954 aerial photograph with no significant changes. Review of the 1992 aerial photograph indicated that the Subject Property appeared developed with a few structures on the south and northwest portions. In addition, a suspect excavated area was observed along the south border of the Subject Property. This area appears to correspond to the former “machine gun range,” which is suspected to have been located along the south border of the Subject Property. The remaining areas of the Subject Property appeared to be cleared with vegetation.

5.3.2 Fire Insurance Maps

ETC contracted EDR to conduct a search of Sanborn fire insurance maps for the Subject Property. The search included an extensive review of the Library of Congress and University of Wisconsin map collections as well as the EDR Private Collection. EDR reported that there is no Sanborn map coverage for the Subject Property address.

5.3.3 Property Tax Files and Land Title Records

ETC conducted a limited title search of the Subject Property online at the County of Maui Property Tax office website. ETC is not a professional title search company and does not warrant the completeness or accuracy of the information provided, but considers the data useful in screening the Subject Property for environmentally suspect owners or lessees. The Subject Property is currently owned by A&B – Hawaii, Inc. Current or former lessees of the Subject Property include Maui Factors Inc., Key Cee Broadcasting Inc., and LIESEA Broadcasting Corporation.

5.3.4 Building Permit Records

ETC reviewed available building permits for the Subject Property recorded by County of Maui. Property records indicated that two “frame utility shed” structures, one “accessory dwelling” structure and three “metal warehouse” structures were built on the Subject Property in the 1960s. In addition, a building permit was issued to Valley Isle Broadcasting, Ltd. for the construction of a transmitter building on an adjacent property.

5.4 Environmental LienSearch

To obtain information concerning environmental liens and other activity use limitations (AULs), ETC contracted EDR to conduct an environmental lien search and AULs search. The EDR Environmental LienSearch Report provided (Appendix III) is based on an evaluation of public records of the Hawaii State Bureau of Conveyances. The search is designed to meet the requirements of the current industry approach as described in ASTM Practice E1527-05. The information provided is assumed to be correct and complete, unless noted otherwise. Review of the EDR Environmental LienSearch Report indicated that the no environmental liens or AULs were found in connection with the Subject Property.
6.0 SITE RECONNAISSANCE

ETC performed a site reconnaissance on February 17, 2011 and March 1, 2011 in order to complete a visual survey to identify the use and/or storage of hazardous materials.

6.1 Methodology and Limiting Conditions

ETC personnel performed the site reconnaissance by systematically inspecting all accessible areas of the Subject Property. With the exception of the interior areas of the radio tower structure and the heavily vegetated areas of the Subject Property, no areas of the Subject Property were restricted from ETC's visual observation.

6.2 General Site Setting

The Subject Property primarily consisted of vacant land. A small shed-like structure and radio tower was observed on the northwest portion of the Subject Property. This structure was inaccessible at the time of ETC's site reconnaissance activities; however, no apparent releases or evidence of past releases were observed in the vicinity of the radio tower area. No other visible structures were observed on the Subject Property; however, several apparent building foundations in the form of concrete slabs were observed on the Subject Property.

ETC personnel also observed a non-potable water well located on the central portion of the Subject Property. A map of the Subject Property and the location of this well is included in Appendix I, Figure 2. Photographic documentation of ETC's site reconnaissance is included in Appendix II.

6.3 Observations

Visual inspection of the exterior areas of the Subject Property indicated the roadway primarily consisted of bare soil, interior dirt and asphalt paved roads and moderate to heavy vegetation. The southeastern portion of the Subject Property appeared to be used for current sugarcane cultivation activities. ETC observed limited quantities of condenser water tanks (CWTs), batteries, and other wastes within a metal storage bin located on the northwest portion of the Subject Property. According to the landowner, these materials are being prepared for shipment and proper disposal. The bin is situated on an apparent concrete slab. No releases were observed in the vicinity of this bin. In addition, limited quantities of apparent metal debris were observed on the Subject Property. ETC understands that both the metal debris and metal bin are planned for removal and disposal or recycling.

ETC observed a radio tower and appurtenant structures (i.e. building and shipping container) located on the northwest portion of the Subject Property. Although the interior areas of the radio tower structure and shipping container were inaccessible, no apparent releases or evidence of past releases were observed in the vicinity of this area.

ETC observed several apparent sewer manhole covers indicating that a sewer system infrastructure may still be present on the Subject Property. These manholes are likely remnants associated with the former Punaena Naval Air Station.

No floor drains or sumps were observed on the Subject Property. A visual inspection for the presence of USTs and ASTs was also conducted. No evidence of USTs was observed on the Subject Property.

6.4 Dielectric Fluid Containing Equipment

A visual inspection for hydraulic and electrical equipment or electrical components that use fluid that may contain PCBs was conducted. No suspect PCB-containing equipment was observed on the Subject Property.
7.0 INTERVIEWS

The objective of the interviews is to obtain information from past and present owners, operators, and occupants of the Subject Property to identify potential RECUs in connection with the Subject Property.

7.1 Interview with Owner
Mr. Son O'Keefe, A&B Properties, Inc.

Mr. O'Keefe provided ETC with the following information:

- The Subject Property was initially used as part of the Punaene Naval Air Station and later used as a plantation camp and for commercial sugarcane cultivation. The Subject Property was later used as a pig farm in the 1960s. In addition to the pig farming activities beginning in the 1960's, a portion of the Subject Property was used for unpermitted solid waste management activities since approximately 1995.

- Aerial photographs indicate that the southern portion of the Subject Property appears to have been excavated. This excavated area corresponds to the approximate location of the former "machine gun range" associated with the PNAS. In addition, in or around 2014, Hawaiian Commercial & Sugar (HC&S) reportedly imported material onto this portion of the Subject Property to fill this "low spot" prior to resuming farming activities.

- Potable water on the Subject Property is provided by County of Maui. In addition, there is a non-potable water well located on the Subject Property.

- The recent structures were served by cesspools, which have been filled. In addition, during the military usage of the Subject Property there was a sewer system present, which apparently discharged into large septic tanks. Note that the sewer system piping and/or remnants are likely still in-place on the Subject Property.

- There are no floor drains or sumps on the Subject Property.

- There are no transformers located on the Subject Property. In addition, all electrical services provided by Maui Electric Company have been terminated.

- There are no current or historic USTs on the Subject Property. There were several ASTs and mobile tank trailers on the Subject Property, some of which were used to store petroleum products by Mr. Poffenroth. These items were subsequently properly emplaced/cleaned and disposed.

- Various pesticides were used as part of the sugarcane cultivation activities and other agricultural operations. In addition, fertilizers were used as part of the sugarcane cultivation activities and other agricultural operations.

- Fluorescent light bulbs and ballasts were removed from the former structures and disposed.

- Asbestos was present in the former Subject Property buildings. Asbestos is also present in the water system piping which formerly serviced the former military structures. This water piping is currently present on the Subject Property.

- Paints and waste oil were generated and/or stored on the Subject Property by the former tenant. In addition, scrap metal, green waste, food waste, construction and demolition waste, used light bulbs, used CRTs, miscellaneous hazardous wastes, etc. were generated or stored by the former tenants or were generated as part of the site cleanup.

- Rubbish associated with the feeding of the pigs was indiscriminately disposed on the surface around the Subject Property and in some cases was partially burned under rock piles. All areas of suspect buried waste were excavated and the waste properly removed and disposed.

- Dead pigs are known to have been burned and buried on the Subject Property.

- There are no current or past gas stations on the Subject Property. However, such facilities may have existed on the adjacent military base.

- The former tenant operated a maintenance shop on the Subject Property. Activities included repairs and maintenance of vehicles and heavy equipment.

- The Subject Property and adjoining properties are not currently used as motor repair facilities, printing facilities, dry cleaners, photo developing, laboratories, junkyard, landfill activity, waste TSDF, or recycling facilities.

- A written release report was filed for minor petroleum releases that had not been addressed by the former tenant and after the former tenant was evicted from the Subject Property. The Subject Property was not listed on the DOH HEER Office's currently available release and site lists. All visible petroleum releases have been addressed.

- During the recent cleanup activities of the Subject Property, various waste streams (i.e. waste batteries, paints, etc.) were removed and disposed. There are currently one drum of broken automotive batteries, one drum of paint waste, and numerous used CRTs in storage pending disposal.

- Waste lagoons were operated as part of the former piggy operations. These ponds received animal waste.

- The Subject Property does not discharge wastewater on or adjacent to the site other than stormwater.

- There are no known environmental liens or governmental notifications relating to past or recurrent violations of environmental laws with respect to the Subject Property.
8.0 FINDINGS AND OPINIONS

8.1 Site Description

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

8.2 User Provided Information and Document Review

Review of user and landowner provided information and other publicly accessible documents indicated that the Subject Property formerly operated as an unpermitted solid waste management facility. Subsequent cleanup activities were completed and are pending clearance from the DOH SWS. In addition, an investigation to assess whether the former solid waste management activities have impacted the surface soil at the Subject Property is currently ongoing and will be reported under separate cover. Based on this information, ETC cannot dismiss the fact that Subject Property soils may have been impacted by the former solid waste management activities. As such, this finding is considered a REC.

The landowner also indicated that the Subject Property was formerly used for the commercial cultivation of sugarcane. In addition, site reconnaissance activities indicated that a portion of the Subject Property is still used for sugarcane cultivation. Activities commonly associated with commercial sugarcane cultivation include the use and application of fertilizers, pesticides, and/or herbicides. As such, this finding is considered a historical REC. Based on discussions with DOH HEER Office personnel, studies of former agricultural lands in Hawai‘i indicate that high levels of agricultural contaminants are not typically found in former field areas. Note that no known pesticide spills have been reported on the Subject Property. In addition, A&B confirmed that there have been no pesticide spills on the Subject Property and that pesticides are applied in accordance with the specific pesticide label and applicable regulations. In addition, all pesticides were mixed at a centralized pesticide mixing site located off-site. Based on ETC’s findings this historical REC does not appear to pose an immediate threat to human health or the environment and would not likely be the subject of an enforcement action, therefore, ETC believes that this historical REC is considered a de minimis condition.

Historic maps and documents provided by the landowner indicated that the Subject Property was part of the former Pu‘unene Naval Air Station (PNAS). Review indicated that a “machine gun range” was formerly located on or partially on the southeastern portion of the Subject Property. “Earth revetments,” presumably at the impact zone of the gun range, were formerly located near the current southern property line, and it is unclear whether these revetments were within or just outside of the Subject Property boundaries. The remaining areas of the former PNAS on the Subject Property appeared to be used primarily for quarters, office space, and barracks. Past environmental investigations and cleanups have been conducted on areas of the base west of the Subject Property. Although no evidence of past investigations of the gunnery range was identified, residual heavy metals are common contaminants associated with former military firing ranges. In addition, DOH HEER Office personnel indicated that lead contamination is commonly found within the “earthen berms” (i.e. revetments) associated with gun ranges; and contaminants are not typically found in other areas of gun ranges.

Aerial photograph review also indicated that a suspect excavated area was observed along the south border of the Subject Property, which corresponds to the approximate location of the former “machine gun range.” The suspect excavation also corresponds to information provided by the landowner indicating that material was imported onto the southern portion of the Subject Property in or around 2004 as fill prior to resuming farming of this area.

Based on ETC’s review, this finding is considered a historical recognized environmental condition (REC). While the “earth revetments,” are no longer present and there is evidence that soil in the presumed gunnery range impact zone has been excavated at some time in the past, based on information provided by the landowner coupled with ETC’s telephone correspondence with DOH HEER Office personnel, ETC cannot dismiss the potential presence of residual contamination from this historical REC and as such the former “machine gun range” is considered a current REC for the Subject Property.

No other significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

8.3 Records Review

8.3.1 Standard Environmental Record Sources

Federal NPL and Delisted NPL

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Federal CERCLIS and CERCLIS NFRAP

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.
Federal RCRA CORRACTS

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Federal RCRA (non-CORRACTS) TSDF Facilities

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Federal RCRA Generator

Although not identified by the contracted database, information provided by the landowner coupled with the available online RCRA database revealed that Subject Property was identified as a RCRA Large Quantity Generator (LQG). Specifically, the “Former Poulsen Piggery” is listed as a RCRA LQG with the RCRA Facility ID: H13000112541. No apparent RCRA violations were noted. In addition, there is the “bromazol” box pending disposal, site reconnaissance findings indicated no other apparent hazardous waste storage and/or generation on the Subject Property. As such, no significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Federal Institutional Control/Engineering Control Registries

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Federal ERNS

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Equivalent NPL and CERCLIS

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Landfill and/or Solid Waste Disposal

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Leaking Underground Storage Tanks

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Registered Underground Storage Tanks

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Institutional Control Registry

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Voluntary Cleanup/Response Sites

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

State Brownfields

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Unmappable/Orphan Sites

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

8.3.2 Additional Environmental Record Sources

Database review confirmed that Subject Property was formerly part of the PNAS, which was identified as a PUDS by the contracted database. The PNAS was discussed as part of Section 4.3.2 and 8.2 and therefore will not be repeated here. No other significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

8.3.3 Historical Use Information on the Subject and Adjoining Properties

Aerial Photograph Review

Aerial photograph review indicated that the Subject Property was fully developed and may have been used as an air strip prior to 1954. The PNAS was discussed as part of Sections 4.3.2 and 8.2 and therefore will not be repeated here. No other significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Fire Insurance Maps

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Property Tax Files and Land Title Records

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

Building Permits

No significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.
8.4 Site Reconnaissance

Site reconnaissance activities confirmed that solid waste cleanup activities have been completed with the exception of a limited quantity of waste. ETC understands that the remaining waste (i.e. batteries, paint, CRTs, etc.) is scheduled for removal and disposal. The former solid waste activities associated with the Subject Property were discussed as part of Section 4.3.1 and 8.2 and therefore will not be repeated here. The former usage of the Subject Property for sugarcane cultivation was discussed as part of Section 8.2 and therefore will not be repeated here. No other significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

8.5 Interviews

Interview findings indicate that a written release report was filed for the Subject Property for minor petroleum releases that had not been addressed by the former tenant. These releases were discovered after the former tenant was evicted from the Subject Property. The Subject Property was not listed on the DOH HEER Office’s currently available release and site lists. Although not listed, the landowner confirmed that all visible petroleum releases have been addressed. In addition, no evidence of gross petroleum impacts were observed by ETC personnel during site reconnaissance activities. Based on the information, these minor petroleum releases are not considered an REC for the Subject Property.

The former uses of the Subject Property for sugar cultivation and an unpermitted solid waste management facility were discussed as part of Section 8.2 and therefore will not be repeated here. The presence of former PNAS facility on the Subject Property was discussed as part of Sections 4.3.2 and 8.2 and therefore will not be repeated here. No other significant findings to indicate suspect RECs, historical RECs, or de minimis conditions were identified.

9.0 DATA GAPS

Data gaps, which are defined as the lack of or inability to obtain information required for this Phase I ESA despite good faith efforts by the environmental professional to gather such information were identified during this Phase I ESA. ETC identified the following data gaps:

- Historical records sources within five year intervals were not available for review. However, since all available historical records were reviewed (i.e. aerial photos, Sanborn Maps, etc.), ETC concludes that this “data failure” does not represent a significant data gap.

- ETC did not inspect all accessible areas of the Subject Property. Due to safety concerns, ETC’s site reconnaissance activities excluded the densely vegetated areas of the Subject Property. In addition, structures associated with the radio tower area were inaccessible at the time of ETC’s site reconnaissance activities. These inaccessible areas were not expected to significantly impact the Subject Property. As such, this data gap is not considered significant.
10.0 CONCLUSIONS

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E1527-05 of (2) 3-8-008: Parcel 19 (portion) located off of South Fire Break Road, Kīhei, Maui, Hawai‘i (the Subject Property). Any exceptions to, or deletions from, the ASTM Practice E1527-05 are described in Section 11.0 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the Subject Property except for the following:

- Potential presence of residual contaminants associated with former solid waste management activities on the Subject Property.
- Potential presence of residual contamination associated with historic usage of the southernmost portion of the Subject Property as a “machine gun firing” range.

11.0 DEVIATIONS AND ADDITIONAL SERVICES

11.1 Deviations

No client imposed constraints or deletions were requested. As such, there were no deviations and/or deletions from the ASTM Practice E1527-05 upon completion of this Phase I ESA.

11.2 Additional Services

11.2.1 Limited Surface Soil Investigation

At the request of the A&B, ETC concurrently conducted a “Limited Surface Soil Investigation” on the Subject Property. The results of these investigative activities were conducted concurrently and will be reported under separate cover.

11.2.2 Solid Waste Clearance and Environmental Compliance

Solid waste activities and regulatory compliance issues pertaining to solid waste and hazardous substances are considered non-scope considerations for the Phase I ESA. As such, ETC was contracted by the landowner to complete a visual inspection of the Subject Property to determine whether such violations associated with hazardous substances and the former unpermitted solid waste management activities previously discussed in Section 4.3 have been adequately addressed.

Pursuant to the landowner’s request, the following opinions are based on ETC’s visual inspection of the Subject Property conducted on February 18, 2011. Correspondence with Mr. Todd Nichols of the DOH SWS indicated that site clearance would be issued provided that the remaining solid waste and “plastic flagging material” had been removed from the Subject Property. During the visual inspection, no residual “plastic flagging” or substantial quantities of solid waste were observed on the Subject Property. In addition, with the exception of elevated total petroleum hydrocarbons as oil (THI-O) and total lead concentrations identified in the surface soils at the Subject Property, no known violations or issues pertaining to hazardous substances were observed on the Subject Property.

Note that concrete foundations, slabs, and miscellaneous fencing, animal troughs, etc. were observed throughout the Subject Property. However, these items are not in a condition to be considered solid waste. In addition, apparent exploratory solid waste excavations were noted on the north portion of the Subject Property. Based on ETC’s inspection of these excavations, no residual buried solid waste appears to be present in these excavated areas. Based on these visual findings, no additional solid waste cleanup appears necessary at this time. In addition, all formerly documented solid waste appears to have been adequately removed from the Subject Property. Furthermore, although the DOH has not issued a formal site clearance for the Subject Property, solid waste cleanup activities appear to have been completed and the Subject Property does not appear to be in violation of any applicable solid waste regulations. Except as noted above, following inspection of the Subject Property, the Subject Property, to the knowledge of ETC, was not then in violation of applicable law pertaining to hazardous substances.
12.0 REFERENCES

- Environmental Data Resources, Inc., January 24, 2011. EDR Radius Map with GeoCheck Report Inquiry No. 2972944.3.
- Environmental Data Resources, Inc., January 24, 2011. EDR Historical Topographic Map Report Order No. 2972944.5.
- Maui County Property Tax Office. Ownership and Building Permit records.
- State of Hawaii Taxation Map Bureau. Tax Map Key (2) 3-8-008; Parcel 019.
APPENDIX II
Photographic Documentation

Photograph 1: View of a 'hazard' bin containing limited quantities of waste (i.e. CRTs, batteries, etc.) located on the northwest portion of the Subject Property.

Photograph 2: View of the northwest portion of the Subject Property.

Photograph 3: View of concrete pad near the north entrance of the Subject Property.
Photograph 16: View of road located on the central portion of the Subject Property.

Photograph 17: View of the south portion of the Subject Property.

Photograph 18: View of the south portion of the Subject Property.

Photograph 19: View of concrete slab located on the southeast portion of the Subject Property.

Photograph 20: View of concrete slab located on the southeast portion of the Subject Property.

Photograph 21: View of the south portion of the Subject Property.
Photograph 22: View of the southwest portion of the Subject Property.

Photograph 23: View of the southwest portion of the Subject Property.

Photograph 24: View of the southwest portion of the Subject Property.

Photograph 25: View of the south portion of the Subject Property.

Photograph 26: View of the south portion of the Subject Property.

Photograph 27: View of the southernmost portion of the Subject Property.
Certified Sanborn® Report

1/04/11

Site Name: Former Puunene Piggery Site
Address: South Fire Break Road
Kīhei, HI 96753

Checker Name: Erinna Snvaes, and Tmp. Center
605 Ward Avenue
Honolulu, HI 96814

EDR Inquiry #: 2972944.4
Contact: Shasta Nakashima

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Enron Snvaes, and Tmp. Center were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.ednet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Former Puunene Piggery Site
Address: South Fire Break Road
Kīhei, HI 96753

City, State, Zip: Kīhei, HI 96753
Cross Street:
P.O. #: A/A
Project: 11-1001
Certification #: 5450-099A-8E97

Unmapped Property

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which cover historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

EDR Historical Topographic Map Report

Former Puunene Piggery Site
South Fire Break Road
Kīhei, HI 96753

Inquiry Number: 2972944.4
January 24, 2011

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EDR Aerial Photo Decade Package

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Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96752

Inquiry Number 297294.7
January 25, 2011

The EDR Environmental LienSearch™ Report

EDR Environmental LienSearch™ Report

The EDR Environmental Lien Search Report provides results from a search of available current land title records for environmental cleanup fees and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:
- search for parcel information and legal description;
- search for ownership information;
- research official land title documents recorded by local agencies such as recorders' offices, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbrance(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) title, party involved, and description; and
- provide a copy of the deed or cota documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0650
with any questions or comments.

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DEED EXHIBIT

EDR Environmental LienSearch™ Report

[Image -1x-1 to 793x613]
On this 3rd day of September, 1975, before me personally present, Mathew Johnson, a General Surgeon and a person duly authorized to administer oaths. I have administered to Dr. John Smith, an oath to make a true and full statement of his attendance and professional services to the patient in the case mentioned in the application, and that he has been duly authorized to administer said oath to said person, and that he has been duly authorized to administer said oath to said person.

Mathew Johnson, M.D.
General Surgeon, State of Oregon

By commission expires: 12/31/67

APPENDIX IV
REGULATORY RECORDS DOCUMENTATION (EDR/Radius Audit Report)
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A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR).

The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-92) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS
SOUTH FIRE BREAK ROAD
KEHEI, HI 96733

COORDINATE
Latitude (North): 20.815400 - 20° 48' 55.44"
Longitude (West): 156.438000 - 156° 27' 14.80"
Universal Transverse Mercator: Zone 4
UTM X (Meters): 755121.4
UTM Y (Meters): 2200916.8
Elevation: 124 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY
Target Property Map: 20156-G4 WALLAUH, HII
Most Recent Revision: Not reported

TARGET PROPERTY SEARCH RESULTS
The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES
No mapped sites were found in EDR's search of available ("reasonably ascertainable") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL sites
NPL: National Priority List
Proposed NNL: Proposed National Priority List Sites
NPL LENS: Federally Acquired Lands

Federal Delisted NPL sites
Delisted NPL: National Priority List Delistings

Federal CERCLIS list
CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY: Federal Facility Site Information listing

Federal CERCLIS NFRAP list
CERCLIS NFRAP: CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list
CORRACTS: Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list
RCRA-TSD: RCRA - Treatment, Storage and Disposal

Federal RCRA generators list
RCRA-LNG: RCRA - Large Quantity Generators
RCRA-SQG: RCRA - Small Quantity Generators
RCRA-CSQG: RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls/engineering controls registries
US ENG CONTROLS: Engineering Controls Sites List
US INST CONTROL: Sites with Institutional Controls

Federal ERNS list
ERNS: Emergency Response Notification System

State and tribal equivalents CERCLIS
SHWS: Sites List

State and tribal landfill and/or solid waste disposal site lists
SWAF: Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists
MULTI: Leaking Underground Storage Tank Database
INDIAN TANK: Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists
MULTI: Underground Storage Tank Database
INDIAN TANK: Underground Storage Tanks on Indian Land

State and tribal institutional control/engineering control registries
ENG CONTROLS: Engineering Control Sites
EXECUTIVE SUMMARY

INST CONTROL: Sites with Institutional Controls

State and Initial voluntary cleanup sites
INDIAN VCP: Voluntary Cleanup Priority Listing
VCP: Voluntary Response Program Sites

State and Initial Brownfields sites
BROWNFIELDS: Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfields lists
US BROWNFIELDS: A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 5: Torres Martinez Reservation Illegal Dump Site Locations

Open Dump Inventory
INDIAN CER: Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CER: Clandestine Drug Labs
COL: Clandestine Drug Lab Locations
US HIST CER: National Clandestine Laboratory Register

Local Land Records

LIENS 2: CERCLA Lien Information
LUCIS: Land Use Control Information System

Records of Emergency Release Reports

HAIRIS: Hazardous Materials Information Reporting System
SPILLRS: Release Notifications

Other Ascertainable Records

RCRA-HG (General): RCRA - Non-Generators
DOT OPS: Incident and Accident Data
DOE: Department of Defense Sites
CONSENT: Superfund (CERCLA) Consent Decrees
RODS: Records Of Decision
UMTRA: Unknown MIB Tailings Sites
MINES: Mines Master Index Files
TRIS: Toxic Chemical Release Inventory System
TSCA: Toxic Substances Control Act
FFT: FIFRA TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide
NamTSCA (Toxic Substances Control Act)
HIST FFTS: Historical FFTS Tracking System Administrative Case Listing
SSTS: Section 7 Tracking Systems

EXECUTIVE SUMMARY

ICRL: Integrated Compliance Information System
PACT: PCB Activity Database System
MTLS: Material Tracking System
RADMON: Radiation Information Database
FINDS: Facility Index System/Facility Registry System
RAATR: RCRA Administrative Action Tracking System
DRC: Underground Injection Waste Licensing
DRCOL: Permitted Drycleaner Facility Listing
AIRS: List of Permitted Facilities
INDIAN RESERV: Indian Reservations
SODA DRYCLEANERS: State Coalition for Renovation of Drycleaners Listing
COAL ASH EPA: Coal Combustion Residue Surface Impoundments List
CDL ASH DOE: Beam Electric Plant Operation Data
PCB TRANSFORMER: PCB Transformer Registration Database

EDR PROPRIETARY RECORDS

EDR Proprietary Records
Manufactured Gas Plants, EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of class priority should be field verified. Sites with an elevation equal to or higher than the target property have been demilitarized below from sites with an elevation lower than the target property.

Page numbers and map identification numbers refer to the EDR Radius Map Report where detailed data on individual sites can be reviewed.

Sites listed in bold red are in multiple databases.

Unmappable (orphan) sites are not considered in the ensuing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

FUDS: The listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 12/1/2009 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

<table>
<thead>
<tr>
<th>Lower Elevation</th>
<th>Address</th>
<th>Direction</th>
<th>Distance</th>
<th>Map ID</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAUI AIRPORT MILITARY RES</td>
<td>W 64.40 FP (1472 ft)</td>
<td>1</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Database               | Target Property | Distance (Miles) | TP | NR | NR | NR | NR | NR | NR | NR | NR | Total matures | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR | NR |NR
1. **MAUI AIRPORT MILITARY RES**

   **Site:** PUNAHELE, HI

   **Federal Facility ID:** 1065771901

   **FUEL ID:** 1065771901

   **Facility Name:** MAUI AIRPORT MILITARY RES

   **City:** PUNAHELE

   **State:** HI

   **EPA Region:** 9

   **County:** MAUI

   **Congressional District:** 22

   **US Army District:** Honolulu District (POH)

   **Fiscal Year:** 2000

   **Telephone:** 808-438-8387

   **EPL Status:** Not Used

   **RAF:** Not reported

   **CTD:** 13653 7189167020

   **Current Owner:** STATE

   **RUDS Description Details:**

   The former Maui Airport Military Reservation consists of 1,571 acres and is located midway to Kahului on Makena Highway. The airport was known as Punahele Naval Air Station and was built from 1936 to 1939. The airport was used by the Navy from 1940 to 1945. The area was reactivated for civilian uses. After the military left the site, the area was used for agriculture, ranging from sugar cultivation to animal husbandry. The current owner is the State of Hawaii.

   **RUDS History Details:**

   The site was used as a naval air station that also supported Army operations. Radio-controlled drones were used to aid in the development of accuracy among antiaircraft gunners. The site consisted of nine underground fuel storage tanks, a transformer building with a PCB transformer, and a former landfill that may need to be removed or remediated. Current use of the site includes a golf course, crop dusting, and veterinary clinic. The County of Maui is proposing the area to be a county park.

   **RUDS Current Program Details:**

   **RUDS Future Program Details:**

   TCS115244 24  Page 7
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as requested.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

NPL Site Boundaries

Sources

EPA's Environmental Photographic Interpretation Center (EPIC) Telephone: 202-505-0455

Proposed NPL - Proposed National Priority List Sites

A site may be proposed for listing on the National Priority List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to follow the requirements for listing.

NPL USES: Federal Superfund Users

Federal Superfund Users. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to list a current real property in order to recover remedial action expenditures or when the property owner received restitution of a potential liability. USEPA compiles a listing of identified users of Superfund Users.

Federal Data and NPL site list

DELETED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to select sites from the NPL, in accordance with 42 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Federal CERCLA list

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private parties, and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priority List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Federal CERCLA APFR site list

CERCLA APFR: CERCLA No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, in the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priority List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site, it only means that, based upon available information, the location is not judged to be a potential NPL site.

Federal RCRA CORRACTS facility list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste transfers with RCRA corrective action activity.
### GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

**Federal RCRA non-EDR/AQTSS TSI facilities list**

**RCRA-71994**
- **RCRA - Treatment, Storage and Disposal**
- **RCRAinfo** is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes select information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator to a facility that can recycle, treat, store, or dispose of the waste. "TSOs" transport, store, or dispose of the waste.

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<thead>
<tr>
<th>Date of Government Version</th>
<th>Source: Environmental Protection Agency</th>
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**Federal RCRA generators list**

**RCRA-LOG**
- **RCRA - Large Quantity Generators**
- **RCRAinfo** is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes select information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LSGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

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**Federal ERNS list**

**ERNS**: Emergency Response Notification System
- Emergency Response Notification System (ERNS) records and stores information on reported releases of all hazardous substances.

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<thead>
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**State and tribal - abbreviated CERCLIS**

**SHELS**: Sites List
- Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under CERCLA (Includes CERCLIS sites).

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**State and tribal benefit and/or solid waste disposal site lists**

**SWFPL**: Permitted Landfills in the State of Hawaii
- Solid Waste Facilities/Landfill Sites. SWFPL type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that lacked to meet RCRA Title II Section 403 criteria for solid waste landfills or disposal sites.

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

State and tribal leaking storage tank data

LUST: Leaking Underground Storage Tanks Database

Leaking Underground Storage Tank Incident Reports, LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 12/16/2010
Date Data Available at EDR: 12/17/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 30
Source: Department of Health
Telephone: 214-655-6597
Last EDR Contact: 11/10/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma

Date of Government Version: 05/05/2010
Date Data Available at EDR: 06/09/2010
Date Made Active in Reports: 09/04/2010
Number of Days to Update: 59
Source: EPA Region 8
Telephone: 214-655-6597
Last EDR Contact: 11/10/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 05/05/2010
Date Data Available at EDR: 06/09/2010
Date Made Active in Reports: 09/04/2010
Number of Days to Update: 35
Source: Environmental Protection Agency
Telephone: 415-877-3372
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/21/2011
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 05/24/2010
Date Data Available at EDR: 06/11/2010
Date Made Active in Reports: 09/05/2010
Number of Days to Update: 74
Source: EPA Region 8
Telephone: 202-324-4271
Last EDR Contact: 11/02/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas and Nebraska

Date of Government Version: 11/26/2009
Date Data Available at EDR: 05/05/2010
Date Made Active in Reports: 07/27/2010
Number of Days to Update: 94
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/30/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Massachusetts and North Carolina

Date of Government Version: 06/07/2010
Date Data Available at EDR: 06/30/2010
Date Made Active in Reports: 09/19/2010
Number of Days to Update: 35
Source: EPA Region 4
Telephone: 434-562-6857
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/24/2011
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian land.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/18/2009
Date Data Available at EDR: 02/19/2009
Date Made Active in Reports: 02/18/2009
Number of Days to Update: 25
Source: EPA Region 1
Telephone: 617-618-3133
Last EDR Contact: 11/22/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon, and Washington

Date of Government Version: 06/01/2010
Date Data Available at EDR: 08/06/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 59
Source: EPA Region 10
Telephone: 206-633-3857
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank data

UST Underground Storage Tank Database

Registered Underground Storage Tanks (UST) are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 09/26/2010
Date Data Available at EDR: 09/27/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 17
Source: Department of Health
Telephone: 617-635-4238
Last EDR Contact: 12/20/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations)

Date of Government Version: 05/03/2010
Date Data Available at EDR: 05/04/2010
Date Made Active in Reports: 11/07/2010
Number of Days to Update: 35
Source: EPA Region 8
Telephone: 415-877-3328
Last EDR Contact: 12/01/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Alaska, Hawaii, Idaho, Oregon, and Washington)

Date of Government Version: 09/25/2010
Date Data Available at EDR: 05/04/2010
Date Made Active in Reports: 06/05/2010
Number of Days to Update: 74
Source: EPA Region 8
Telephone: 206-633-3857
Last EDR Contact: 11/02/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Alaska, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations)

Date of Government Version: 09/18/2009
Date Data Available at EDR: 01/19/2009
Date Made Active in Reports: 02/18/2009
Number of Days to Update: 29
Source: EPA, Region 1
Telephone: 617-618-1313
Last EDR Contact: 11/22/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies
INVESTIGATIONS R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Data of Government Version: 04/20/2008
Data Date Accessed: 12/02/2008
Data Made Active In Report: 03/15/2008
Number of Days to Update: 78
Number of Days to Update: 8
Data Release Frequency: Semi-Annually

INVESTIGATIONS R2: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 8 Tribes).

Data of Government Version: 08/02/2010
Source: EPA Region 8
Data Date Accessed: 08/04/2010
Data Made Active In Report: 10/04/2010
Number of Days to Update: 61
Data Release Frequency: Quarterly

INVESTIGATIONS R3: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Data of Government Version: 02/10/2010
Source: EPA Region 9
Data Date Accessed: 03/11/2010
Data Made Active In Report: 03/17/2010
Number of Days to Update: 90
Data Release Frequency: Quarterly

INVESTIGATIONS R4: Underground Storage Tanks on Indian Land

Data of Government Version: 08/05/2010
Source: EPA Region 10
Data Date Accessed: 08/05/2010
Data Made Active In Report: 09/04/2010
Number of Days to Update: 9
Data Release Frequency: Quarterly

INVESTIGATIONS R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tanks (UST) database provides information about underground storage tanks on Indian land in EPA Region 11 (Arizona, California, Nevada, Utah, Idaho, and Tribal Nations).

Data of Government Version: 02/02/2009
Source: EPA Region 11
Data Date Accessed: 03/11/2010
Data Made Active In Report: 08/05/2010
Number of Days to Update: 90
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tanks on Indian Land
A listing of all FEMA owned underground storage tanks.

Data of Government Version: 01/10/2009
Source: FEMA
Data Date Accessed: 06/15/2010
Data Made Active In Report: 04/12/2010
Number of Days to Update: 90
Number of Days to Update: 55
Data Release Frequency: Quarterly

STATE AND FEDERAL INSTITUTIONAL CONTROL / ENGINEERING CONTROL REGISTERS

STATE AND FEDERAL INSTITUTIONAL CONTROL / ENGINEERING CONTROL REGISTERS

STATE AND FEDERAL INSTITUTIONAL CONTROL / ENGINEERING CONTROL REGISTERS

STATE AND FEDERAL INSTITUTIONAL CONTROL / ENGINEERING CONTROL REGISTERS
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2007
Data Date Arrived at EDR: 02/05/2010
Data Made Active In Reports: 05/12/2010
Number of Days to Update: 78

Source: EPANPS
Telephone: 820-424-3125
Last EDR Contact: 11/06/2010
Next Scheduled EDR Contact: 03/07/2011
Data Release Frequency: Quarterly

UCD Underground Injection Wells Listing
A listing of underground injection well locations.

Date of Government Version: 09/30/2010
Data Date Arrived at EDR: 10/12/2010
Data Made Active In Reports: 10/22/2010
Number of Days to Update: 21

Source: Department of Health
Telephone: 806-589-4025
Last EDR Contact: 07/29/2010
Next Scheduled EDR Contact: 03/01/2011
Data Release Frequency: Bi-Annually

DRIEDERANS: Permitted Dryerans Facility Listing
A listing of permitted dryerans facilities in the state.

Date of Government Version: 06/20/2010
Data Date Arrived at EDR: 12/31/2010
Data Made Active In Reports: 05/04/2010
Number of Days to Update: 22

Source: Department of Health
Telephone: 806-589-4025
Last EDR Contact: 01/14/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Various

AIRS I list of Permitted Facilities
A listing of permitted facilities in the state.

Date of Government Version: 10/31/2010
Data Date Arrived at EDR: 10/14/2010
Data Made Active In Reports: 12/24/2010
Number of Days to Update: 10

Source: Department of Health
Telephone: 806-589-4020
Last EDR Contact: 01/14/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Various

INDIAN RESERVATION: Indian Reservations
The map layer portrays Indian reservation lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Data Date Arrived at EDR: 12/31/2005
Data Made Active In Reports: 04/12/2007
Number of Days to Update: 34

Source: USGS
Telephone: 303-769-3710
Last EDR Contact: 02/12/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANER: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1986, with support from the U S EPA Office of Superfund Remediation and Technology Innovation. It is composed of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 08/30/2010
Data Date Arrived at EDR: 08/31/2010
Data Made Active In Reports: 10/31/2010
Number of Days to Update: 97

Source: Environmental Protection Agency
Telephone: 815-532-8300
Last EDR Contact: 10/31/2010
Next Scheduled EDR Contact: 03/07/2011
Data Release Frequency: Various

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrants that includes all PCB registration submittals.

Date of Government Version: 01/18/2006
Data Date Arrived at EDR: 01/18/2006
Data Made Active In Reports: 04/27/2000
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-586-2677
Last EDR Contact: 01/14/2011
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Various

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DRI: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Data Date Arrived at EDR: 06/17/2006
Data Made Active In Reports: 10/27/2005
Number of Days to Update: 78

Source: Department of Energy
Telephone: 202-586-1578
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Various

COAL ASH FPA: Coal Combustion Residuals Surface Impoundments List
A listing of coal combustion residuals surface impoundments with high historical potential ratings.

Data Date Arrived at EDR: 12/14/2010
Data Made Active In Reports: 07/10/2010
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: NA
Last EDR Contact: 12/11/2010
Next Scheduled EDR Contact: 02/02/2011
Data Release Frequency: Various

FEELAND: Federal and Indian Lands
Federally and Indian administered lands of the United States. Lands include those administered by Army Corps of Engineers, Bureau of Reclamation, National Wildlife Refuge, National Marine Sanctuary, National Wildlife Refuge, Public Domain Lands, Wilderness, Wilderness Study Areas, WSMR Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Data Date Arrived at EDR: 02/06/2006
Data Made Active In Reports: 01/12/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/20/2011
Next Scheduled EDR Contact: 05/20/2011
Data Release Frequency: NA

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of domestic gas plants (manufactured gas plants) compiled by EDR's research staff. Manufactured gas plants were used in the United States from the 1920's to 1950's to produce a gas that could be distributed and used as fuel. These plants used waste oil, coal, or a mixture of coal, oil, and water that was produced as a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (easily soluble volatile and non-volatile chemicals), ashes, oils, and other compounds are potentially hazardous to human health and the environment. The byproducts were typically disposed of at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Data Date Arrived at EDR: N/A
Data Made Active In Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASES
Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands in forested data in a specific report does not mean that wetlands do not exist in the area covered by the report.
### GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

#### STREET AND ADDRESS INFORMATION
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### Electric Power Transmission Line Data
**Source:** Engineering Strategies Corp.
**Telephone:** (201) 790-2147

U.S. Electric Transmission and Power Plants System Digital GIS Data

### Sensitive Receptors
These are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDI indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

#### Ark Hospice
**Source:** American Hospital Association, Inc.
**Telephone:** 312-790-5091

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

#### Medical Centers Provider of Services Listing
**Source:** Centers for Medicare & Medicaid Services
**Telephone:** 410-786-3000

A listing of hospitals with Medicare provider numbers produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

#### Nursing Homes
**Source:** National Institutes of Health
**Telephone:** 301-594-2546

Information on Medicare and Medicaid certified nursing homes in the United States.

#### Public Schools
**Source:** National Center for Education Statistics
**Telephone:** 202-502-7300

This National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

#### Private Schools
**Source:** National Center for Education Statistics
**Telephone:** 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

#### Flood Zone Data
This data, available in select counties across the country, was obtained by EDI in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

#### NRI - National Wildland Inventory
This data, available in select counties across the country, was obtained by EDI in 2002 and 2003 from the U.S. Fish and Wildlife Service.

### Scanned Digital USGS Topographic Map (DRG)
**Source:** United States Geological Survey

A digital raster graphics (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

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TC267044.2s Page DR-17

TC267044.3s Page OT-16
TARGET PROPERTY ADDRESS
FORMER PUUNUNI PIGGY SITE
SOUTH FIRE BREAK ROAD
KHEI, HI 96753

TARGET PROPERTY COORDINATES
Latitude (North): 20.81540 - 20° 48' 55.4"
Longitude (West): 156.4526 - 156° 27' 10.1"
Universal Transverse Mercator: Zone 4
UTM X (Meters): 705121.4
UTM Y (Meters): 230676.8
Elevation: 124 ft. above sea level

USGS TOPOGRAPHIC MAP
Target Property Map: 2015-04 KAILUKU, HI
Most Recent Revision: Not reported

EDFI's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in formulating an opinion about the impact of potential contaminants migration. Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the well, and nearby wetas. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GROUNDWATER FLOW DIRECTION INFORMATION
Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in formulating an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY
General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION Profiles
Source: Topography has been determined from the USGS 7.5" Digital Elevation Model and should be evaluated on a routine (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.
GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROGEOLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties on, or should contamination exist on the target property, what downstream sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County: MAUI, HI
Electronic Data: FEMA Flood YES - refer to the Overview Map and Detail Map
Flood Plain Panel at Target Property: 1560003250B - FEMA Q3 Flood data
Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

WNI Data Coverage: YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties on, or should contamination exist on the target property, what downstream sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the data of the report, groundwater flow direction as determined hydrologically, and the depth to water table.

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<thead>
<tr>
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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary in lieu of other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

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### GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

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<td>Gaz</td>
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**Wells**

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<td>Int water</td>
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</table>
GEOCHECK® PHYSICAL SETTING SOURCE MAP FINDINGS

RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MAUI County: 3
Note: Zone 1: indoor average level >= 4 pCi/L, Zone 2: indoor average level =< 2 pCi/L and =< 4 pCi/L, Zone 3: indoor average level =< 2 pCi/L.

Federal Area Radon Information for Zip Codes 96733
Number of data tested: 10

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PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5° Digital Elevation Model (DEM)
Source: United States Geological Survey
EDR acquired the USGS 7.5° Digital Elevation Model in 2001 and updated it in 2008. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5° Topographic Map (EDR)
Source: United States Geological Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Fixed Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2005 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NW: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2007 and 2009 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed a AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the data of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map is a soil survey in a representation of soil patterns in landscape. Soil maps for STATSGO are compiled by generating more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-877-6698
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping series generally range from 1:17,000 to 1:50,000. Field mapping methods using national standards are used to create the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO Soil Survey Geographic Database is designed to support the needs of an organization that map the soil and hydrology, national resource planning and management.

TC917344.3x  Page A-13

TC917344.2x  Page A-14
LOCAL/REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750

USGS Water Wells: USGS National Water Information System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database
Source: Department of Land and Natural Resources
Telephone: 808-581-0214
The Database maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-305-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA's State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1988-1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-305-4020
Sections 307 & 309 of IRAE directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6666

Exposures: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration
**DEPARTMENT OF HEALTH**  
SOLID AND HAZARDOUS WASTE BRANCH  
OFFICE OF SOLID WASTE MANAGEMENT  
919 ALA MOKAHOI BOULEVARD, SUITE 310  
HONOLULU, HI 96814  
TEL. 808-973-8700  FAX NO. 808-973-7559

**COMPLAINT FORM**

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<td><strong>Recommended Actions:</strong></td>
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*Note: If field inspection is needed, attach page 2 of this form.*

OSWM, Complaint Form, Page 1
DEPARTMENT OF HEALTH
SOLID AND HAZARDOUS WASTE BRANCH
SOLID WASTE SECTION
919 ALA MOANA BOULEVARD, ROOM 212
HONOLULU, HAWAII 96814
TEL NO. 586-4226 FAX NO. 586-7509

INSPECTION REPORT

FACILITY NAME: Poffenroth Piggery
INSPECTION DATE: August 18, 2005
PERMIT NUMBER: NA
ISSUED DATE: NA EXPIRATION DATE: NA
MAILING ADDRESS: Mr. Larry Poffenroth
P.O. Box 539
Paunena, HI 96784

Alexander & Baldwin, Inc. (property owner)
P.O. Box 159
Kahului, HI 96732

LOCATION ADDRESS: Off Mokulele Hwy
Waikapu, Maui
TMK: 38D04001

PERSON CONTACTED: Mr. Larry Poffenroth
INSPECTOR AND TITLE: Todd Nichols, Environmental Health Specialist, SWS
Janice Fujimoto, Environmental Engineer, SWS

REPORT DATE: September 6, 2005

REASON FOR INSPECTION:
( ) ROUTINE
( ) COMPLIANCE SCHEDULE
( ) PERMIT REQUIREMENT
( ) VARIANCE CONDITION

Poffenroth Piggery
August 19, 2005

(x) COMPLAINT EXPLAIN: complaint 05-105. accepting white goods, bailing cars and white goods
( ) OTHER EXPLAIN

Background: On 05/30/05 the SWS received a complaint that Larry Poffenroth was accepting white goods and bailing white goods and cars at his piggery.

OBSERVATIONS / FINDINGS:
On August 18, 2005, DOH inspected the site located off of Mokulele Highway, Waikapu, Maui, TMK 38D04001. Hawaii Department of Health inspectors Todd Nichols and Janice Fujimoto conducted the inspection. Mr. Larry Poffenroth accompanied the inspectors.

Poffenroth stated that he isn't bringing scrap metal onto the site and hasn't brought any metal onto the site in 2-3 yrs. Poffenroth showed the inspectors a number of things, such as portable pig pens, that he was building from old equipment. Poffenroth showed the inspectors a number of operational refrigerators that he was using to store food for pigs. Poffenroth showed the inspectors a large amount of canned food that was going to be fed to the pigs.

There was an approximately 500-1000 cubic yard pile of green waste at the site. Poffenroth stated that in the past he had allowed some people to bring in green waste to the site as the pigs would eat coconut in the green waste and the left over green waste created soil. Poffenroth stated that he doesn't allow green waste to be brought on site anymore after some people dumped some loads of C & D under a load of green waste. Some building/demolition material such as roofing material and plywood was visible in the green waste.

There were a number of scrap tires at the piggery. Poffenroth stated that he wasn't bringing scrap tires onto the site and that the tires were from his operation.

Poffenroth stated that he was in the process of cleaning up the site and disposing of old equipment and materials. A bailing was at the site along with a shipping container. Poffenroth estimated that he will need a year to clean up the site.

POTENTIAL VIOLATIONS:
( ) HAWAII REVISED STATUTES
( ) HAWAII ADMINISTRATIVE RULES TITLE 11 CHAPTER 58.1 - 6
( ) COMPLIANCE SCHEDULE
( ) PERMIT CONDITION
( ) VARIANCE CONDITION
( ) OTHER
( ) NONE

CAUSE OF POTENTIAL VIOLATIONS:
FOLLOW-UP NEEDED: YES (x)  WHEN: 
WHY: letter of interest
NO ( )

LIST OF ATTACHMENTS:

Todd Nichols
Environmental Health Specialist

CERTIFIED MAIL NO. Z 265 603 202
RETURN RECEIPT REQUESTED

Mr. Larry Poffenroth
P.O. Box 636
Pahoa, Hawaii 96778

Dear Mr. Poffenroth:

Subject: Unpermitted solid waste management operation located at two sites:
Central Meat Scrapyard, Pahoa, Hawaii (auto salvage and scrap metal)
Hog Farm (scrap tires and metals)

On October 30, 1998, a solid waste inspection was conducted at the subject locations by
the representatives of the Department of Health (DOH). We met with you to observe the
ongoing operation at the sites. During the course of the investigation, information was
gathered in accordance with section 342-12 of the Hawaii Revised Statutes.

It has been determined that there is evidence of violations of Title 11, Chapter 88.1 of the
Hawaii Administrative Rules and the Hawaii Revised Statutes 342-12 Solid Waste Pollution,
and the integrated solid waste management plan for the State of Hawaii:

1. The operation of a solid waste salvage facility without a permit, in violation of
Section 11-68.1-4. This section states that it is unlawful for any person to establish,
modify, or operate any solid waste management facility or a part thereof or any
extension or addition thereto without a permit issued. According to our records, it
appears that you have been in operation for at least a year since the closure of your
operation at the Aina Rasta. Approximately 1200 tons of scrap metals were moved
to this site for storage. A permit application was mailed out to you for this new site.
However, no permit application was ever received by the Department.

2. The operation of a materials recovery facility, in violation of
Sections 11-68.1-32 and 11-68.1-33. This section regulates the operations of
automobile dismantlers, scrap metal, white goods, and junkyards.

3. The improper management of solid waste materials, in violation of
Sections 11-68.1-81(a) and 11-68.1-81(b). You failed to remove accumulated solid
In accordance with the Title 11, Chapter 88.1 of Hawaii Administrative Rules, the Department hereby orders you to cease and desist all salvage operations. If you wish to continue operations you must first apply for a permit from this office, and clear up any violations from previous operations.

If we do not hear from you within 15 calendar days, we will initiate a formal Notice of Violation (NOV). Further operations will result in violations and such violations may be punishable by civil actions, including penalties of up to $10,000 per day for each violation as provided by HRS section 342H-5.

Any deficiencies noted are not necessarily inclusive and any omission in this letter shall not be construed as a determination of compliance with any applicable laws. Also, any omission to cite any other violation is not intended to nor shall be binding upon the DOH.

Your responses to this letter, due within 15 days of your receipt of this letter, shall be mailed to:

Mr. John Harder, Coordinator
Office of Solid Waste Management
Solid and Hazardous Waste Branch
Department of Health
518 Ala Moana Boulevard, Room 210
Honolulu, Hawaii 96814

Please use the permit application material given to you during the inspection. Should you have any questions, please contact Mr. Edgar Salo of my staff at (808) 586-4240.

Sincerely,

JOHN HARDER, Coordinator
Office of Solid Waste Management

cc: Kathleen Ho, Office of the Attorney General
C. Earl Stoner, Jr., B&P Land Company, Inc., 393 Dairy Road, Kahului, Hawaii 96732
David W. Blane, Planning Department, County of Maui
Andy Hoorna, Solid Waste Division, County of Maui
Hana Friend, Solid Waste Division, County of Maui
Phillip Ohi, District Land Agency/Maui District Land Management, DLNR
Roland Tejano, Wastewater Branch, DOH-Maui

STATE OF HAWAII
DEPARTMENT OF HEALTH
R.G. KELLEHER
DEPUTY INSPECTOR GENERAL

May 5, 1999

CERTIFIED MAIL NO: 1008886577
RETURN RECEIPT REQUESTED

Mr. Larry Poffenroth
P.O. Box 539
Punaalea, Hawaii 96784

Dear Mr. Poffenroth:

Subject: Closure of two Solid Waste Management Sites:
Central Maui Baseyard, Pouhana, Maui (auto salvage and scrap metals)
Hog Farm (scrap tires and metals)

This is to follow up on our letters dated November 27, 1998, and December 23, 1998, regarding the closure of two illegal solid waste management operations at the above-referenced sites.

Except for the information and photographs of the Central Maui Baseyard provided by B&P Land Company, Inc., we have not received any responses from you to indicate that the terms and conditions specified in our December 23, 1998, letter have been satisfied and completed. Under the authority of Chapter 342H of the Hawaii Revised Statutes and Chapter 88.1 of the Hawaii Administrative Rules:

1. An assessment of the site's present and future threat to public health and the environment due to contaminants generated during the illegal operation. The assessment may include soil sampling and testing within and adjacent to the property. A qualified environmental consultant shall conduct the site assessment. The site assessment report shall be submitted to the Department within thirty (30) calendar days of final site closure.

2. Solid waste disposal records (i.e., invoices, manifests) of material hauled from the subject sites to a permitted disposal facility. The records and/or receipts shall indicate the date, time, quantity, and type of material delivered to the permitted disposal facility. A copy of disposal records shall be submitted to the Department within thirty (30) calendar days of final site closure.

If items 1 and 2 are not accomplished, the Department may institute an administrative or civil action in the name of the State of Hawaii for current and prior violations.
September 19, 2005

CERTIFIED MAIL NO. 7065 1180 0903 8276 4707
RETURN RECEIPT REQUESTED

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 2311
HONOLULU, HAWAII 96823

CERTIFIED MAIL NO. 7065 1180 0903 8276 4707
RETURN RECEIPT REQUESTED

Mr. Larry Poffenroth
P.O. Box 538
Puunene, Hawaii 96784

Dear Mr. Poffenroth:

SUBJECT: Accumulation of Solid Waste,
TMK 38H004001, Waikapu, Maui

On August 18, 2005, in response to a complaint, the Department of Health, Solid Waste Section (SWS), inspected your piggery located at the subject site and noted an accumulation of solid waste such as scrap metal, green waste, construction and demolition waste, and scrap tires. It is our understanding that the tires came from your vehicles or equipment, that the scrap metal was accumulated years ago, and that the construction waste was deposited at your piggery without your knowledge or consent. It is also our understanding that you are in the process of cleaning up the piggery and will need a year to complete the cleanup.

As the property owner and/or operator, you have the responsibility to properly manage and dispose of accumulated solid wastes. This responsibility is stated in the Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1, which provides:

(a) The aesthetic, nonhazardous, and sanitary storage of solid waste is the responsibility of the person owning, operating, or managing the property, premise, business establishment, or industry where the solid waste is accumulated.

(b) Any person owning, operating, or managing a property, premise, business establishment, or industry has the responsibility of removing accumulated solid waste to an approved solid waste disposal facility. Contractual or other arrangements for the removal of accumulated solid waste shall not relieve a person of this primary responsibility as stated above. Solid waste shall be removed to an approved solid waste disposal facility, prior to creating a nuisance condition or health or safety hazard.

Sincerely,

[Signature]

Kathleen Ho, Office of the Attorney General
C. Emil Sterner, Jr., S&P Land Company, Inc., 333 Dairy Road, Kahului, HI 96732
Steve Holstado, A & B Properties, 33 Lane Avenue, Kahului, HI 96733
David W. Barnes, Planning Department, County of Maui
Andy Hirasa, Solid Waste Division, County of Maui
Hana Steel, Solid Waste Division, County of Maui
Phillip Onos, District Land Agent/Maui District Land Management, DLNR
Roland Tajano, Wastewater Branch, DOH-Maui

Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Department of Health
919 Ala Moana Boulevard, Room 210
Honolulu, Hawaii 96814

Should you have any questions, please contact Mr. Edgar Sala at (808) 586-4240.

[Signature]

Kathleen Ho, Office of the Attorney General
C. Emil Sterner, Jr., S&P Land Company, Inc., 333 Dairy Road, Kahului, HI 96732
Steve Holstado, A & B Properties, 33 Lane Avenue, Kahului, HI 96733
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Roland Tajano, Wastewater Branch, DOH-Maui

Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Department of Health
919 Ala Moana Boulevard, Room 210
Honolulu, Hawaii 96814

Should you have any questions, please contact Mr. Edgar Sala at (808) 586-4240.
Therefore, the SWSS is requesting that you complete the removal and properly dispose of solid waste, including but not limited to scrap metal, construction waste, and scrap tires, within one year of your receipt of this letter.

Any deficiencies that may be noted in this letter are not necessarily inclusive and any omissions shall not be construed as a determination of compliance with any applicable laws. Also, any omission to cite other violations is not intended to nor shall be binding upon the DOH. Please mail a response within thirty (30) calendar days of your receipt of this letter to:

Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Department of Health
919 Ala Moana Boulevard, Room 212
Honolulu, Hawaii 96814

Should you have any questions regarding this letter, please call Mr. Todd Nichols of our Solid Waste Section at (808) 586-4226.

Sincerely,

[Signature]

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

cc: Alexander & Baldwin, Inc.

Mr. Sean M. O'Keefe
Director, Environmental Affairs
Alexander & Baldwin, Inc.
P.O. Box 256
Puunene, Hawaii 96784

Dear Mr. O'Keefe:

SUBJECT: Solid Waste Management Permit Application, Exemption Request
Cleanup of Former Poffenroth Pigpen
Located at: TMK No. (2) 3-8-008-018, Puunene, Maui, Hawaii

The Department of Health (DOH), Solid and Hazardous Waste Branch, Solid Waste Section received your solid waste management permit exemption request for the subject site, dated April 13, 2010. According to your request, we understand you obtained an order from the U.S. Bankruptcy Court, District of Hawaii to remove scrap metal from the premises formerly occupied by Mr. Poffenroth. We further understand your cleanup operations, to be completed by a contractor, will include the following:

1. Cleanup operations will include on-site processing of scrap metal, scrap vehicles, and other mobile equipment. The site contains approximately 150-200 scrap vehicles and equipment.

2. Processing will likely include the removal of tires, batteries, automotive fluids, oil fillers, refrigerant, mercury switches, and other hazardous materials. Processed vehicles may be crushed/dissassembled onsite.

3. The contractor will be required to adhere to Best Management Practices (BMPs) for processing, crushing, and handling of scrap metal and scrap vehicles/equipment. BMPs shall include: processing/crushing only in designated paved areas, providing and maintaining proper storage containers and secondary containment for fluids, batteries, and other hazardous materials, properly disposing of all materials removed during processing operations, and prompt corrective actions to address any spills and leaks.

4. Cleanup operations shall be completed within approximately four (4) months.
5. Alexander & Baldwin, Inc. plans to conduct a comprehensive site assessment and, if necessary, remediation to address any environmental impacts from the past solid waste-related operations.

Based on this understanding of your operation, the Director has determined that your facility is a minor source under Hawaii Administrative Rules 11-55.1-04(b)(6), and exempt from solid waste management permitting requirements. The minor source exemption is granted based on your involvement as a property owner, rather than operator of the solid waste management facility, the limited duration of the cleanup, and the BMPs/oversight you intend to provide for the operations.

Please provide the DOH with written documentation within thirty (30) days of conclusion of your cleanup operations. Written documentation shall include a description of waste removed from the site, quantities, and recycling/disposal location. Waste shall only be transported to the DOH-permitted facilities allowed to accept such waste.

Please also submit the findings of your comprehensive site assessment, as well as any work plans and analytical reports associated with your study. If contamination is identified at unacceptable levels, you will be required to remediate the site and submit associated documentation to the DOH.

If you have any questions regarding this letter, please contact Ms. Janice Fujimoto of the Solid and Hazardous Waste Branch at (808) 686-4228.

Sincerely,

[Signature]

STEVEN Y.K. CHANG, P.E., ACTING CHIEF
Environmental Management Division

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ENVIRONMENTAL ASSESSMENT QUESTIONNAIRE

DATE: MARCH 6, 2011
JOB NAME: PROXY ENVIRONMENTAL SITE ASSESSMENT
FACILITY NAME & ADDRESS: FORMER POPPENBURG PROPERTY, PUUNENE, MAUI, HAWAII

1. NAME/TITLE/PHONE NUMBER OF PERSON COMPLETING FORM: SEAN M. O'KEEFE, DIRECTOR, ENVIRONMENTAL AFFAIRS, ALEXANDER & BALDWIN, INC. (808) 877-2959


3. REASON FOR CONDUCTING PHASE I EIA: POSSIBLE SALE OF THE PROPERTY


5. ARE THERE ANY PERMITS FROM THE COUNTY, STATE, OR FEDERAL GOVERNMENT FOR OPERATION OF THE FACILITY? NONES KNOWN.

6. WHAT IS THE SOURCE OF WATER? (COUNTY / WELL / CATCHMENT) COUNTY WATER FOR DOMESTIC WATER. THERE IS ALSO A NON-POTABLE WATER WELL ON THE PROPERTY.

7. WHAT TYPE OF SEWER SYSTEM IS PRESENT? (SEWER POOL / DRAINAGE WELL / COUNTY SYSTEM) BUILDINGS ON THE PROPERTY WERE MOST RECENTLY SERVED BY SEWER POOLS, WHICH HAVE BEEN FILLED IN. DURING MILITARY USE OF THE PROPERTY THERE WAS A SEWER SYSTEM WHICH APPARENTLY DISCHARGED INTO LARGE SEPTIC SYSTEMS.

   IS THE WATER TREATED? NO

8. ARE THERE ANY FLOOD DRAINS OR SEEPS ON THE PROPERTY? NONES TO MY KNOWLEDGE.
WHAT DO THEY DRINK?

WHERE DO THEY DISCHARGE?

9. ARE THERE ANY ELECTRICAL TRANSFORMERS ON THE PROPERTY? (GROUNDED OR POLE-MOUNTED)
   NO, TO MY KNOWLEDGE; MSCO SERVICE TO THE PROPERTY HAS BEEN TERMINATED.

   WHO OWNS THE TRANSFORMERS, IF ANY?

   HAVE THEY BEEN TESTED FOR PCBs?

10. ARE THERE ANY ABOVE-GROUND AND/OR UNDERGROUND STORAGE TANKS? NO, TO MY
    KNOWLEDGE.

    SIZE  CONTENT  AGE  REGISTERED w/DOH?  HAVE THEY LEAKED?

11. DOES THE FACILITY USE OR HAS THE FACILITY USED ANY OF THE FOLLOWING MATERIALS?
    HOW MUCH DOES/AND THE FACILITY GENERATE?

    PESTICIDES / HERBICIDES: HERBICIDES ARE USED IN THE CULTIVATION OF SUGARCANE ON THE
    PROPERTY. OTHER PESTICIDES ARE BELIEVED TO HAVE BEEN USED BY THE PAST AGRICULTURAL
    OPERATIONS, BASED ON PESTICIDE CONTAINERS FOUND ON THE PROPERTY WHEN THE FORMER TENANT
    VACATED.

    FERTILIZERS: FERTILIZERS ARE USED IN THE CULTIVATION OF SUGARCANE ON THE PROPERTY AND
    MAY HAVE BEEN USED BY PAST AGRICULTURAL OPERATIONS.

    PCBs: NO, KNOWN EXCEPT THAT FLUORESCENT LIGHT BALLASTS REMOVED FROM STRUCTURES
    AT THE SITE WERE PRESUMED TO CONTAIN PCBs IN CASES WHERE LABELS WERE MISSING OR INELIGIBLE, OR
    DID NOT HAVE THE WORDS "NO PCBs"

    HEAVY METALS: POTENTIAL CONTAMINANTS IN WASTES MANAGED ON THE PROPERTY (i.e.,
    BATTERIES, LIGHT BULBS, USED OILS).

    ASBESTOS: ASBESTOS WAS PRESENT IN BUILDINGS FORMERLY LOCATED ON THE PROPERTY THAT
    HAVE BEEN DEMOLISHED. ASBESTOS IS ALSO PRESENT IN WATER SYSTEM PIPING FORMERLY SERVING
    THE MILITARY STRUCTURES AND APPARENTLY STILL IN PLACE ON THE PROPERTY.

Cyanide Waste: None known

Acid / Base: Acids present in batteries stored on the site by the former tenant.

Solvents (cleaners, degreasers, paint thinner, etc.): Paints were found on the site, so
paint thinners were likely used by the prior tenant.

Oils / Lubricants (Waste Oil): Waste oil was generated and stored by the former
tenant.

Any other waste? Scrap metal, green waste, food waste, construction and demolition
waste, property-related wastes, hazardous wastes, used light bulbs, used CRTs were all
generated or stored on the site by the former tenant.

12. HAS ANY WASTE OR RUBBISH BEEN BURNED ON THE PROPERTY? IF SO, WHAT KIND OF WASTE
    WAS BURNED AND WHAT KIND OF RUBBISH WAS BURNED? RUBBISH ASSOCIATED
    WITH FEEDING OF PIGS (PRIMARILY FOOD WRAPPERS AND CONTAINERS) WAS INFEROCESCENTLY DISPOSED
    ON THE SURFACE AROUND THE SITE AND IN SOME CASES WAS PARTIALLY BURNED UNDER ROCK PILES
    AROUND THE SITE. ALL AREAS WHERE BURNED WASTE WAS KNOWN OR SUSPECTED TO BE PRESENT
    HAVE BEEN EXCAVATED AND THE WASTE PROPERLY DISPOSED OF.

13. HAS ANY WASTE OR RUBBISH BEEN BURIED ON THE PROPERTY? IF SO, WHAT KIND OF WASTE
    WAS BURIED AND WHERE WAS THE WASTE BURIED? DEAD PIGS ARE KNOWN TO HAVE BEEN BURIED ON
    THE PROPERTY.

14. ARE THERE ANY CLARIFIERS, PROCESSES, OR DISTILLATION OR NEUTRALIZATION UNITS? WHAT
    SUBSTANCES ARE USED/PRODUCED BY THEM? NO, KNOWN

15. ARE THERE ANY GAS OR SERVICE STATIONS ON THE PROPERTY OR ANY ADJOINING PROPERTIES?
    NO, KNOWN, THOUGH THIS MAY HAVE BEEN SUCH FACILITIES ON THE ADJOINING MILITARY BASE
    AT ONE TIME.

16. IS THERE A MAINTENANCE SHOP ON THE PROPERTY? IF SO, WHAT KIND OF ACTIVITIES TAKE PLACE
    THERE? A MAINTENANCE SHOP WAS OPERATED ON THE PROPERTY BY THE FORMER TENANT.
    ACTIVITIES INCLUDED REPAIRS AND MAINTENANCE TO VEHICLES AND HEAVY EQUIPMENT.
17. ARE THERE ANY WASTE OR CHEMICAL PIPELINES ON THE PROPERTY? The sewage system which formerly served building associated with the former military base is likely still in existence. There are no known chemical pipelines.

18. ARE YOU AWARE OF ANY CONTAMINATION OR WASTE DISPOSAL AREAS ON THE PROPERTY OR NEARBY PROPERTIES? The property was used as an unpermitted solid waste management facility by the former occupant. Contamination may have resulted from these activities and is being investigated. There are known waste disposal areas and areas of contamination on adjacent properties which were formerly part of the military installation.

19. IS THERE ANY RUNOFF FROM ADJACENT PROPERTIES ONTO THE PROPERTY? None to my knowledge.

20. IS THE PROPERTY OR ANY ADJOINING PROPERTY USED FOR INDUSTRIAL USE? The Hawaiian Cement quarry is nearby, as is the Central Maui Baseyard. The majority of surrounding lands are used for sugarcane cultivation.

21. HAS THE PROPERTY OR ANY ADJOINING PROPERTY BEEN USED FOR INDUSTRIAL USE IN THE PAST? The property was used as an unpermitted solid waste management facility by the former tenant.

22. IS THE PROPERTY OR ADJOINING PROPERTY USED AS A GASOLINE STATION, MOTOR REPAIR FACILITY, COMMERCIAL PRINTING FACILITY, DRY CLEANING, PHOTO DEVELOPMENT, LABORATORY, RECYCLING OR LANDFILL, OR AS A WASTE TREATMENT, STORAGE, DISPOSAL OR RECYCLING FACILITY? No such uses are known currently.

In the past? The property was used in its uncan be proper waste management facility by the former tenant. Activities on the site included repair and maintenance of vehicles and equipment.

23. ARE THERE CURRENTLY, OR TO THEBEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY DANGERED OR DISCARDED AUTOMOBILE OR INDUSTRIAL BATTERIES, OR PESTICIDES, PAINTS, OR OTHER CHEMICALS IN INDIVIDUAL CONTAINERS OF GREATER THAN 5 GALLONS (19 L) IN VOLUME OR 50 GALLONS (190 L) IN THE aggregates, stored on or used at the property or the facility? Yes to all. Most such materials have already been disposed of. Some such materials (one DRUM CONTAINING BROKEN AUTOMOBILE BATTERIES, ONE DRUM CONTAINING WASTE PAINT) ARE CURRENTLY IN STORAGE PENDING DISPOSAL ARRANGEMENTS.

24. ARE THERE CURRENTLY, OR TO THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY INDUSTRIAL DRUMS TYPICAL 55 GALLONS (208 L) OR BAGS OF CHEMICALS LOCATED ON THE PROPERTY OR THE FACILITY? Yes. All such materials have been properly disposed of except as noted above.

25. ARE THERE CURRENTLY, OR TO THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY PIT PONDS, OR LAGOONS LOCATED ON THE PROPERTY IN CONNECTION WITH TREATMENT OR WASTE DISPOSAL? Waste lagoons were operated as part of the property operations. These received animal waste.

26. TO THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY REGISTERED STORAGE TANKS (ABOVE GROUND OR UNDERGROUND) LOCATED ON THE PROPERTY? None known. Unregistered AST's and mobile tanks/trucks/trailers were present during Popomoth's occupancy of the property, some of which were used for petroleum storage. These were all cleaned and/or confirmed to be free of petroleum products and combustible vapors prior to disposal as scrap metal.

27. ARE THERE CURRENTLY, OR TO THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY VENT PIPES, DILUTING PIPES PROTRUDING FROM THE GROUND ON THE PROPERTY OR ADJACENT TO ANY STRUCTURES ON THE PROPERTY? None known.

28. DOES THE PROPERTY DISCHARGE WASTEWATER ON OR ADJACENT TO THE PROPERTY OTHER THAN STORMWATER INTO A SANITARY SEWER SYSTEM? No.
29. Are you aware of any environmental cleanup being against the property that are filed or recorded under federal, tribal, state, or local law? No.

30. Are title records available? If so, please provide BTO with copies of these records. I believe these have already been provided.

31. Contact Information – Please provide contact information (name, phone number, etc.) for the following individuals if available.

   Subject Property Manager: Iacone Kosm, A&I Properties, Inc. (808) 877-4645
   Subject Property Owner: A&I Properties, Inc.

32. Are you aware of any activity and land use limitations (AULs), such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law? None to my knowledge.

33. As the user of this environmental site assessment (ESA) do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes by this type of business? As a representative of the property owner, I have specialized knowledge regarding this property and nearby properties, which has been converted to the environmental professional in this questionnaire and at other times during and preceding the assessment.

34. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property? To the best of my knowledge, the purchase price for this property reflects the fair market value of the property.

35. As you are aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as the user,

36. Do you know the past uses of the property? Yes, as described above and previously described to the environmental professional.

37. Do you know of specific chemicals that are present or once were present at the property? Yes, as described above and previously described to the environmental professional.

38. Do you know of spills or other chemical releases that have taken place at the property? Yes, as previously described to the environmental professional.

39. Do you know of any environmental cleanups that have taken place at the property? Yes, as previously described to the environmental professional.

40. As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property? None to my knowledge with the exception of deliberate releases of petroleum and the potential for contaminants related to past operation of an unpermitted solid waste management facility. An investigation for such contamination is ongoing.
41. Any additional consents regarding this property or any adjoining properties? None not previously disclosed.

Signature: [Signature]
Date: 3/1/11

***Please fax completed questionnaire at your earliest convenience to:
Ms. Shariaka Makishita
EnvironServices & Training Center, LLC
353 Ward Avenue, Suite 203, Honolulu, Hawaii
tel: 839-7723 fax: 839-4433

APPENDIX VI
Qualifications of the Environmental Professional.
PROFESSIONAL QUALIFICATIONS

Name: Sharta M. Nakashima
Title: Environmental Scientist
Education: BS, Chemistry, University of Hawaii at Manoa, 2000
Training: OSHA 40 Hour HAZWOPER
DOT Hazardous Materials Handling
Experience: EnviroServices & Training Center, LLC, Environmental Chemist, 2000 to Present.
University of Hawaii, Chemistry Department, Graduate Research Assistant, 2000

Ms. Nakashima's primary responsibilities are conducting Phase I and II environmental site assessments. She is also the lead person to conduct data QA/QC/validation/reduction. Ms. Nakashima possesses experience in operating global positioning system (GPS) instrumentation and conducting hazardous materials inventories/classifications/ segregations/compatibility determinations.

PAST PROJECT EXPERIENCE

Sharta M. Nakashima

Phase I Environmental Site Assessments on the Islands of Oahu, Maui, Kauai, Hawaii, Lanai: Environmental Professional. Ms. Nakashima has conducted numerous Phase I environmental site assessments throughout the State of Hawaii in accordance with generally accepted Phase I industry protocol as described in the ASTM E-1527 standard and to satisfy “all appropriate inquiry” as defined in 42 United States Code (U.S.C.) 9601(39)(B). Work sites included commercial, industrial, agricultural, concrete, and residential land ranging in size from small properties (less than 2.0 acres) to larger properties (greater than 500.0 acres).

Phase II Environmental Site Assessments/Site Screening Assessments on the Islands of Oahu, Maui, Kauai, Hawaii, Lanai: Project Manager. Ms. Nakashima has performed numerous Phase II environmental site assessments and site screening assessments throughout the State of Hawaii. Projects included surface soil investigation utilizing both multi-incremental and discrete sampling protocols and subsurface soil/groundwater investigations using hand tools, direct-push rig, and down-scare augering techniques. Contaminates investigated included petroleum/petroleum-related compounds, heavy metals, pesticides/herbicides, PCBs, and asbestos/Asbestos.

Phase II Environmental Site Assessments/Site Screening Activities; GPS Team Leader. Ms. Nakashima utilized Trimble Navigation Global Positioning System (GPS) instrumentation and Geographical Information Systems (GIS) applications for numerous projects to identify/handle pre-determined sample locations, document sample locations or site features, and/or identify property lines. GIS data obtained were incorporated in both the planning and reporting phases of applicable projects.

Underground Storage Tank (UST) Closure and Release Response; Environmental Scientist. Ms. Nakashima has closed numerous UST systems throughout the State of Hawaii. Closure and release response activities were performed in accordance with Hawaii Administrative Rules (HAR) 14-38. Duties included coordination and management of various subcontractors, documentation of closure (both removal and clean in place), release assessment sample collection, site remediation, waste profiling/packaging/disposal, communication with State regulators, and report preparation.

Voluntary Response Program (VRP) Site Assessment and Remediation; Environmental Scientist/Project Manager. Ms. Nakashima has served as both environmental scientist and project manager on several VRP projects on the Island of Oahu. Ms. Nakashima worked on all phases of the VRP, including project scoping, planning documentation, data collection, contaminated media removal/remediation, confirmative sampling, and report preparation. Contaminants addressed included petroleum/petroleum-related compounds, heavy metals, pesticides/herbicides, PCBs, and asbestos.

Industrial Wastewater Discharge Termination (IWTP), Environmental Scientist. Ms. Nakashima acquired an IWTP which authorized the facility to discharge industrial wastewater into the City and County of Honolulu’s publicly owned treatment works (POTW) under Chapter 14 of the Revised Ordinances of Honolulu.

Underground Injection Control (UIC) Permitting, Environmental Scientist. Ms. Nakashima acquired a UIC permit for two dry wells located at a car rental facility in Kona, Hawaii. Work included investigation and application procedures required by the Hawaii Department of Health-Safe Drinking Water Branch.

Hazardous Materials Inventory, Environmental Chemist. Ms. Nakashima conducted a hazardous materials survey at over sixty (60) public intermediate and high schools on the islands of Oahu, Kauai, Maui, Molokai, Lanai, and Hawaii. Work included identification and categorizing of over 30,000 hazardous materials, conducting photographic documentation, and determining NFPA labeling requirements for classroom storage areas potentially containing hazardous materials.

Hazardous Waste Characterization and/or Disposal, Environmental Scientist. Ms. Nakashima assisted in the disposal of various chemicals and hazardous wastes at an abandoned laboratory in Waimanalo, Oahu. Additional sites included several public intermediate and high schools. Tasks included identification, packaging, labeling, transportation and disposition of hazardous waste in accordance with OSHA, EPA, DOT, and local regulations.

Asbestos Air-Monitoring, City and County – Department of Agriculture, Environmental Scientist. Ms. Nakashima assisted and/or conducted air monitoring using low volume sampling pumps during asbestos abatement activities.

Laboratory Studies, Research Assistant. Ms. Nakashima conducted studies of protein conformational dynamics through photochemical methods and purified horse heart myoglobin within thin layered polymer slides and organic solvents. Lab experience also included utilization of Gas Chromatography (GC) - Mass Spectrometry (MS), High Performance Liquid Chromatography (HPLC), Nuclear Magnetic Resonance (NMR), Infrared (IR) spectroscopy, and Ultraviolet/Visible (UV-VIS) Spectrophotometer.
Site Investigation Report
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1.0 CERTIFICATIONS AND LIMITATIONS

EnviroServices & Training Center (ETC), LLC has completed this Site investigation Report for the project site. ETC's findings and conclusions presented in this report are professional opinions based solely upon visual observations of the project site, government regulations, and upon interpretation of the laboratory data and field measurements gathered at the time and location of the study.

This report is intended for the sole use of ETC's Client, exclusively for the project site indicated. The scope of services performed in execution of this project may not be appropriate for satisfying the needs of other users, and any use or reuse of this report or the findings and conclusions presented herein is unauthorized and at the sole risk of said user.

ETC makes no guarantee or warranty: either expressed or implied, except that our services are consistent with good commercial or customary practices designed to conform to acceptable industry standards and governmental regulations. No warranty or representation, expressed or implied, is included or intended in its proposal, contracts, or reports. Opinions stated in this report apply only to the site as outlined and apply to the conditions present at the time of site sampling activities. Moreover, these opinions do not apply to site changes that occur after the site sampling activities.

Prepared By:                      
Stacia Nakashima                         
Project Manager                      

Date: October 2011
EXECUTIVE SUMMARY

EnviroServices & Training Center (ETC), LLC was contracted by A&B Properties, Inc. (A&B) to conduct a Site Investigation at the project site known as the former Punaene Piggery, identified as Tax Map Key (TMK) (2) 3-8-B; Parcel 19 (hereinafter referred to as the "Property") and located along South Firebreak Road in Punaene, Hawaii. The data obtained during this investigation was used to determine whether additional investigation and/or corrective actions are warranted, based on the decision rules developed in ETC’s February 2011 Site Investigation Work Plan, Former Punaene Piggery (SI-WP).

The Property was formerly used as a piggery for over 25 years. As part of an agreement with the former tenant, Mr. Larry Poffenroth occupied the property and took over the piggery operations in or around 1995; he is believed to have begun solid waste management activities at the property shortly thereafter. Poffenroth occupied the property, and commenced his solid waste management activities, without the knowledge or consent of the former Property landowner, A&B. Initially, Mr. Poffenroth’s solid waste management activities were limited to scrap metal storage and processing, however, he subsequently expanded and began accepting green waste, construction/demolition waste, and other miscellaneous waste streams. In addition, large amounts of food waste were brought to the Property as pig feed, which resulted in discarded empty food packaging materials being spread throughout much of the north portion of the Property. In late 2007, A&B was finally able to evict Mr. Poffenroth and all the remaining pigs were subsequently removed from the Property in 2008. Immediately following the eviction, A&B Properties began solid waste cleanup activities at the Property which were completed in February 2011. Based on the former usage of the Property, several specific potential sources of contamination were identified during previous site inspections.

The contaminants of potential concern (COPC) identified for the purposes of this site investigation were Resource Conservation and Recovery Act (RCRA) eight metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver), total petroleum hydrocarbons (TPH) as diesel (D), TPH as oil (O), polynuclear aromatic hydrocarbons (PAHs), and polychlorinated biphenyls (PCBs). The media targeted by this site investigation was surface soil.

In order to assess the impacts associated with the former solid waste operations on the Property, the following decision units (DU) were established based on source locations: the source locations were identified as the shop area (DU1), vehicle and drum storage area (DU2), scrap metal processing area (DU3); miscellaneous scrap metal and debris (DU4), scrap metal stockpiles and transformer storage area (DU5); vehicle/tanker/television monitors storage area (DU6), miscellaneous hazardous materials storage area (DU7), miscellaneous scrap metal with open areas (DU8), battery storage area (DU9), miscellaneous scrap metal pile (DU10); and the scrap metal and CRT storage area (DU11).

In March 2011, a total of thirteen (13) multi-increment soil samples (eleven primary samples, two field replicate samples) were collected from the potential contaminant source locations. The samples were submitted to Torrent Laboratory, Inc. (TLI) in Milpitas, California for select COPC as described in ETC’s February 2011 SI-WP.

Analytical results from ETC’s March 2011 initial site investigation activities indicated that elevated concentrations of TPH-O were reported for DU6 and DU12 (replicate of DU3). Specifically, reported average concentration for DU6 (720 mg/kg) and the adjusted value (reported average concentration plus RSD) for DU12 (589 mg/kg) exceeded the Hawaii Department of Health (DOH) Environmental Action Level (EAL) of 500 mg/kg pertaining to gross contamination concerns associated with unrestricted land use. The adjusted value for DU6 (1,228 mg/kg) also exceeded the DOH EAL pertaining to leaching (1,000 mg/kg) concerns. Although the initial AL was exceeded, the DOH EAL pertaining to direct exposure (2,300 mg/kg) concerns associated with unrestricted land use was not exceeded. Furthermore, ETC understands that during the land sale of the property the "new" and current land owner agreed to accept a commercial/industrial land use limitation for the property. Therefore, gross contamination concerns associated with unrestricted land use would not be considered a significant environmental hazard for this and will be removed from consideration. An adjusted TPH-O value (1,228 mg/kg) was reported at a concentration exceeding the EAL pertaining to soil leaching EALs in DU6 only. A previous groundwater investigation indicated that none of the regulated drinking water contaminants were identified at levels of concern. In addition, the DOH HEER Office generally considers soil leaching EALs associated with petroleum-related constituents excessively conservative. For example, as noted in the DOH’s Summer 2008 Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater document (EHE Document), TPH-O is considered to be biodegradable and "can be expected to naturally degrade over time," however, it is not accounted for in the model. The model used is also based on a much higher rainfall than is received in Punaene, Hawaii. In addition, the leaching EAL does not consider drinking water utility status (i.e. drinking water vs. non-drinking water) and, as noted in the EHE Document, the leaching EAL is based on the California EPA Los Angeles Regional Water Board proposed action level of 1,000 mg/kg, which in fact applies to drinking water aquifers in which the distance above groundwater is less than 20 feet (CRWQCB, 1996). Note that groundwater status of the Property is considered to be non-drinking water and is anticipated at a depth greater than 100 feet. Based this information, soil leaching concerns associated with petroleum-related constituents do not appear to be a significant concern. Therefore, soil leaching would not be considered a significant environmental hazard for this site and will be removed from consideration.

In addition to the DU6 findings, analytical results indicated that soil collected from DU11 contained an average total lead concentration of 830 mg/kg, which exceeds the initial AL of 200 mg/kg. The detected total lead concentration also exceeded the DOH EAL of 800 mg/kg pertaining to direct exposure concerns associated with commercial/industrial land use. Based on these findings, ETC proposed additional surface soil sampling within DU11. As a result, ETC remobilized to the Property in August 2011 to collect a total of area (10) multi-increment soil samples (eight primary samples, two field replicate samples) from DU11. The samples were submitted to TestAmerica – Honolulu (TA-II) in Aiea, Hawaii for analysis of total lead.
Analytical results for the additional investigation of DU11 indicated that average total lead concentrations for all eight DUs were well below the project defined AL of 200 mg/kg. Based on these findings, ETC suspects that the deviation of these results from initial DU11 findings may have been caused by nuggets or discrete pieces of lead within the soil. Therefore, based on the analytical results of the additional sampling activities, ETC suspects that the initial results for DU11 may not necessarily reflect the average lead concentrations that are likely to be encountered throughout DU11. In addition, given the future commercial/industrial land use of the Property coupled with the results of the additional sampling activities, potential plant uptake is not considered a concern. Therefore, based on the data, lead was removed from consideration as a contaminant of concern for the Property.

Based on review of the data obtained from this site investigation and comparison of COPC concentrations to applicable DOH EALs pertaining to commercial/industrial land use, there appear to be no retained environmental hazards for the site. As such, no further action appears necessary to address concerns associated with the former solid waste operations on the Property.

3.0 INTRODUCTION AND PURPOSE

EnvirnServices & Training Center (ETC), LLC was contracted by A&B Properties, Inc. (A&B) to conduct a site investigation at the project site known as the former Punnene Piggery identified as Tax Map Key (TMK) (2) 3-8-8 Parcel 19 (herein referred to as the “Property”) and located along South Firebreak Road in Punnene, Hawaii.

The overall objective of the site investigation was to determine whether contaminants of potential concern (COPC) concentrations exceed the project Action Levels (ALs). The COPC investigated were established based on former solid waste operations and cleanup activities on the Property.

This report presents ETC’s findings during site investigation activities at the Property. The data obtained during the investigation will help determine whether additional investigation and/or corrective actions are warranted, based on the decision rules developed in ETC’s February 2011 Site Investigation Work Plan, Former Punnene Piggery. The initial ALs for this project were identified as the default lowest Hawaii Department of Health (DOH) Environmental Action Levels (EALs) pertaining to unrestricted land use for areas where groundwater is not a potential drinking water source and where the nearest surface water body is less than 150 meters from the site.

Specifically, the following tasks were completed:

- Established eleven separate surface soil decision units based on ETC’s February 2011 Site Investigation Work Plan.
- Collected one multi-increment surface soil sample, consisting of 50 increments, from each decision unit.
- Collected two field replicate multi-increment surface soil samples (50 increments) from one of the eleven decision units for use as batch quality control.
- Submitted the multi-increment samples to Torrent Laboratory, Inc. (TLI) in Milpitas, California for incremental subsampling in accordance with the US EPA’s November 2003 Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples (EPA 600/R-03/027).
- Instructed TLI to analyze the samples on a 5 to 7 working day turn around time for the eight Resource Conservation and Recovery Act (RCRA) metals via EPA Method 6010B/7471, total petroleum hydrocarbons (TPH) as diesel (D) and TPH as oil (O) via EPA Method 8015 modified, polynuclear aromatic hydrocarbons (PAHs) via EPA Method 8270 SIM, and polychlorinated biphenyls (PCBs) via EPA Method 8082.
- Established an additional eight, 0.5-acre surface soil decision units within DU11 based on ETC’s June 2011 Addendum No. 2, February 2011 Site Investigation Work Plan.
- Collected one multi-increment surface soil sample, consisting of 50 increments, from each of the eight additional decision units.
• Collected two field replicate multi-increment surface soil samples (50 increments) from one of the eight additional decision units for use as batch quality control.

• Submitted the multi-increment samples to TestAmerica – Honolulu (TA-H) in Aiea, Hawaii for incremental subsampling in accordance with the US EPA’s November 2003 Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples (EPA 600/R-03/027).

• Instructed the TA-H to analyze the samples on a 10 to 15 working day turn around time for total lead via EPA Method 6010B/7471.

• Prepared this Site Investigation Report which includes the results of the investigations, summaries of analytical data with comparison to applicable action levels pertaining to commercial/industrial land use, and any recommendations for further investigation activities and/or corrective actions.

4.0 BACKGROUND

4.1 Site Description and Land Area

The Property consists of approximately 86 acres of land located in Puunene, Maui, Hawaii and is identified as Tax Map Key (TMK) identification number (1) 3-8-8. Parcel 19. The Property was formerly owned by A&B – Hawaii, Inc. The Property is currently owned by CMHY 2011 Investment LLC.

The Property is relatively flat with a slight downward gradient to the west and is situated at an elevation of approximately 110 to 130 feet above mean sea level (msl). Areas adjacent to the Property consist of Maui Raceway Park and agricultural land.

4.2 Site Geology

The island of Maui is the second largest of the Hawaiian Islands. Maui consists of two shield volcanoes with a connecting isthmus. The volcanic rocks of the West Maui Mountains (West Maui Volcano) are divided into three series. The oldest is the Wailuku Volcanic Series, followed by the Honolua and Lahaina Volcanic Series. The Wailuku Series built the major shield volcano comprised of basaltic lava flows and associated pyroclastic deposits. The Lahaina Series then covered the western slopes of the West Maui Volcano.

The Haleakala Volcano last erupted around 1790 and is presently dormant. The shield of the volcano is composed of a’a and pahoehoe lava flows of tholeiite, theolite olivine basalt, and andesite known as the Honomana Volcano Series. The Kula Volcanic Series overlays the Honomana Series and is comprised of hawaiite, alkalic olivine basalt, and andesite. Lava flows from the Haleakala volcano formed the Maui Isthmus and are made up of permeable basalt and erosional deposits (Macdonald, et al., 1983).

Soil at the Property is classified by the U.S. Department of Agriculture (USDA) Soil Conservation Service as Waikoa extremely stony silty clay loam, 3 to 25 percent slopes (WID2). As described by the USDA, WID2 soils consist of moderately deep, well drained soils from weathered rock. In a representative profile, the surface layer consists of extremely stony silty clay loam, the subsoil is a stony silty clay loam, and the subsoil consists of bedrock. Annual rainfall amounts to 15 inches. WID2 soils are generally used for pasture and irrigated sugarcane (USDA, 1972).

4.3 Site Hydrogeology

The primary drinking water in the Hawaiian Islands is drawn from basin groundwater. Basal groundwater is formed by rainwater percolating down through the residual soils and permeable volcanic rock. The portion of the island situated below sea level is in contact with ocean salt water, except within rift zones of the volcanoes where fresh water forms a basal lens called the "Glyiben-Herber" lens. A zone of transition between the fresh groundwater and the ocean salt water occurs due to the constant movement of the interface as a result of tidal fluctuations, seasonal fluctuations in recharge and discharge and aquifer development (MacDonald, et al., 1983).
Downward percolation of rainwater may be stopped by impermeable layers such as dense lava flows, alluvial clay layers and volcanic ash. The groundwater then forms a perched or high level aquifer, which is not in contact with salt water. Recharge of the aquifer occurs in areas of high rainfall, which are the interior mountainous areas. The groundwater flows from the recharge areas to the areas of discharge along the shoreline. Frictional resistance to groundwater flow causes it to pile up within the island until it attains sufficient hydraulic head to overcome friction. Thus, basal ground water tends to slope toward the shoreline.

The Property is underlain by the Kahului Aquifer System, which is part of the Central Aquifer Sector of the island of Maui. The aquifer is classified by Min and Lau (1990) with the system identification number 60301214 (33231). This system includes an unconfined high level perched aquifer. The groundwater in this aquifer is described as having no potable use and is neither a drinking water resource nor ecologically important. The groundwater has a low salinity (<50 to 1,000 mg/L Cl-), and is considered replaceable with a high vulnerability to contamination (Min and Lau, 1990).

The Property is further underlain by a confined aquifer of the same system. The aquifer is classified with the system identification number 60301111 (12212) and is an unconfined basal formation in flank compartments. The groundwater in this aquifer is described as currently being used, however, is neither a drinking water resource nor ecologically important. The groundwater also has low salinity (250 to 1,000 mg/L Cl-). It is described as irreplaceable with a moderate vulnerability to contamination (Min and Lau, 1990).

The Property is located below the Underground Injection Control (UIC) line and the groundwater is not considered a drinking water resource. Therefore, the Hawaii Department of Health (DOH) Environmental Action Levels (EALs) for soil in areas where groundwater is not current or potential drinking water source and where the nearest surface water body is less than 150 meters from the site will be used as a reference. Groundwater is anticipated at a depth of approximately 110 to 120 feet below ground surface (hgs). In addition, there is an existing non-potable water well located on the north portion of the Property.

4.4 Surface Water

The nearest surface water body appears to be an Hawaiian Commercial & Sugar (HC&S) irrigation reservoir located adjacent to the northern border of the Property. In addition, a normally dry, concrete lined irrigation ditch is located along the western boundary of the Property.

4.5 Site Background

The Property was formerly used as a piggery for over 25 years. As part of an agreement with the former owner, Mr. Larry Poffenroth occupied the property and took over the piggery operations in or around 1995; he is believed to have begun solid waste management activities at the property shortly thereafter. Poffenroth occupied the property, and commenced his solid waste management activities, without the knowledge or consent of the Property landowner, A&B Properties. Initially, Mr. Poffenroth's solid waste management activities were limited to scrap metal storage and processing, however, he subsequently expanded and began accepting green waste, construction/demolition waste, and other miscellaneous waste streams. In addition, large amounts of food waste were brought to the Property as pig feed, which resulted in discarded empty food packaging materials being spread throughout much of the north portion of the Property. In late 2007, immediately following Mr. Poffenroth's eviction, A&B Properties began solid waste cleanup activities at the Property. Solid waste cleanup activities were completed in February 2011.

4.6 Current and Future Land Use

Currently, the Property is a vacant open area. Approximately 10 to 15 acres of land at the southern end of the Property is used for sugarcane cultivation. This area was not utilized by Mr. Poffenroth and therefore is not included as part of this investigation. The project area is located on agricultural lands and the current land owner intends to develop the property for commercial or industrial use.

4.7 Contaminants of Potential Concern

Prior to the start of this investigation there were no data regarding potential contaminants at the Property; currently, there are data. Based on previous land use and observations made during a site walk, the following contaminants of potential concern (COPCs) were proposed for the purposes of this site investigation.

- Total petroleum hydrocarbons (TPH) as diesel-range organics (TPH-D)
- TPH as heavy oil-range organics (TPH-O)
- DOH polynuclear aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Metals regulated under the Resource Conservation and Recovery Act (RCRA 8 metals)
With the exception of limited surface staining, there is no evidence that the above contaminants exist in the site soils. Therefore, the aforementioned COPC were selected based on the observation of metal remediation activities previously performed at the site, the former presence of painted and/or petroleum-containing equipment, and the former presence of miscellaneous solid waste throughout the Property. As noted in Section 4 of the Interim Final Technical Guidance Manual (TGM), Hawaii Department of Health (DOH) Hazard Evaluation and Emergency Response (HEER) Office, June 21, 2009, volatile constituents are typically not sampled in surface soils, therefore, TPH as gasoline and its associated volatile constituents (i.e. benzene, toluene, etc.) were not included as a COPC for this site investigation.

### 4.8 Contaminant Source Areas

The Property was historically used to conduct various solid waste management activities, including but not limited to general storage and scrap metal processing, and surface soils at the Property may have been impacted by these activities. Several specific potential sources of contamination were identified during previous site inspections. Solid waste management activities were conducted primarily on the north portion of the Property and in isolated areas of the south portion of the property while Mr. Poffenroth’s piggery operations were limited to the north portion of the Property. Much of the Property consists of open land covered with kiihew trees and other vegetation and was not used by either the piggery or solid waste operations. The north and south portions of the Property are separated by a fence.

Site inspection of the Property identified several contaminant source areas on the north portion of the Property. Specifically, ETC noted several large scrap metal stockpiles, a non-PCB transformer storage area, a vehicle and drum storage area, and an apparent shop area. As part of Poffenroth’s operation and during the ongoing cleanup activities, scrap metal processing was conducted on and around a paved roadway located on the north portion of the Property. The COPC associated with these areas may include TPH-D, TPH-O, PAHs, PCBs and RCRA 8 Metals. The following contaminant source areas were identified and mapped out in Appendix 1, Figure 2:

- Scrap Metal Stockpiles and Transformer Storage Area (Decision Unit 5)
- Vehicle and Drum Storage Area (Decision Unit 2)
- Shop Area (Decision Unit 1)
- Scrap Metal Processing Area (Decision Unit 3)
- Miscellaneous Scrap Metal and Debris (Decision Unit 4)

In addition, a temporary hazardous materials storage area (i.e. e-waste, etc.) was designated on a concrete pad located north of the scrap metal processing area. Scrap metal and other miscellaneous solid waste (i.e. scrap metal, rubber, etc.) was stored within open areas. The COPC associated with these areas may include RCRA 8 Metals. The following contaminant source areas were identified and mapped out in Appendix 1, Figure 2:

- Miscellaneous Hazardous Materials Storage Area (Decision Unit 7)
- Miscellaneous Scrap Metal within Open Areas (Decision Unit 8)

Note that the remaining areas of the north portion of the Property were reportedly heavily vegetated and not used for solid waste management activities. In addition, no visual evidence of any previous solid waste management activities was observed in these areas during ETC’s site inspection activities.

Site inspection indicated that solid waste storage in the south portion of the Property was concentrated in four areas. The south portion of the Property was generally covered in moderate to heavy vegetation; therefore, solid waste storage was limited to areas along interior roads and in other paved areas in this part of the Property. Specifically, ETC personnel identified a battery storage area, a scrap metal and cathode ray tube televisions/monitors (CRT) storage area, and miscellaneous scrap metal pile. COPC associated with these areas may include RCRA 8 Metals. In addition, an area of abandoned vehicles, unakers, and CRT storage was observed on the south portion of the Property. COPC associated with this area include TPH-D, TPH-O, PAHs, PCBs and RCRA 8 Metals. The following contaminant source areas were identified and mapped out in Appendix 1, Figure 2:

- Battery Storage Area (Decision Unit 9)
- Scrap Metal and CRT Storage Area (Decision Unit 11)
- Miscellaneous Scrap Metal Pile (Decision Unit 10)
- Vehicle/Tanker/CRT Storage Area (Decision Unit 6)

The remaining areas of the south portion of the Property were reportedly not used for solid waste management activities and consisted of moderate to heavy vegetation. In addition, no visual evidence of any previous solid waste management activities was observed in these areas during ETC’s site inspection activities.

### 4.9 Conceptual Site Model

A conceptual site model (CSM) provides a generalized framework regarding site-specific conditions relevant to potential contaminants, contaminant sources, migration pathways, routes of exposure, potential receptors, and environmental hazards (i.e., leaching to groundwater/ discharge to surface waters, ecological toxicity) that may be affected by the contaminants. Establishment of this framework is essential for assessing environmental hazards associated with the contaminants, determining which receptors are at risk, determining appropriate remedial strategies, and addressing unacceptable hazards.
The following environmental hazards were initially considered:

- Direct exposure to human health.
- Leaching and subsequent threats to groundwater resources.
- Threats to terrestrial habitats; and
- Gross contamination and general resource degradation concerns.

### 4.9.1 Receptors of Concern

When identifying potential receptors, plausible exposure under both current and future land-use should be evaluated. Accordingly, potential receptors are identified for both current and future use scenarios. For the purposes of this investigation, the following potential receptors were identified:

- Current and future property users
- Current and future off-site property users
- Future site construction workers
- Trespassers
- Terrestrial ecological receptors
- Aquatic ecological receptors

### 4.9.2 Exposure Pathways

Exposure is defined as the contact of an organism with a chemical or physical agent. An exposure pathway is defined as "the course a chemical or physical agent takes from a source to an exposed organism." It describes "a unique mechanism by which an individual or population is exposed to chemicals or physical agents or originating from a site." In order for an exposure pathway to be considered potentially complete, four elements must exist:

1. a source or release from a source;
2. a transport/exposure media;
3. an exposure point (point of contact with the contaminated medium); and
4. an exposure route. The exposure pathways that may be present at the Property are described below.

**A. Soil Exposure Pathway**

Direct contact with soil may result in incidental oral ingestion and/or dermal absorption of COPC. Although generally associated with surface soil, direct contact may also occur with subsurface soil during trenching and excavation work.

**B. Air Exposure Pathway**

Air exposure pathways become potential routes of exposure when COPC enter the air via volatilization or via adsorptions to fugitive dust particles. Volatilization occurs when COPC partition to the air. Such volatilization may occur from surface soil, subsurface soil, and/or groundwater. When considering volatilization from subsurface soil or groundwater, the transport of COPC can occur through void spaces in unsaturated soils, asphalt, and concrete to the outdoor air or to future indoor air through foundation cracks. For this Property, volatilization is not a concern due to the suspected semi- to non-volatile nature of the COPC.

Generation of fugitive dust may occur through disturbance of affected soil, such as wind or construction activities. Dust particles may be inhaled, may settle on human skin and be ingested (hand to mouth), and/or may settle on vegetation that may be ingested by humans.

**C. Groundwater Exposure Pathway**

Groundwater beneath the site may have been impacted by surface spills through leaching from impacted soils. Receptors may be exposed to COPC in the groundwater by direct contact or by inhaling volatile COPC emitted from the groundwater to air. For this site, ingestion of the groundwater is not anticipated since the aquifer is not considered to be usable as a drinking water resource. In addition, a prospective purchaser of the Property completed an investigation of the on-site well and concluded that the water is in fact not suitable for drinking water use. The investigation also indicated that the water is suitable for non-potable uses (i.e., irrigation, etc.). As such, although ingestion of the groundwater is unlikely, direct human contact may occur. Note that the groundwater investigation also indicated that none of the regulated drinking water contaminants were identified in the groundwater at levels of concern.

Inhalation of volatile COPC is not anticipated under current site conditions due to the suspected semi- to non-volatile nature of the COPC and the length of time any potential spills or releases may have been present at the site. Although direct ingestion of groundwater at the property is unlikely, the potential exists for contaminants to leach into the groundwater and to migrate or be drawn into downgradient wells.

Ecological receptors may also be affected in shallow marine environments within groundwater discharge zones. This is the primary concern associated with the groundwater exposure pathway. Note that site investigation results indicated that investigation of the groundwater at the Property is not warranted at this time.

**D. Sediment Exposure Pathway**

Receptors may be exposed to COPC in sediment from the Property as a result of surface runoff during storm events to nearby drainage ways, which may eventually discharge to the ocean. Sediment may accumulate in the marine environment and be available for contact with various receptors. Recreational users of the marine environment (swimmers, surfers, fishermen) may come into direct contact with sediment and be exposed through oral ingestion and/or dermal absorption. Ecological receptors may live directly in the impacted sediment and may be exposed to COPC through feeding within the sediment. As a secondary transport mechanism, COPC may accumulate in ecological receptors (i.e., fish, shellfish), then be ingested by human receptors.
4.10 Project Action Levels

The initial Action Levels (ALs) that will be used to evaluate data obtained from this site investigation will be the Hawaii Department of Health (DOH) Environmental Action Levels (EALs) as described in the DOH’s Summer 2008 Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater document and the corresponding March 2009 update (referred to herein as the EHE document). The ALs noted below are based on the default lowest DOH ALs pertaining to unrestricted land use for areas where groundwater is not a potential drinking water source and where the nearest surface water body is less than 150 meters from the site. Table 1 presents the ALs proposed for the site investigation.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Action Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPH-D</td>
<td>300</td>
</tr>
<tr>
<td>TPH-O</td>
<td>500</td>
</tr>
<tr>
<td>PAHs</td>
<td></td>
</tr>
<tr>
<td>Acenaphthene</td>
<td>21</td>
</tr>
<tr>
<td>Acenaphthylene</td>
<td>33</td>
</tr>
<tr>
<td>Anthracene</td>
<td>2.5</td>
</tr>
<tr>
<td>Benzo[a]anthracene</td>
<td>1.5</td>
</tr>
<tr>
<td>Benzo[b]pyrene</td>
<td>0.15</td>
</tr>
<tr>
<td>Benzo[k]fluoranthene</td>
<td>1.5</td>
</tr>
<tr>
<td>Benzo[g,h,i]perylene</td>
<td>2.7</td>
</tr>
<tr>
<td>Benzo[a]pyrene</td>
<td>1.5</td>
</tr>
<tr>
<td>Chrysene</td>
<td>11</td>
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<tr>
<td>Dibenz[a,h]anthracene</td>
<td>0.15</td>
</tr>
<tr>
<td>Dibenzothiophene</td>
<td>4.0</td>
</tr>
<tr>
<td>Fluoranthene</td>
<td>7.3</td>
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<tr>
<td>Indeno[1,2,3-cd]pyrene</td>
<td>3.5</td>
</tr>
<tr>
<td>Naphthalene</td>
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<tr>
<td>Phenanthrene</td>
<td>11</td>
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<tr>
<td>Pyrene</td>
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</tr>
<tr>
<td>1-Methylnaphthalene</td>
<td>5.1</td>
</tr>
<tr>
<td>2-Methylnaphthalene</td>
<td>5.1</td>
</tr>
<tr>
<td>PCBs</td>
<td>1.1</td>
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<tr>
<td>Metals</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>20</td>
</tr>
<tr>
<td>Barium</td>
<td>750</td>
</tr>
<tr>
<td>Cadmium</td>
<td>12</td>
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<tr>
<td>Chromium</td>
<td>500</td>
</tr>
<tr>
<td>Lead</td>
<td>200</td>
</tr>
<tr>
<td>Mercury</td>
<td>4.7</td>
</tr>
<tr>
<td>Selenium</td>
<td>70</td>
</tr>
<tr>
<td>Silver</td>
<td>20</td>
</tr>
</tbody>
</table>

5.0 SUMMARY OF SITE HISTORY

The property was most recently used as a piggery and an unpermitted solid waste management facility. The solid waste management activities were assumed to have started in 1995 when Mr. Larry Paffenroth took over piggery operations as part of an agreement with the former tenant. Mr. Paffenroth reportedly began conducting solid waste management activities without the knowledge or consent of the former Property landowner, A&B. From 1996 to 2007, A&B attempted to force Mr. Paffenroth to cease both the solid waste management activities and piggery operations and to vacate the site. Initially, Mr. Paffenroth’s solid waste management activities were limited to scrap metal storage and processing; however, he subsequently expanded and began accepting green waste, construction/demolition waste, and other miscellaneous waste streams. In addition, large amounts of food waste were brought to the Property as pig feed, which resulted in discarded empty food packaging materials being spread throughout much of the north portion of the Property.

In October 1998, the Property was inspected by the DOH Solid Waste Section (SWS). As a result, on November 27, 1998, the DOH SWS issued Mr. Larry Paffenroth, operator of the Property, a letter indicating several violations at the Property. In addition, the letter ordered Mr. Paffenroth to cease and desist all salvaging operations, and stated that a formal Notice of Violation (NOV) would be issued if he did not respond within 15 days. The DOH SWS reportedly issued a second letter, dated December 23, 1998 regarding the closure of the illegal solid waste management operations at the Property. Since no response was received for the November and December 1998 letters, the DOH SWS issued a "warning letter" on May 5, 1999 indicating that if closure of the facility is not completed as requested, the DOH may institute an administrative or civil action for the current and prior solid waste violations. No apparent further action was taken or pursued by the DOH SWS from May 1999 to June 2005. When an anonymous complaint was reported to the DOH SWS that Mr. Paffenroth was accepting white goods and baling white goods and cars at the piggery.

As a result of the anonymous complaint, the DOH SWS conducted a site inspection of the Property in September 2005. The inspection report indicated that an accumulation of solid waste (i.e. scrap metal, green waste, construction and demolition waste, etc.) was observed on the Property. Subsequently, the DOH SWS issued Mr. Paffenroth a "Letter of Interest," dated September 19, 2005, requesting that removal and proper disposal of the solid waste on the Property be completed within one year.
In late 2007, A&B was able to evict Mr. Poffenroth and all the remaining pigs were subsequently removed from the Property in 2008. Immediately following the eviction, A&B began solid waste cleanup activities at the Property; however, these efforts were hindered by Mr. Poffenroth’s bankruptcy filing and associated legal issues. Following the bankruptcy court orders allowing cleanup of scrap metal from the Property, A&B requested a solid waste management permit exemption for the cleanup activities. Subsequently, the DOH SWS granted the exemption and cleanup activities commenced. ETC understands that solid waste cleanup activities were completed in February 2011. As part of the planned cleanup activities, A&B prepared to conduct a “comprehensive site assessment” of the Subject Property. As such, ETC prepared a Site Investigation Work Plan (SI-WP), dated February 2011 to investigate whether the surface soils at the Property have been impacted by the former solid waste management activities. This report serves as documentation of the sampling activities described in ETC’s February 2011 SI-WP.

6.0 SUMMARY OF DATA QUALITY OBJECTIVES

This investigation was driven by the former solid waste cleanup activities on the Property. The data quality objectives (DQOs) process is typically described in a work plan prepared prior to site sampling activities to define the criteria for environmental data collection operations. The process includes stating the problem to be investigated, identifying the decisions that need to be made, identifying the inputs to the decision making process, defining the boundaries of the investigation, developing decision rules that will be applied, specifying tolerable limits on the decision errors, and optimizing the sampling design to be used in the investigation. The following is a brief description of the DQOs used for this investigation.

6.1 Problem Statement

Former operations at the Property include the staging of solid wastes and the processing of metal for subsequent reclamation. Currently, no environmental data exist for the Property; therefore, surface soil sampling is needed to determine potential impacts associated with previous site operations. As such, for the purposes of the sampling activities described herein, the problem statement to be addressed in this site investigation is:

“In order to determine whether previous site usage has adversely impacted site soils and whether further evaluation and/or corrective action may be appropriate, initial data for COPC in surface soil is needed.”

6.2 Decision Making

A decision statement was formulated for the Principal Study Question (PSQ). The decision statement links the alternative actions (AAs) with the (PSQ) and expresses a choice between AAs based on the outcome of the investigation. The decision statement for this project is as follows:

“Determine whether mean COPC concentrations in the surface soil of each decision unit at the Property exceed appropriate ALs and may require additional investigation and/or corrective actions to mitigate exposure pathways; if not, then no further action will be performed to address the COPC.”

6.3 Decision Inputs

The inputs to the decision were identified as new data obtained through collection of surface soil samples submitted to a laboratory using standardized analytical methods (i.e., standard EPA analytical methods described in the Third Edition of SW-846 On-line Test Methods for Evaluating Solid Waste Physical Chemical Methods) and through comparison to the rule-based project ALs.
6.4 Investigation Boundaries

The population of interest was identified as surface soil (defined as the top 12-inch layer of soil) within accessible areas of the Property. Soil will be defined as any portion of the representative soil samples that pass through a 2-millimeter sieve. The usability of the data gathered during this investigation was not considered to be constrained by temporal boundaries since the COPC being investigated is relatively persistent in the environment and will not greatly vary in concentrations in the soil over relatively short time periods.

6.5 Decision Rules

The decision rules were then formulated to govern the decision-making process. Using the information gathered in the previous steps of the DQO process, the following decision rules were formulated:

"If COPC concentrations in surface soil decision units at the Property exceed the As established for this project, then additional evaluation and/or corrective actions may be needed to mitigate exposure pathways. If COPC concentrations in surface soil decision units at the Property are below the As established for this project, then no further action will be warranted and the exposure pathways will be considered incomplete."

6.6 Decision Error

Decision errors occur when sample data misleads the decision maker(s) into making a wrong decision and therefore taking the wrong response action. The possibility of a decision error exists since decisions are based on sample data that may be inaccurate due to random and systematic errors incurred at different stages of acquisition.

In order to control the various sources of decision error, a sampling methodology designed to minimize the sources of significant decision error was selected (multi-increment sampling). In addition, it was deemed prudent to incorporate a statistics-based benchmark for margin of error. As such, the relative standard deviation was identified as a means to evaluate the potential effect of error on the investigation process.

6.7 Sampling Design

In order to minimize the occurrence of decision errors, a statistics-based sampling design was selected to generate data that provides an effective representation of existing mean COPC concentrations within the Property. The objective of the sampling design is to provide sufficient data to resolve the Decision Statement described in Section 6.2.

A multi-increment sampling approach for collection and analysis of soil samples was selected. Multi-increment sampling is a method employed to obtain representative samples that exhibit mean concentrations of the material being sampled and that account for the variability of concentrations within that particular material. Such a method was developed to provide accurate (closeness of the sample value to its actual value) and precise (closeness of repeated sample values, or repeatability) data. If data is considered sufficiently accurate and precise, then the data can be considered reliable estimates of the true concentrations.

Sampling accuracy is usually achieved by some type of random sampling. In random sampling, every unit in the population has a theoretically equal chance of being sampled and measured. Consequently, statistics generated by the sample (i.e., mean and standard deviation of the mean) are unbiased (accurate) estimators of true population parameters. In other words, the sample is representative of the population.

Sampling precision is commonly achieved by taking an appropriate amount of samples from the population. By looking at the equation for the standard deviation of the mean of a sample (standard error of the mean), precision increases (variability decreases) as the number of samples increase, although it is not a one-to-one relationship. Another method to increase the sampling precision is to increase the physical size (weight or volume) of the samples that are collected and analyzed. This technique has the effect of minimizing between-sample variation and decreasing the standard deviation of the mean of the sample. Increasing the number of samples collected and/or the size of the samples from a population not only increases sampling precision, it also has the secondary effect of increasing sampling accuracy.

The multi-increment sampling technique takes into account the need for sufficiently accurate and precise sample data. The technique includes requirements for: 1) collection of random samples; 2) collection of a larger number of samples; and 3) collection of a physically larger sample volume than standard discrete sampling techniques.

The multi-increment sampling approach will provide mean COPC concentrations for the specific decision unit that the sample is meant to represent. Therefore, defining the appropriate decision units is essential for meeting the project DQOs. For the this project, eleven (11) decision units were defined for the Property based on the former usage and potential contaminant source.
7.0 FIELD INVESTIGATION ACTIVITIES

This section provides information regarding the selection of decision units and the specific field methods employed to perform sampling activities during this site investigation. The activities described herein were performed in general accordance with HEER TGM and the EHE Document.

7.1 Selection of Decision Units

As previously described in Section 6.7, eleven (11) decision units were identified for the project site. Each decision unit was limited to areas of the Property with accessible surface soil conditions (i.e., areas where there are no structures or pavements).

7.2 Soil Sampling Activities

Prior to commencing soil sample collection, ETC personnel utilized available Property maps and previously collected global positioning system (GPS) coordinates to demarcate the specific areas of interest. Based on the population of the interest, eleven (11) multi-increment surface soil decision units were established throughout the Property. On March 1, 2011, ETC personnel mobilized to the site to conduct the field sampling activities. Collection of incremental samples were performed in a stratified, random manner (i.e., collect incremental samples from random locations within each decision unit, but ensuring that each portion of the decision unit is represented) within each decision unit. ETC personnel conceptually subdivided each decision unit and collected a proportional amount of increments from each area.

The surface conditions throughout the Property primarily consisted of loose to very compact hard soil, therefore, hand picks were used to penetrate and loosen the surface soil at each increment location. ETC personnel used pre-cleaned stainless steel trowels to collect soil increments from 50 locations in each decision unit. Increments were placed into resealable plastic bags. Prior to handling any soil, ETC personnel donned a new pair of disposable gloves (latex/vinyl/nitrile). Gloves were interchanged prior to collection of each multi-increment sample.

All sample containers were labeled with the project name, sample identification number, date/time of sample collection, and sampler’s initials. The samples were kept in a sample cooler with ice pending delivery to the contracted laboratory.

7.3 Decontamination and Investigation-Derived Waste

Re-usable sampling tools, such as stainless steel trowels and hand picks, were decontaminated by washing with a brush and potable water - Alconox™ solution, rinsing with potable water, then rinsing with distilled water. Decontamination fluids were left to evaporate on-site over relatively impermeable surfaces.

Any disposable sample collection equipment (i.e., used PPE) were containerized at the end of each work day and disposed as solid waste.

7.4 Summary of Environmental Samples

A total of thirteen (13) multi-increment soil samples (eleven primary samples, two field replicate samples) were collected from the site. The field replicate samples were collected from one decision unit were obtained and collected in the same manner as the primary sample – each consisted of 50 soil increments. The samples are described below:

- 2048.DU1 – Shop Area
- 2048.DU2 – Vehicle/Drum Storage
- 2048.DU3 – Processing Area
- 2048.DU4 – Misc. Scrap/Debris
- 2048.DU5 – Large Scrap Metal Stockpiles and Transformer Storage (No-PCBs)
- 2048.DU6 – Vehicle/Tanker/CRT Storage
- 2048.DU7 – Misc. HazMat Storage (e-waste, etc.)
- 2048.DU8 – Misc. Scrap Metal with Open Areas
- 2048.DU9 – Battery Storage Area
- 2048.DU10 – Misc. Scrap Metal Pile
- 2048.DU11 – Scrap Metal and CRT Storage Area
- 2048.DU12 – Field Replicate of 2048.DU3
- 2048.DU13 – Field Replicate of 2048.DU3
8.0 SAMPLE CONTROL PROCEDURES

This section provides information regarding specific control procedures utilized during site activities to maintain control over sample management.

8.1 Sample Identification

The sample identification, or sample naming, procedure describes the naming convention for samples collected and analyzed during this field investigation. The following format was used for multi-increment soil samples collected at the property:

2048.DUX where:

- 2048 = ETC project number
- DUX = Decision Unit Number

Field replicate samples were labeled in a similar manner as described above using fictitious decision unit number designations such that the samples were indistinguishable from primary samples.

The labeling method was used for all samples collected at the site. Each sample container (resealable plastic bag) was labeled with the sample ID, date and time of sampling, and sampler’s initials using an indelible ink marker.

8.2 Sample Chain-of-Custody and Transportation

Chain of custody documentation was maintained to track possession of the samples. All samples collected during the investigation were recorded on chain of custody forms. Information on the chain of custody forms included:

- Sample ID number
- Matrix
- Date and time of collection
- Number and type of containers
- Analytical method to be performed
- Number of pages

An ETC representative and/or its shipping carrier retained custody of the samples at all times prior to hand delivery to Torrent Laboratory Inc. (TLI) in Milpitas, California. Upon delivery of the samples, ETC representatives signed the chain of custody form to indicate the date and time custody of the samples were relinquished and a TLI employee signed the form to indicate the change in custody. Copies of the completed chain of custody forms have been included with the laboratory data packages in Appendix III.

8.3 Sample Preservation and Handling Procedures

Sample handling and preservation were conducted in accordance with the respective method requirements. Table 2 below summarizes these requirements.

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Analytical Method</th>
<th>Sample Container Siz./Type</th>
<th>Preservation Temperature</th>
<th>Holding Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPH-D, TPH-O</td>
<td>EPA 8015 mod</td>
<td>L-gallon resealable polyethylene bas</td>
<td>Cool, 4°C</td>
<td>14 days</td>
</tr>
<tr>
<td>PAHs</td>
<td>EPA 8270C</td>
<td>L-gallon resealable polyethylene bas</td>
<td>Cool, 4°C</td>
<td>14 days</td>
</tr>
<tr>
<td>Metals</td>
<td>EPA 6010B/7471</td>
<td>L-gallon resealable polyethylene bas</td>
<td>Cool, 4°C</td>
<td>6 months</td>
</tr>
<tr>
<td>PCBs</td>
<td>EPA 8015</td>
<td>L-gallon resealable polyethylene bas</td>
<td>Cool, 4°C</td>
<td>14 days</td>
</tr>
</tbody>
</table>

Note: Preservation and holding times in accordance with EPA SW-846: Revision 7, Test Method for Evaluation Solid Waste.

8.4 Laboratory Analytical Methods

ETC delivered a total of eleven primary multi-increment samples and two field replicate multi-increment samples to TLI in Milpitas, California with completed chain of custody documentation. TLI performed multi-increment subsampling in accordance with the US EPA’s November 2003 Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particular Laboratory Samples (EPA 600/R-03/0327), which included air-drying, sieving, and obtaining representative subsamples using either an appropriate mechanical splitter or through multi-increment sampling protocols. TLI was instructed to analyze the processed samples for TPH-D and TPH-O via EPA Method 8015 modified, PAHs via EPA Method 8270C, RCR/RA metals via EPA Method 6010B/7471, and PCBs via EPA Method 8015.

8.5 Laboratory Quality Control

Laboratory quality control procedures for soil analyses followed the specific US EPA methods as described in SW-846. Procedures included the measurement of surrogate standard recoveries, method blanks, laboratory control samples (LCS), matrix spike (MS) samples, and MS Duplicate (MDS) samples. Quality control data are initially reviewed by the laboratory project managers to ensure that data meets acceptable standards for use and reliability. In instances where potential problems were encountered during analyses (i.e., relative percent differences or percent recoveries exceed initially specified control limits, matrix interferences, etc.), the laboratory project manager evaluated the issue and made a determination on how such problems affect the data usability. In these instances, data qualifiers or flags are used to indicate which data may be affected by the issue.

Generally, ETC personnel evaluate the laboratory data packages as they become available. For this particular project, review of laboratory quality control data did not reveal any significant issues associated with data usage.
8.6 Field Quality Control

The data obtained through collection of multi-increment field replicate samples were used for field quality control purposes. ETC collected one primary multi-increment sample and two field replicate multi-increment samples (i.e., field triplicate samples) at a frequency of approximately one set of field triplicate samples for every ten primary multi-increment samples (10%) for quality control purposes. The primary sample and the two field replicate samples were collected in the same manner, as if three separate multi-increment samples were being collected from the same decision unit.

For this project, only one set of triplicate samples were collected. These samples were collected from DU3 and labeled 2048.DU12 and 2048.DU13. Table 2 presents the reported concentrations, means, standard deviations, and relative standard deviations for the triplicate samples.

9.0 FINDINGS AND DISCUSSION

Field investigation activities were performed to identify COPC concentrations in the surface soil. A total of thirteen multi-increment soil samples and two field replicate multi-increment soil samples were collected during the initial site investigation activities, and a total of eight multi-increment soil samples and two field replicate multi-increment soil samples were collected during additional field sampling activities of DU11. No deviations were made during ETC’s field sampling activities.

9.1 Analytical Data

Surface soil samples collected during initial site investigation activities were submitted to TLI for multi-increment subsample processing and analysis. In order to account for potential sampling error (i.e., fundamental error due to compositional heterogeneity, grouping and segregation error due to distributional heterogeneity, etc.) and analytical error realized during multi-increment sampling/analysis activities, the results from the multi-increment field replicate samples were used to calculate relative standard deviations (RSDs) for each of the COPC analyzed. These RSDs, reported as percentages, were evaluated to quantify the uncertainty associated with total error (sampling error and analytical error). In instances where the reported COPC concentrations were close in value to their respective DOH EAL, the average RSDs for the COPC were used to evaluate whether uncertainty associated with total error was significant.

9.2 Data Quality Assessment

Since data from multi-increment samples theoretically provides estimates of the mean concentrations in the particular decision unit being assessed, a measure of the variance from the mean is needed to evaluate how that variation affects the decision making process. In an effort to account for variance in the data, the standard deviations were calculated from the triplicate samples collected during the investigation for each COPC (see Table 2 below). The standard deviation, coupled with the calculated means of the triplicate samples, were used to obtain relative standard deviations (RSDs) for each set of triplicate samples. The RSDs were then reviewed to determine the effects of total error on the data set. As shown in Tables 3 and 4, RSDs ranged from 0.0% to 116%. The elevated RSDs are likely due to the low detectable concentrations, non-detect values and estimated values. The calculated standard deviations shown in Tables 3 and 4 were added to the reported concentrations for each COPC and presented reviewed as “adjusted” concentrations. The adjusted concentrations were then used to make decisions regarding whether COPC concentrations present a specific environmental hazard for the decision unit. Evaluation of the adjusted values indicated that in addition to the reported concentrations, the adjusted value of 589 mg/kg for the TPH-O concentration of DU12 (replicate of DU3) exceeded the initial AL of 500 mg/kg. An overall review and evaluation of both laboratory quality control and field quality control information indicated that analytical data obtained during the site investigation can be relied upon to make decisions regarding site.

9.3 Initial Analytical Results and Discussion

Analytical results from ETC’s March 2011 initial site investigation activities are presented in Table 3 below. The final laboratory report is included in Appendix II.
Analytical results from ETC’s March 2011 initial site investigation activities indicated that elevated concentrations of TP4-O and total lead were detected in the multi-increment soil samples collected from DU6 and DU11, respectively. Specifically, analytical results indicated that an average TP4-O concentration of 7.30 mg/kg was reported for the multi-increment soil sample collected from DU6. Although the initial AL of 500 mg/kg was exceeded, the DOH EALs pertaining to leaching (1,000 mg/kg) and direct exposure (2,500 mg/kg) concerns associated with unrestricted land use were not exceeded. In addition, the DU6 findings, analytical results indicated that soil collected from DU11 contained an average total lead concentration of 830 mg/kg, which exceeds the initial AL of 200 mg/kg. The detected total lead concentration also exceeded the DOH EAL of 800 mg/kg pertaining to direct exposure concerns associated with commercial/industrial land use. Based on these findings, ETC proposed additional surface soil sampling within DU11.

9.4 Additional Investigation of DU11

Based on initial site investigation findings, ETC proposed additional surface soil sampling within DU11. Specifically, ETC proposed subdividing DU11 into eight approximate 0.5-acre DUs and collecting a multi-increment surface soil sample from each of the eight DUs.

ETC remobilized to the Property on August 30, 2011 to collect samples from eight primary DUs, defined as DU14 through DU21; and from two field replicate DUs, defined as DU22 and DU23. Note that the quality control samples (i.e. field replicates) were collected in the same manner as the corresponding primary sample, as if three separate multi-increment samples were being collected from the same decision unit.

The eight primary samples and two field replicate samples were delivered to TealAmerica - Honolulu (TA-HI) in Aiea, Hawaii with completed chain of custody documentation. ETC instructed TA-HI to perform multi-increment subsampling in accordance with the EPA’s November 2003 Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples (EPA/600/R-03/027) on each multi-increment sample. Specifically, each multi-increment sample was air-dried, sieved to less than 2 millimeters in particle size, and represented by sub-sampled. TA-HI was instructed to analyze the samples for total lead via EPA Method 6010. Analytical results for the additional investigation of DU11 is summarized Table 4 below.

Site Investigation Report
Former Puyang Pig Farm, South Side Road, Puyang, Hawaii

ETC Project No. 00-20A8
October 2011
### Table 4: Analytical Data – Additional Investigation of DU11

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Lead (mg/L)</th>
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</thead>
<tbody>
<tr>
<td>2008 DU14</td>
<td>37</td>
</tr>
<tr>
<td>2009 DU15</td>
<td>17</td>
</tr>
<tr>
<td>2008 DU16</td>
<td>30</td>
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<tr>
<td>2008 DU17</td>
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<td>2008 DU18</td>
<td>23</td>
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<tr>
<td>2008 DU19</td>
<td>13</td>
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<td>2008 DU20</td>
<td>17</td>
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<tr>
<td>2008 DU21</td>
<td>13</td>
</tr>
<tr>
<td>2008 DU22</td>
<td>36</td>
</tr>
<tr>
<td>2008 DU23</td>
<td>24</td>
</tr>
</tbody>
</table>

**Mean:** 27.67

**Standard Deviation:** 12.74

**Relative Standard Deviation:** 46.60%

**DOH EAL:** 200 mg/L

All results presented as mg/L.

DOH EAL: March 2009 EAL for soil in areas where a drinking water source is not threatened and the nearest surface water body is less than 150 meters from the site.

CI: Default DU EAL for lead of 40 mg/L pertaining to direct exposure concerns associated with Commercial/Industrial Land Use.

Analytical data indicated that average lead concentrations for all eight DUIs within DU11 were well below the project defined AL of 200 mg/L.

### 10.0 ENVIRONMENTAL HAZARD EVALUATION

The environmental hazard evaluation (EHE) process was developed by the Hawaii DOH to serve as a link between site investigation activities and any proposed response activities to be undertaken and evaluated. The EHE is intended to identify potential environmental hazards associated with contaminant concentrations in site media through comparison with DOH EALs established for common environmental hazards.

#### 10.1 Environmental Hazard Evaluation

Average concentrations for multi-increment soil samples were used to determine potential environmental hazards for identified COPC. As noted in Section 4.10, the soil ALs were defined as the default lowest DOH EAL for unrestricted land use. In addition to the ALs for this project, environmental hazards associated with both residential (unrestricted) land use scenarios and commercial/industrial land use scenarios were evaluated and discussed below by decision unit area. This environmental hazard evaluation includes instances where a specific AL or EAL (i.e. direct exposure, gross contamination, leaching, etc.) was exceeded. As indicated, TPH-O and total lead were considered the COPC for this site based on data obtained during this site investigation. A summary of the current TPH-O and total lead DOH EALs (obtained from the DOH HEER Office’s March 2009 EAL SURFER program) for soil in areas where a drinking water source is not threatened and where the nearest surface water body is located within 150 meters of the site is provided in Table 5 below.

#### Table 5: DOH EALs for Soil

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Leaching Threat to Groundwater</th>
<th>Terrestrial Endangered Species Impacts</th>
<th>Residential (Unrestricted) Land Use</th>
<th>Commercial/Industrial Land Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPH-O</td>
<td>Direct Exposure</td>
<td>Gross Contamination</td>
<td>Direct Exposure</td>
<td>Gross Contamination</td>
</tr>
<tr>
<td>Lead</td>
<td>1,000</td>
<td>2,500</td>
<td>500</td>
<td>30,000</td>
</tr>
</tbody>
</table>

All values in milligrams per kilogram (mg/kg) unless otherwise noted.

The COPC concentrations in the soil samples collected during the site investigation were considered to be representative of the concentrations throughout each decision unit. The findings of the site investigation shown in Tables 3 through 4 above include the following:

- Adjusted average concentration of TPH-O in DU6 and DU12 (replicate of DU3) exceed default DOH EALs.
- Reported average concentration of total lead in DU11 exceed default DOH EALs.

The COPC listed above were associated with concentrations detected in the multi-increment soil samples that exceed the default DOH EALs. These default EALs are the lowest EALs assuming unrestricted land use, groundwater beneath the site is not a current or potential drinking water source, and the nearest surface water body is less than 150 meters from the site. A comparison of COPC concentrations that exceed default DOH EALs to all existing DOH EALs are presented in Table 6.
### Table 6: Potential Environmental Hazards

<table>
<thead>
<tr>
<th>Decision Unit/Contaminant</th>
<th>Leaching Threat to Groundwater</th>
<th>Terrestrial Ecological Impacts</th>
<th>Residential (Unprotected) Land Use</th>
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<tbody>
<tr>
<td></td>
<td>Direct Exposure</td>
<td>Gross Contamination</td>
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<td>BW</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>TPH-O</td>
<td></td>
<td></td>
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<tr>
<td>DU12 (replicate)</td>
<td></td>
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1 - Reported concentration for BW exceeds EAL.

The analytical data indicated that elevated concentrations of TPH-O were initially detected in the multi-increment soil samples collected from DU6 and DU12 (replicate of DU3). Specifically, a reported average TPH-O concentration of 730 mg/kg was reported for the multi-increment soil sample collected from DU6 and an adjusted value of 599 mg/kg was reported for DU12. Reported average concentration for DU6 and the adjusted value (reported average concentration plus RSD) for DU12 exceeded the DOH EAL of 500 mg/kg pertaining to gross contamination concerns associated with unrestricted land use. The adjusted value for DU6 (1,228 mg/kg) also exceeded the DOH EAL pertaining to leaching (1,000 mg/kg) concerns. Note that DOH EALs pertaining to direct exposure (2,300 mg/kg) concerns associated with unrestricted land use were not exceed.

Analytical results indicated that soil collected from DU11 contained an average total lead concentration of 330 mg/kg, which exceeds the initial AL of 200 mg/kg. The detected total lead concentration also exceeded the DOH EAL of 400 mg/kg and 800 mg/kg pertaining to direct exposure concerns associated with unrestricted and commercial/industrial land use, respectively. Based on these findings, ETC further subdivided DU11 into eight approximate 0.5-acre DUs and collected a multi-increment surface soil sample from each of the eight DUs. Analytical results for the additional investigation of DU11 indicated that average total lead concentrations for all eight DUs were well below the project defined AL of 200 mg/kg.

### 10.2 Summary of Potential Environmental Hazards

Currently, the Property is undeveloped. However, ETC understands that during the recent land sale of the property, the “new” and “former” land owner agreed to accept a commercial/industrial land use limitation for the property. As such, there are no plans for residential development or development for use by sensitive receptors (i.e. daycare center, school for children, hospital, etc.). Therefore, gross contamination concerns associated with unrestricted land use would not be considered a significant environmental hazard for this Property and will be removed from consideration.

An adjusted TPH-O value (1,228 mg/kg) was reported at a concentration exceeding the EAL pertaining to soil leaching EALs in DU6. Although groundwater was not evaluated as part of this site investigation, a previous groundwater investigation indicated that none of the regulated drinking water contaminants were identified at levels of concern. In addition, the DOH HEER Office generally considers soil leaching EALs associated with petroleum-related constituents to be excessively conservative. For example, as noted in the EHE Document, TPH-O is considered to be biodegradable and “can be expected to naturally degrade over time.” The model is also based on a much higher rainfall than is received in Puna, Hawaii. In addition, the leaching EAL does not consider drinking water utility status (i.e. drinking water vs. non-drinking water) and, as noted in the EHE Document, the leaching EAL is based on the California EPA Los Angeles Regional Water Board’s proposed action level of 1,000 mg/kg, which applies to drinking water aquifers in which the depth to groundwater is less than 20 feet (CRWQCB, 1996). Note that groundwater at the Property is considered to be non-drinking water and groundwater is anticipated at a depth greater than 100 feet. Based this information, soil leaching concerns associated with petroleum-related constituents do not appear to be a significant concern. Therefore, soil leaching would not be considered a significant environmental hazard for this site and will be removed from consideration.

Initial site investigation results for DU11 indicated an average total lead concentration of 830 mg/kg. Results for the additional investigation of DU11 indicated that average total lead concentrations for all eight DUs investigated within DU11 were well below the project defined AL of 200 mg/kg. Based on these findings, ETC suspects that the deviation of these results from the initial DU11 findings may have been caused by nuggets or discrete pieces of lead within the soil. Therefore, based on the analytical results of the additional sampling activities, ETC suspects that the initial results for DU11 may not necessarily reflect the average lead concentrations that are likely to be encountered throughout DU11. In addition, given the future commercial/industrial land use of the Property coupled with the results of the additional sampling activities, potential plant uptake is not considered a concern. Therefore, based on the data, lead was removed from consideration as a contaminant of concern for the Property.
11.0 CONCLUSIONS

The site investigation described herein was performed to assess the Property for contaminant impacts associated with the former solid waste operations and cleanup on the Property. The multi-incurrence samples collected from the site were intended to represent mean concentrations throughout the potential contaminant source areas. As such, the data obtained provides mean concentrations of COPC for use in evaluating potential environmental concerns.

The analytical data indicated that TPH-O and lead were initially detected at concentrations exceeding default DOH EALs. These COPC were evaluated further considering the future commercial/industrial land use of the site. Based on review of the data obtained from this site investigation and comparison of COPC concentrations to applicable DOH EALs, there appear to be no retained environmental hazards for the site. As such, no further action appears necessary to address concerns associated with the former solid waste operations on the Property.

12.0 REFERENCES

- DOH. Summer 2008 (updated in March 2009). *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater*.
- EnviroServices & Training Center, LLC (ETC). February 2011. *Site Investigation Work Plan, Former Panamce Piggery, South Firebreak Road, Paunene, Maui, Hawaii, TMC (2) 3-8-8: Parcel 19*.
- EnviroServices & Training Center, LLC (ETC). February 2011. *Addendum February 2011 Site Investigation Work Plan, South Firebreak Road, Paunene, Maui, Hawaii, TMC (2) 3-8-8: Parcel 19*.
- U.S. EPA. November 2003. *Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples, EPA/600/R-03/027*. 

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Site Investigation Report
Former Panamce Piggery, South Firebreak Road, Paunene, Hawaii
ETC Project No. 06-2048
October 2011

Site Investigation Report
Former Panamce Piggery, South Firebreak Road, Paunene, Hawaii
ETC Project No. 06-2048
October 2011
APPENDIX I
Figures
APPENDIX III
Laboratory Reports

Hi,

Torrent Laboratory, Inc. received 13 sample(s) on March 03, 2011 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5250, ext 204.

Patti Sandock

March 10, 2011

Date
### CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Analytical Comments, General: For all samples - Note: Samples processed under Incremental Sampling Procedure SOP TGD109. Sample collection date and time is reflective of Hawaii Standard Time (HST) while all analytical dates and times are reflective of Pacific Standard Time (PST)

Analytical Comments for Multi Incremental method S-8270PAHSIM. ALL SAMPLES. Note: Per client request, whenever possible (where matrix interference does not preclude it), sample data is reported to the MDL. Results reported between the MDL and PDL are qualified with the appropriate "<" flag and should be considered as estimated values.

Analytical Comments for method S-8562, GC Analytical Batch ID 404181. Note: Surrogate recovery for DBP in the LCGD falls outside of the control limits (bias high). All affected samples are ND for the analytes associated with DBP. No corrective action is required.

### Sample Result Summary

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### Sample Result Summary

**Report prepared for:** Shelle Nakashima  
**Enviromental Services & Training Center (ETC)**  
**Date Received:** 03/03/11  
**Date Reported:** 03/10/11

**Analysis Method**  
**Method**  
**Sample**  
**Results**  
**Unit**

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#### 2-Methylpropylsulphide

- **Analysis Method**: SW6270C
- **Results**: 0.0104
- **Unit**: mg/Kg

#### Benz(a)anthracene

- **Analysis Method**: SW6270C
- **Results**: 0.0377
- **Unit**: mg/Kg

#### Naphthalene

- **Analysis Method**: SW6270C
- **Results**: 0.0154
- **Unit**: mg/Kg

#### Pyrene

- **Analysis Method**: SW6270C
- **Results**: 0.0618
- **Unit**: mg/Kg

#### TPH as Diesel

- **Analysis Method**: SW6015B(M)
- **Results**: 0.0759
- **Unit**: mg/Kg

#### TPH as Motor Oil

- **Analysis Method**: SW6015B(M)
- **Results**: 1.65
- **Unit**: mg/Kg

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**Analysis Method**  
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#### 2-Methylpropylsulphide

- **Analysis Method**: SW6270C
- **Results**: 0.0104
- **Unit**: mg/Kg

#### Benz(a)anthracene

- **Analysis Method**: SW6270C
- **Results**: 0.0377
- **Unit**: mg/Kg

#### Naphthalene

- **Analysis Method**: SW6270C
- **Results**: 0.0154
- **Unit**: mg/Kg

#### Pyrene

- **Analysis Method**: SW6270C
- **Results**: 0.0618
- **Unit**: mg/Kg

#### TPH as Diesel

- **Analysis Method**: SW6015B(M)
- **Results**: 0.0759
- **Unit**: mg/Kg

#### TPH as Motor Oil

- **Analysis Method**: SW6015B(M)
- **Results**: 1.65
- **Unit**: mg/Kg

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483 Sinclair Frontage Rd., Milpitas, CA 95035 | tel: 408.283.6268 | fax: 408.263.8233 | www.torrentlab.com

**Total Page Count:** 41
### Sample Result Summary

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### SAMPLE RESULTS

**Report prepared for:** Environmental Services & Training Center (ETC)

**Date Received:** 03/01/11

**Project Name/Location:** 06-2548 Pusara Piggery

**Sample Matrix:** Soil

**Project Number:** 309011 / 815

**Tag Number:** 06-2548 Pusara Piggery

**Client Sample ID:** 2048.DU1

**Lab Sample ID:** 1103019-001A

**Date Reported:** 03/17/11

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| Mercury   | 7471B          | 3/8/11 | 3/8/11 | 0.85  | 0.10 | ND  | mg/kg | 404170 | 2191 |

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**Total Page Count:** 41

**Page 10 of 41**
## SAMPLE RESULTS

**Report prepared for:** Shaeta Nakashima  
**Date Received:** 03/03/11  
**Enviroservices & Training Center (ETC)**  
**Report Date:** 03/10/11

**Client Sample ID:** 204.D2U  
**Lab Sample ID:** 1103018-002A  
**Project Name/Location:** 36-2244 Runnife Piggery  
**Sample Matrix:** Soil  
**Project Number:**  
**Date/Time Sampled:** 03/01/11 / 9:45  
**Tag Number:** 36-2244 Runnife Piggery

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### The results shown below are reported using their MDL:

- Naphthalene
- 2-Methylnaphthalene
- 1-Methylnaphthalene
- Acenaphthene
- Acenaphthylene
- Fluorene
- Phenanthrene
- Anthracene
- Fluoranthene
- Pyrene
- Benzo[a]anthracene
- Benzo[k]fluoranthene
- Benzo[b]fluoranthene
- Benzo[a]pyrene
- Indeno[1,2,3-cd]pyrene
- Dibenzo[b,k]fluoranthene
- Benzo[g,h,i]perylene
- 2-Perylene-1,6-dione (S)
- p-Terphenyl-1,8,10 (S)
- TPH as Diesel
- TPH as Motor Oil
- Pentacene (S)

**NOTE:** p-Not typical of Diesel standard pattern (unknown: discrete hydrocarbon peaks present)

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483 Edinboro Frontage Rd., Millis, MA 02054 | Tel: 404-263-3203 | Fax: 404-263-3203 | www.torrentlab.com

Total Page Count: 41  
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### SAMPLE RESULTS

**Report prepared for:** Shaish Nakashima  
**EnviroServices & Training Center (ETC)**  
**Date Received:** 03/03/11  
**Date Reported:** 03/10/11

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**NOTE:** s = Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).
### SAMPLE RESULTS

**Report prepared for:** Shana Nakashima  
**EnviroServices & Training Center (ETC)**  
**Date Received:** 03/03/11  
**Date Reported:** 03/10/11

**Client Sample ID:** 204 DU  
**Lab Sample ID:** 1103619-004A  
**Project Name/Location:** 60-2044 Puyuan Vineyard  
**Sample Matrix:** Soil  
**Project Number:** 03/01/11  
**Tag Number:** 03/04-2044 Puyuan Vineyard

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<th>Date Analyzed</th>
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<th>MDL</th>
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<th>Lab Qualifier</th>
<th>Unit</th>
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**Sample Parameters:**  
74.17% Na in 3/03/11 | 0.02 | 0.19 | ND mgKg | 404178 | 2019

The results shown below are reported using their WSP:  
Naphthalene: SWB297C 3/03/11 1 0.1544 0.0327 0.023 J mgKg 404180 2019  
2-Methylnaphthalene: SWB297C 3/03/11 1 0.1049 0.0327 0.023 J mgKg 404180 2019  
1-Methylnaphthalene: SWB297C 3/03/11 1 0.1049 0.0327 ND mgKg 404180 2019  
Acenaphthene: SWB297C 3/03/11 1 0.00044 0.0327 ND mgKg 404180 2019  
Acenaphthene: SWB297C 3/03/11 1 0.0182 0.0327 ND mgKg 404180 2019  
Fluorene: SWB297C 3/03/11 1 0.00544 0.0327 ND mgKg 404180 2019  
Phenanthrene: SWB297C 3/03/11 1 0.01345 0.0327 ND mgKg 404180 2019  
Anthracene: SWB297C 3/03/11 1 0.01716 0.0327 ND mgKg 404180 2019  
Fluoranthene: SWB297C 3/03/11 1 0.01624 0.0327 0.025 J mgKg 404180 2019  
Pyrene: SWB297C 3/03/11 1 0.01361 0.0327 ND mgKg 404180 2019  
Benzo(a)anthracene: SWB297C 3/03/11 1 0.01973 0.0327 ND mgKg 404180 2019  
Chrysen: SWB297C 3/03/11 1 0.01168 0.0327 ND mgKg 404180 2019  
Benzo(b)fluoranthene: SWB297C 3/03/11 1 0.01349 0.0327 ND mgKg 404180 2019  
Benzo(k)fluoranthene: SWB297C 3/03/11 1 0.00648 0.0327 ND mgKg 404180 2019  
Benzo(b)pyrene: SWB297C 3/03/11 1 0.01485 0.0327 ND mgKg 404180 2019  
Indeno(1,2,3-cd)pyrene: SWB297C 3/03/11 1 0.00515 0.0327 ND mgKg 404180 2019  
Dibenz(a,h)anthracene: SWB297C 3/03/11 1 0.00468 0.0327 ND mgKg 404180 2019  
Benzo(ghi)perylene: SWB297C 3/03/11 1 0.00696 0.0327 ND mgKg 404180 2019  
2-fluorenyl(eno) (Ex) SWB297C 3/03/11 1 0.29 91.6 73.7 % 404180 2019  
p-Terpheny(eno) (Ex) SWB297C 3/03/11 1 90 90 90 % 404180 2019

**Parameters:**  
TPH as Diesel: SWB518B 3/03/11 1 0.759 2.0 3.8 x mgKg 404192 2019  
TPH as Motor Oil: SWB518B 3/03/11 1 1.65 4.0 69 mgKg 404192 2019  
Pentacosene (5): SWB518B 3/03/11 1 56.7 129 79.5 mgKg 404192 2019

**NOTE:** a. Not typical of Diesel standard problem (unknown deuterate hydrocarbon peaks present).
### Sample Results

#### Parameters:

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<th>Data Analyzed</th>
<th>DF</th>
<th>MDL</th>
<th>PQL</th>
<th>Results</th>
<th>Lab Qualifier</th>
<th>Unit</th>
<th>Analytical Batch</th>
<th>Prep Batch</th>
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<th>Unit</th>
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**NOTE:** a-hist typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).
### SAMPLE RESULTS

**Report prepared for:** Shara Nakashima  
**EnviroServices & Training Center (ETC)**  
**Date Received:** 03/03/11  
**Report Date:** 03/10/11

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**The results shown below are reported using their MDL:**

- **Naphthalene** SW2705C 3/11 03/09/11 1 0.0154 0.6327 0.921 mg/Kg 404201 2194
- **2-Methylnapthalene** SW2705C 3/11 03/09/11 1 0.0176 0.6327 0.921 mg/Kg 404201 2194
- **1-Methylnapthalene** SW2705C 3/11 03/09/11 1 0.0149 0.6327 ND mg/Kg 404201 2194
- **Acenaphthene** SW2705C 3/11 03/09/11 1 0.086834 0.6327 ND mg/Kg 404201 2194
- **Acenaphthylene** SW2705C 3/11 03/09/11 1 0.0162 0.6327 ND mg/Kg 404201 2194
- **Fluorene** SW2705C 3/11 03/09/11 1 0.045544 0.6327 ND mg/Kg 404201 2194
- **Phenanthrene** SW2705C 3/11 03/09/11 1 0.0134 0.6327 0.987 mg/Kg 404201 2194
- **Anthracene** SW2705C 3/11 03/09/11 1 0.0176 0.6327 ND mg/Kg 404201 2194
- **Fluoranthene** SW2705C 3/11 03/09/11 1 0.0182 0.6327 ND mg/Kg 404201 2194
- **Pyrene** SW2705C 3/11 03/09/11 1 0.0126 0.6327 ND mg/Kg 404201 2194
- **Benzo(a)anthracene** SW2705C 3/11 03/09/11 1 0.0176 0.6327 0.954 mg/Kg 404201 2194
- **Chrysene** SW2705C 3/11 03/09/11 1 0.0118 0.6327 0.959 mg/Kg 404201 2194
- **Benzo(b)fluoranthene** SW2705C 3/11 03/09/11 1 0.0134 0.6327 ND mg/Kg 404201 2194
- **Benzo(k)fluoranthene** SW2705C 3/11 03/09/11 1 0.006846 0.6327 0.920 mg/Kg 404201 2194
- **Benzo(a)pyrene** SW2705C 3/11 03/09/11 1 0.0145 0.6327 0.916 mg/Kg 404201 2194
- **Indeno(1,2,3-cd)pyrene** SW2705C 3/11 03/09/11 1 0.005316 0.6327 ND mg/Kg 404201 2194
- **Benzo(e)pyrene** SW2705C 3/11 03/09/11 1 0.00448 0.6327 ND mg/Kg 404201 2194
- **benzo(g,h,i)perylene** SW2705C 3/11 03/09/11 1 0.00450 0.6327 0.911 mg/Kg 404201 2194
- **Fluoranthene** SW2705C 3/11 03/09/11 1 0.0134 0.6327 0.987 mg/Kg 404201 2194
- **p-Terphenyl-d14 (5)** SW2705C 3/11 03/09/11 1 25 51.8 73.6 % mg/Kg 404201 2194

**Total Page Count: 41**  
**Page 20 of 41**
### SAMPLE RESULTS

**Report prepared for:** Shanta Niaahshea  
**Project Name/Location:** 06-2048 Poutrerie Piggy  
**Sample Matrix:** Soil  
**Sample Number:**  
**Date/Time Sampled:** 03/01/16 11:25  
**Tag Number:** 06-2048 Poutrerie Piggy

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- Date Analyzed
- DF
- MDL
- PQL
- Results
- Lab Qualifier
- Unit
- Analytical Batch
- Prep Batch

### SAMPLE RESULTS

**Report prepared for:** Shanta Niaahshea  
**Project Name/Location:** 06-2048 Poutrerie Piggy  
**Sample Matrix:** Soil  
**Sample Number:**  
**Date/Time Sampled:** 03/01/16 12:15  
**Tag Number:** 06-2048 Poutrerie Piggy

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- Date Analyzed
- DF
- MDL
- PQL
- Results
- Lab Qualifier
- Unit
- Analytical Batch
- Prep Batch

**Note:** The table includes columns for analysis method, preparation date, date analyzed, detection limit (DF), minimum detectable limit (MDL), performance quality limit (PQL), results, laboratory qualifier, unit of measurement, analytical batch number, and preparation batch number.
### SAMPLE RESULTS

**Report prepared for:**  Shale Nakashima  
EnviroServices & Training Center (ETC)  
Date Received: 03/03/11  
Date Reported: 03/10/11

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**Parameters:**  
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3. Cadmium  
4. Chromium  
5. Lead  
6. Selenium  
7. Silver

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**SAMPLE RESULTS**

**Report prepared for:**  Shale Nakashima  
EnviroServices & Training Center (ETC)  
Date Received: 03/03/11  
Date Reported: 03/10/11

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1. Arsenic  
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3. Cadmium  
4. Chromium  
5. Lead  
6. Selenium  
7. Silver

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**Total Page Count:** 41  
**Page 25 of 41**
### SAMPLE RESULTS

**Report prepared for:** Shauna Nakashima  
**Client Sample ID:** 2544.DU1  
**Project Name/Location:** 06-2248 Puuane Pippy  
**Sample Matrix:** Soil  
**Sample Number:** 06-2248 Puuane Pippy  
**Client Sample ID:** 2544.DU12  
**Project Name/Location:** 06-2248 Puuane Pippy  
**Sample Matrix:** Soil  
**Sample Number:** 06-2248 Puuane Pippy  

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**Parameters:** Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver, Mercury
## SAMPLE RESULTS

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2048-DU13

### Lab Sample ID:
1162019-013A

### Project Name/Location:
06-2245 Purenne Piggery

### Sample Matrix:
Soil

### Project Number:

### Date/Time Sampled:
03/11/11 11:45

### Tag Number:
06-2245 Purenne Piggery

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### Mercury

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### Notes:
- N: Not typical of Diesel standard pattern (unusual discrete hydrocarbon peaks present).

---

483 Sinclair Frontage Rd., Milpitas, CA 95035 | 408.263.5258 | fax: 408.263.5259 | www.torrentlab.com

Total Page Count: 41
### SAMPLE RESULTS

Report prepared for: Shasta Nakajima  
EnviroServices & Training Center (ETC)  
Date Received: 03/01/11  
Date Reported: 03/10/11

| Client Sample ID: | 2548_DLU3  
| Lab Sample ID: | 1103019-015A  
| Project Name/Location: | 06-2048 Puente Piggery  
| Project Number: |  
| Tag Number: | 06-2048 Puente Piggery  
| Date/Time Sampled: | 03/01/11 8:45  
| Tag Number: |  

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<th>Unit</th>
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**NOTE:** a: Not typical of diesel standard pattern (unknown discrete hydrocarbon peaks present).

### MB Summary Report

**Work Order:** 1103019  
**Prep Method:** 2555_TPI  
**Prep Date:** 03/06/11  
**Prep Batch:** 2117

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**Work Order:** 1103019  
**Prep Method:** 3554_PCS  
**Prep Date:** 03/06/11  
**Prep Batch:** 2185

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**Work Order:** 1103319  
**Prep Method:** 7471_M6  
**Prep Date:** 03/06/11  
**Prep Batch:** 2191

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### Total Page Count: 41
### MB Summary Report

**Work Order:** 1103019  
**Prep Method:** 3545_TPH  
**Prep Date:** 03/07/11  
**Prep Batch:** 2193  
**Matrix:** Soil  
**Analytical Method:** SW846109  
**Analytical Date:** 03/07/11  
**Batch:** 404180  
**Units:** mg/kg  

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### LCS/LCSD Summary Report

**Work Order:** 1103019  
**Prep Method:** 3545_TPH  
**Prep Date:** 03/07/11  
**Prep Batch:** 2177  
**Matrix:** Soil  
**Analytical Method:** SW846109  
**Analytical Date:** 03/07/11  
**Batch:** 404180  
**Units:** mg/kg  

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<th>% Recovery Limits</th>
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### Work Order: 1103019

**Prep Method:** 3545_PCS  
**Prep Date:** 03/07/11  
**Prep Batch:** 2185  
**Matrix:** Soil  
**Analytical Method:** SW846109  
**Analytical Date:** 03/07/11  
**Batch:** 404180  
**Units:** mg/kg  

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### Work Order: 1103019

**Prep Method:** 4711_10  
**Prep Date:** 03/07/11  
**Prep Batch:** 2191  
**Matrix:** Soil  
**Analytical Method:** 471118  
**Analytical Date:** 03/07/11  
**Batch:** 404179  
**Units:** mg/kg  

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<th>LCS % Recovery</th>
<th>LCS/LCSD % Recovery</th>
<th>LCS/LCSD % RPD</th>
<th>% Recovery Limits</th>
<th>% RPD Limits</th>
<th>Lab Qualifier</th>
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**Total Page Count:** 41  
**Page 32 of 41**  

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**Total Page Count:** 41  
**Page 33 of 41**
## LCS/LCSD Summary Report

**Work Order:** 1103219  
**Prep Method:** 3032B_H1  
**Prep Date:** 03/09/11  
**Prep Batch:** 2103

**Matrix:** Soil  
**Analytical Method:** SW846  
**Analysed Date:** 03/09/11  
**Analytical Batch:** 454185

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**Work Order:** 1103219  
**Prep Method:** 3541_PAH1  
**Prep Date:** 03/07/11  
**Prep Batch:** 2014

**Matrix:** Soil  
**Analytical Method:** SW846/1  
**Analysed Date:** 03/07/11  
**Analytical Batch:** 454201

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## MS/MSD Summary Report

**Work Order:** 1103219  
**Prep Method:** 3541_PbI2  
**Prep Date:** 03/09/11  
**Prep Batch:** 2103

**Matrix:** Soil  
**Analytical Method:** SW846/1  
**Analysed Date:** 03/09/11  
**Analytical Batch:** 454185

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**Work Order:** 1103219  
**Prep Method:** 3541_TPH  
**Prep Date:** 03/09/11  
**Prep Batch:** 2107

**Matrix:** Soil  
**Analytical Method:** SW846/1  
**Analysed Date:** 03/09/11  
**Analytical Batch:** 454201

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**Work Order:** 1103219  
**Prep Method:** 3541_PAH1  
**Prep Date:** 03/07/11  
**Prep Batch:** 2014

**Matrix:** Soil  
**Analytical Method:** SW846/1  
**Analysed Date:** 03/07/11  
**Analytical Batch:** 454201

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LABORATORY QUALIFIERS:

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<th>Indicator</th>
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<td>S</td>
<td>Indicates when the sample is mixed in the associated method or preparation time</td>
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<tr>
<td>D</td>
<td>Sample is not recoverable due to the necessary dilution of the sample</td>
</tr>
<tr>
<td>I</td>
<td>Indicates the recoverable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted)</td>
</tr>
<tr>
<td>U</td>
<td>Values reported with an &quot;U&quot; symbol should be considered as estimated</td>
</tr>
<tr>
<td>H</td>
<td>Indicates that the recommended holding time for the analyze or compound has been exceeded</td>
</tr>
<tr>
<td>J</td>
<td>Indicates a value between the method MAD and MDL and that the reported concentration should be considered as estimated rather than the quantitative</td>
</tr>
<tr>
<td>N</td>
<td>Not Analyzed</td>
</tr>
<tr>
<td>N/A</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>NR</td>
<td>Not recoverable - a matrix spike concentration is not recoverable due to a concentration where the original sample is greater than four times the spike concentration added</td>
</tr>
<tr>
<td>B</td>
<td>The % RPD between a duplicate set of samples is outside of the acceptable values established by laboratory control charts</td>
</tr>
<tr>
<td>E</td>
<td>Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</td>
</tr>
<tr>
<td>X</td>
<td>Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards</td>
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FURTHER EXPLANATION MAY OR MAY NOT BE PROVIDED WITHIN THE SAMPLE REPORTS AND/OR CASE NARRATIVES.

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<td>Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards</td>
</tr>
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FURTHER EXPLANATION MAY OR MAY NOT BE PROVIDED WITHIN THE SAMPLE REPORTS AND/OR CASE NARRATIVES.

Sample Receipt Checklist

Client Name: EnviroSciences & Training Center (Ecen)

Project Name: 06-2059 Flurane Poison

Location Order No: 11019

Date and Time Received: 3/30/21 12:20

Received By: NG

Physically Logged By: NG

Checklist Completed By: NG

Carrier Name: Fedex

Chain of Custody (CCD) Information

- Chain of custody present? Yes
- Chain of custody signed when relinquished? Yes
- Chain of custody agrees with sample label? Yes
- Custody seals intact on sample bottles? Not Present

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Not Present
- Shipping Container/Cooler in Good Condition? Yes
- Samples in proper container/bottle? Yes
- Samples contain intact? Yes
- Sufficient sample volume for indicated test? Yes

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes
- Temperature: 4°C
- Water-VOA viola have been received? No VOA packs submitted
- Water pH acceptable upon receipt? pH Adjusted by:

LABORATORY QUALIFIERS:

<table>
<thead>
<tr>
<th>Indicator</th>
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</thead>
<tbody>
<tr>
<td>S</td>
<td>Indicates when the sample is mixed in the associated method or preparation time</td>
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<tr>
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<td>I</td>
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FURTHER EXPLANATION MAY OR MAY NOT BE PROVIDED WITHIN THE SAMPLE REPORTS AND/OR CASE NARRATIVES.
### Login Summary Report

**Client ID:** TL5417  
**EnviroServices & Training Center (ETC)**

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**Sample Note:** All samples need to be air dried (minimum 24h), dissolved and sub-sampled per MIL Sampling SOP. 100 mL digestion for metals, 30 mL methanol extraction for SVOC. See client specific PAH compound list.

---

### Login Summary Report

**Client ID:** TL5417  
**EnviroServices & Training Center (ETC)**

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**Sample Note:** All samples need to be air dried (minimum 24h), dissolved and sub-sampled per MIL Sampling SOP. 100 mL digestion for metals, 30 mL methanol extraction for SVOC. See client specific PAH compound list.
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**NOTICE:** Samples received in good condition!
ANALYTICAL REPORT
TestAmerica Laboratories, Inc.
TestAmerica Honolulu
99-193 Aiea Heights Drive, Suite 121
Aiea, HI 96701
Tel: 808-486-5227
TestAmerica Job ID: HU10005
Client Project Site: 06-2040
Client Project Description: A&B Piggery
For:
Enviroservices & Training Center
505 Ward Avenue, Suite 202
Honolulu, HI 96814
Attn: Sharla Nakashima

Authorized for release by:
09/15/2011 03:16:40 PM
Margie Pascua Thach
Project Manager
margie.pascua@testamericainc.com
Designee for
Marvin D. Heskett III
Laboratory Director
marvin.heskett@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.
Definitions/Glossary

Abbreviation | Description
--- | ---
C | Listed under the "C" column to designate that the result is reported on a dry weight basis
%RR | Percent Recovery
DL, QA, QC, LV | Indicates a Dilution, Reanalysis, Re-extraction, or additional initial metatase/analysis of the sample
EPA | United States Environmental Protection Agency
MDL | Method Detection Limit
ML | Minimum Limit (Dilution)
NO | Not observed at the reporting level (or method detection level if shown)
POL | Practical Quantitation Limit
R | Reporting Limit
RPD | Relative Percent Difference, a measure of the relative difference between two points
SFD | Twenty-Four Hour Forward (Fluxus)
TEQ | Toxic Equivalents Quotient (Dioxin)
### Sample Summary

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- **Analysis Batch:** 85447

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- **Prep Batch:** 85447

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#### Client Sample ID: Lab Control Sample
- **Prep Type:** Total
- **Prep Batch:** 85447

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- **Prep Batch:** 85447

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- **Analysis Batch:** 85447

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### Certification Summary

**Client:** Enviroservices & Training Center  
**Project Site:** 00-2048  
**TestAmerica Job ID:** HU80005

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*Accreditation may not be offered or required for all methods and analyses reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analyses.*

### Method Summary

**Client:** Enviroservices & Training Center  
**Project Site:** 00-2048  
**TestAmerica Job ID:** HU80005

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**Protocol References:**

- Laboratory: TAL SEA - TestAmerica Seattle, 5758 8th Street East, Tacoma, WA 98424. TEL (253) 822-2310

---

**Page:** 13 of 35 **TestAmerica Honolulu**  
**Date:** 08/19/2011 **Page:** 14 of 35 **TestAmerica Honolulu**  
**Date:** 08/19/2011
Definitions/Glossary

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<td>DL, RA, RIN</td>
<td>Indicates a Dilute, Re-analysis, Re-extraction, or additional method re-analysis of the sample</td>
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<td>Estimated Detection Limit (Detection)</td>
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<td>Environmental Protection Agency</td>
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<td>MRL</td>
<td>Method Detection Limit</td>
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<td>ML</td>
<td>Minimum Limit (Detection)</td>
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<td>ND</td>
<td>Not detected at the reporting limit (or method detection limit if shown)</td>
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<td>Practical Quantitation Limit</td>
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<td>RL</td>
<td>Reporting Limit</td>
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<td>RPO</td>
<td>Relative Percent Difference, a measure of the relative difference between two points</td>
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<td>TEF</td>
<td>Toxicity Equivalent Factor (Detection)</td>
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Client Sample Results

Client: TestAmerica Laboratories, Inc
ProjectSite: HU0005

Client Sample ID: HU00105-01
Lab Sample ID: 580-28558-1
Date Collected: 08/30/11 16:10
Date Received: 08/30/11 10:30

Method: 85105 - Metals (ICP)

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### Client Sample Results

Client: TestAmerica Laboratories, Inc  
Project ID: HUI0006

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Lab Sample ID: 589-28556-4  
Matrix: Solid

Date Collected: 09/23/11 10:05  
Date Received: 09/23/11 10:05

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### Client Sample Results

Client: TestAmerica Laboratories, Inc  
Project ID: HUI0006

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Lab Sample ID: 589-28558-5  
Matrix: Solid

Date Collected: 09/23/11 14:18  
Date Received: 09/23/11 10:05

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### Client Sample Results

- **Client Sample ID:** HUR0005-06
- **Lab Sample ID:** S80-28555-6
- **Matrix:** Solid
- **Date Collected:** 09/23/11 10:11
- **Date Received:** 09/28/11 18:30

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### Client Sample Results

- **Client Sample ID:** HUR0005-07
- **Lab Sample ID:** S80-28555-7
- **Matrix:** Solid
- **Date Collected:** 09/23/11 18:20
- **Date Received:** 09/28/11 18:30

### Method: GD108 - Metals (ICP)

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## Client Sample Results

**Client:** TestAmerica Laboratories, Inc.  
**Project/Site:** HU0905

**Client Sample ID:** HU0905-10  
**Lab Sample ID:** 580-28558-10  
**Matrix:** Solid

### Method: 6010B - Metals (ICP)

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## QC Sample Results

**Client:** TestAmerica Laboratories, Inc.  
**Project/Site:** HU0905

**Client Sample ID:** Method Blank  
**Prep Type:** Total/IA  
**Prep Batch:** 55447

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**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/IA  
**Prep Batch:** 55447

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<th>Analyzed</th>
<th>NFRec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead</td>
<td>1.5</td>
<td></td>
<td></td>
<td>mg/L</td>
<td></td>
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<td>50-150</td>
<td>1</td>
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</table>

### Lab Sample ID: LCSO 580-65447/50-A

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/IA  
**Prep Batch:** 55447

<table>
<thead>
<tr>
<th>Analyte</th>
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<th>RL</th>
<th>MDL</th>
<th>Unit</th>
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<th>Percent</th>
<th>Analyzed</th>
<th>NFRec</th>
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<tbody>
<tr>
<td>Lead</td>
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<td></td>
<td></td>
<td>mg/L</td>
<td></td>
<td></td>
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</table>

### Lab Sample ID: LCCSM 580-65447/21-A

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/IA  
**Prep Batch:** 55447

<table>
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<th>NFRec</th>
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<tbody>
<tr>
<td>Lead</td>
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<td>mg/L</td>
<td></td>
<td></td>
<td>50-150</td>
<td>1</td>
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| Client: TestAmerica Laboratories, Inc  
| ProjectSite: HU0005  
| Client Sample ID: HU0005-01  
| Date Collected: 08/22/11 10:30  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-1  
| Matrix: Solid  
<table>
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<tr>
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<th>Method</th>
<th>Run</th>
<th>Factor</th>
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<th>Analyst</th>
<th>Lab</th>
<th>Dilution</th>
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</thead>
<tbody>
<tr>
<td>TotalNA</td>
<td>Prep</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>TotalNA</td>
<td>Analysis</td>
<td>60109</td>
<td></td>
<td></td>
<td>95517</td>
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<td>09/10/11 10:30</td>
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| Client Sample ID: HU0005-02  
| Date Collected: 08/23/11 15:50  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-2  
| Matrix: Solid  
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<th>Of Analyzed</th>
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<td>TotalNA</td>
<td>Analysis</td>
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<td>09/10/11 10:45</td>
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| Client Sample ID: HU0005-03  
| Date Collected: 08/23/11 11:00  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-3  
| Matrix: Solid  
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<th>Prepared</th>
<th>Of Analyzed</th>
<th>Analyst</th>
<th>Lab</th>
<th>Dilution</th>
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</thead>
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<td></td>
<td>95447</td>
<td></td>
<td>09/10/11 13:11</td>
<td>PAB</td>
<td>TAL SEA</td>
<td></td>
</tr>
<tr>
<td>TotalNA</td>
<td>Analysis</td>
<td>60109</td>
<td></td>
<td></td>
<td>95517</td>
<td></td>
<td>09/10/11 09:50</td>
<td>SP</td>
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</tr>
</tbody>
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| Client Sample ID: HU0005-04  
| Date Collected: 08/23/11 10:55  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-4  
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<th>Of Analyzed</th>
<th>Analyst</th>
<th>Lab</th>
<th>Dilution</th>
</tr>
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<tbody>
<tr>
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<td>3002B</td>
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<td></td>
<td>95447</td>
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<td>09/10/11 13:11</td>
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<td>TAL SEA</td>
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<td>Analysis</td>
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| Client Sample ID: HU0005-05  
| Date Collected: 08/23/11 14:35  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-5  
| Matrix: Solid  
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<th>Run</th>
<th>Factor</th>
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<th>Prepared</th>
<th>Of Analyzed</th>
<th>Analyst</th>
<th>Lab</th>
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<tbody>
<tr>
<td>TotalNA</td>
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<td></td>
<td></td>
<td>95447</td>
<td></td>
<td>09/10/11 13:11</td>
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<td>TAL SEA</td>
<td></td>
</tr>
<tr>
<td>TotalNA</td>
<td>Analysis</td>
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<td></td>
<td></td>
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<td>SP</td>
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| Client Sample ID: HU0005-06  
| Date Collected: 08/23/11 15:11  
| Data Received: 09/06/11 10:30  
| Lab Sample ID: S80-28558-6  
| Matrix: Solid  
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<th>Of Analyzed</th>
<th>Analyst</th>
<th>Lab</th>
<th>Dilution</th>
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</thead>
<tbody>
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<td>95447</td>
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<td>PAB</td>
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</tr>
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<td>TotalNA</td>
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### Certification Summary

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<th>Program</th>
<th>EPA Region</th>
<th>Certification ID</th>
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<tbody>
<tr>
<td>TestAmerica Seattle</td>
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<td>12</td>
<td>UST-022</td>
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<td>TestAmerica Seattle</td>
<td>Arizona</td>
<td>TA-Post Harlan Vactor Lab</td>
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<td>UST-091</td>
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<td>9</td>
<td>1115CA</td>
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<td>TestAmerica Seattle</td>
<td>Florida</td>
<td>NEAC</td>
<td>4</td>
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<td>DoE-ELAP</td>
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<td>L2235</td>
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<td>NEAC</td>
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<td>TestAmerica Seattle</td>
<td>Kentucky</td>
<td>MT DEC LUST</td>
<td>8</td>
<td>NA</td>
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<td>State Program</td>
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<td>S553</td>
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Accreditation may not be offered or required for all methods and analytes reported in this section. Please contact your project manager for the laboratory's current list of certified methods and analytes.

### Sample Summary

<table>
<thead>
<tr>
<th>Lab Sample No.</th>
<th>Client Sample ID</th>
<th>Method</th>
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<tbody>
<tr>
<td>580-28558-1</td>
<td>HL00006-01</td>
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<tr>
<td>580-28558-2</td>
<td>HL00005-02</td>
<td>Solid</td>
<td>09/20/11 09:45</td>
<td>09/20/11 10:00</td>
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<tr>
<td>580-28558-3</td>
<td>HL00005-03</td>
<td>Solid</td>
<td>09/20/11 10:05</td>
<td>09/20/11 10:00</td>
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<td>580-28558-4</td>
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<td>09/20/11 10:00</td>
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<td>HL00005-08</td>
<td>Solid</td>
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<td>09/20/11 10:00</td>
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<td>09/20/11 10:00</td>
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<td>Solid</td>
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<td>09/20/11 10:05</td>
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</tbody>
</table>
### Subcontract Order - TestAmerica Honolulu (HUI0005)

**Please enter the following code into the Job PO Number field for automated UOZ transfer files: Sub-Work HUI0005**

### BODEN RELEASE LABORATORY:
- TestAmerica Honolulu
- 68-153 Aiea Heights Drive, Suite 121
- Aiea, HI 96701
- Phone: 808-488-5227
- Fax: 808-488-5266
- Project Manager: Marvin D. Haskell, II
- Clinical/Environmental & Testing Center

### RECEIVING LABORATORY:
- TestAmerica Seattle
- 5755 5th Street East
- Tacoma, WA 98447
- Phone: (253) 922-2310
- Fax: 253
- Project Location: Hawaii
- Recept Temperature: °C

**Copy from HUI0004**

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Units</th>
<th>Due</th>
<th>Expires</th>
<th>Interlab Price Status</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Lead Igp Total SW 5010B mg/kg</td>
<td>08/18/11</td>
<td>03/01/12 13:00</td>
<td>$22.50</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Containers Supplied: Incremental Sub-sample (analyze entire content) (A)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Lead Igp Total SW 5010B mg/kg | 08/18/11 | 02/28/12 10:00 | $22.50 | 0% |
| Containers Supplied: Incremental Sub-sample (analyze entire content) (A) |

| Lead Igp Total SW 5010B mg/kg | 08/18/11 | 02/28/12 11:00 | $22.50 | 0% |
| Containers Supplied: Incremental Sub-sample (analyze entire content) (A) |
| Sample ID: HUI0005-03 (2004.DU16 - Solid/Salt) | Sampled: 08/20/11 14:30 |

| Lead Igp Total SW 5010B mg/kg | 08/18/11 | 02/28/12 10:00 | $22.50 | 0% |
| Containers Supplied: Incremental Sub-sample (analyze entire content) (A) |

**Revised by:**
- Date/Time: 01/18/11

---

**Subcontract Order - TestAmerica Honolulu (HUI0005)**

**Please enter the following code into the Job PO Number field for automated UOZ transfer files: Sub-Work HUI0005**

**Analysis**
- Units
- Due
- Expires
- Interlab Price Status
- Comments

**Sample 1:**
- ID: HUI0005-01 (2004.DU14 - Solid/Salt)
- Sampled: 08/20/11 15:30
- Lead Igp Total SW 5010B mg/kg
- $22.50
- 0%
- Containers Supplied: Incremental Sub-sample (analyze entire content) (A)

**Sample 2:**
- Sampled: 08/20/11 15:00
- Lead Igp Total SW 5010B mg/kg
- $22.50
- 0%
- Containers Supplied: Incremental Sub-sample (analyze entire content) (A)

**Sample 3:**
- ID: HUI0005-03 (2004.DU16 - Solid/Salt)
- Sampled: 08/20/11 14:00
- Lead Igp Total SW 5010B mg/kg
- $22.50
- 0%
- Containers Supplied: Incremental Sub-sample (analyze entire content) (A)

**Sample 4:**
- ID: HUI0005-04 (2004.DU17 - Solid/Salt)
- Sampled: 08/20/11 15:00
- Lead Igp Total SW 5010B mg/kg
- $22.50
- 0%
- Containers Supplied: Incremental Sub-sample (analyze entire content) (A)

---

**Revised by:**
- Date/Time: 01/18/11
Garcia, Steven

From: Heskett, Marvin
Sent: Wednesday, September 07, 2011 5:00 PM
To: Garcia, Steven
Cc: Johnson, Pam R.
Subject: RE: HUI0005 / IUI0475

Steven,

Please forward these to Seattle. Pam, this was a MI job that went to Irvine by mistake. 10 samples for load only, standard TAT.

Thank you,

Marvin

From: Garcia, Steven
Sent: Wednesday, September 07, 2011 1:31 PM
To: Heskett, Marvin
Subject: HUI0005 / IUI0475

We are forwarding on these samples, but Dave mentioned Denver. Is that right? Or should they go to Seattle?

Thank you,

STEVEN A. GARCIA
Project Manager
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radioactivity other was not measured or, if measured, is at or below</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>background</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The cooler's custody seal, if present, is intact.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>The cooler or samples do not appear to have been compromised or tempered</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>with</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samples were received on ice</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Cooler Temperature is acceptable.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Cooler Temperature is recorded.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>CDC is present.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>CDC is filled out in ink and legible.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>CDC is filled out with all pertinent information.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Is the Field Sampler's name present on CDC?</td>
<td>False</td>
<td>Received project as a subcontract.</td>
</tr>
<tr>
<td>There are no discrepancies between the sample IDs on the container and</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>the CDC.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samples are received within Holding Time.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample containers have legible labels.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Containers are not broken or leaking.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample collection date/time are provided.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Appropriate sample containers are used.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample bottles are completely filled.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Sample Preservation Verified.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>There is sufficient vol. for all requested analyses, incl. any requested</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>USMNA analyses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOA sample packs do not have heavespace or bubble is &lt;5mm (1/4”) in diameter.</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Multiphasic samples are not present.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Samples do not require subcutting or compounding.</td>
<td>True</td>
<td></td>
</tr>
<tr>
<td>Residual Chlorine Checklist.</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
## Sample Receipt Checklist

**Client Name:** ETC  
**Date/Time Received:** 9/1/11 13:22  
**Received By:** Morris Haak II

### Notes:

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<tr>
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<th>Yes</th>
<th>No</th>
<th>F</th>
<th>Not Present</th>
<th>%</th>
<th>F</th>
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<td>Shipping container/cooler in good condition?</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Chain of Custody present?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chain of Custody Signed when relinquished and received?</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Chain of Custody agrees with sample labels?</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samples in proper container/bottle?</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sample containers intact?</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Sample containers on ice?</td>
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<tr>
<td>Sufficient sample volume for indicated test?</td>
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<tr>
<td>All samples received within holding time?</td>
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<tr>
<td>Water - VOA Visus have Zero Headspace?</td>
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<tr>
<td>Water - pH acceptable upon receipt?</td>
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</tbody>
</table>

### Comments/Sampling Handling Notes:

- [Blank]
Environmental Document Review
November 16, 2011

Blanca Lafollet
CMBY 2011 Investments, LLC
P.O. Box 220
Kihel, Hawaii 96753

Subject: Environmental Document Review – Site Investigation Report by ETC, LLC October 2011 & Draft Limited Phase II Environmental Site Assessment by ETC, LLC October 2011

86 acres off Mokulele Highway and South Freeland Road – TMK (2) 3-8-608-19

Dear Ms. Lafollet:

Malama Environmental (MEV) was commissioned by CMBY 2011 Investments, LLC in December 2010 to conduct project monitoring and review of environmental documentation by the property owner’s environmental consulting agency, EnviroServices & Training Center, LLC (ETC). MEV’s scope of work consisted of the following:

• Review of environmental documents compiled by ETC, including field work plans, sampling plans, Site Investigation Report and limited Phase II Report by ETC;
• Review of field sample procedures by ETC;
• Conduct field sampling monitoring of ETC personnel;
• Review of sample preparations and chain of custody for the chosen laboratory;
• Review of the laboratory qualifications, analytical methods chosen, and quality assurance/quality controls;
• Review of conclusions by ETC.

MEV on behalf of CMBY 2011 Investments, LLC, hereby submits this Environmental Document Review for the report and site referenced above. The data obtained during the recent site investigation was used by ETC to determine whether additional surface and/or subsurface soil investigation or remediation actions were necessary based on laboratory results from sampling conducted on contaminants of potential concern (COPC) previously identified on the subject property. It should be noted that the Site Investigation Report, October 2011 addresses many of the environmental contaminants of potential concern (COPC) on the subject site that were identified during initial site investigations. Most of these have already been Remediated on by MEV.

This environmental document review of the Site Investigation Report specifically addresses the subsequent surface soil sampling of DU11 and the review of the Limited Phase II ESA addresses the field monitoring of the surface and subsurface sampling conducted at the former gunnery along the southern property boundary of Parcel 19.

Background
Historically, the site was originally used as a military installation beginning in the 1940s to support the nearby Pauwela Naval Air Station. Military operations likely ceased in the late 1940s, and thereafter the site was used for sugarcane cultivation and as a plantation camp. The property owner, Alexander Baldwin Land, Inc. (A&B), leased the site to a farmer who operates a pig farm beginning in the 1960s. A new tenant, Mr. Larry Poffenroth, took over piggy operations in 1995. Mr. Poffenroth began an unpermitted waste management facility. The property owner removed the tenant from the subject site in 2007-2008 and began solid waste cleanup activities for eventual sale of the property. This activity was complete by March 2011, however based on the former property usage; several specific potential sources of contamination were identified during previous site inspections.

Former Solid Waste Operations Site

ETC’s Site Investigation Work Plan, February 2011 proposed surface soil sampling from eleven (11) decision units (DU1) in select areas on the property where the unpermitted solid waste facility actions occurred. According to laboratory results, it was determined that the initial sampling showed indicated that elevated levels of total petroleum hydrocarbons as oil (TPH-O) for DU6 and DU12. Although the levels exceeded the Hawaii Department of Health (DOH) Environmental Action Levels (EALs) for unrestricted land use, they are within range for commercial/industrial land use. The new property owner, CMBY intends to use the property for commercial and industrial purposes.

In addition to the findings noted above, analytical results indicated that soil collected from DU11 contained slightly elevated levels of total lead concentration for commercial/industrial land use. Based on this finding, ETC proposed additional sampling and subdivision of DU11 to further characterize the contamination. MEV reviewed and agreed with the proposed sampling plan for this, and the work was conducted in August 2011.

Former Military Gunnery Site

The Phase I Environmental Site Assessment, March 2011 prepared for the subject site identified a recognized environmental condition as a potential presence of residual contamination associated with historic usage of the southernmost portion of the subject site as a machine gun range. The former gunnery was noted on maps of the Panmunjeon Naval Air Station and in historical aerial photos. Although the approximate location of the gunnery is known, it was unclear as to whether this facility was actually located within the property boundary. The COPC for military machine gun range is total lead concentration from spent metal bullets. MEV’s concern included the possibility of on-site soil fill material from adjacent property where the gunnery was located, causing this to be a source for stormwater migration of lead or perhaps a source of transported fill for leveling the parcel boundary area.

Due to the close proximity of the former gunnery to the southern property boundary, the property owner opted to conduct a limited Phase II site investigation for potential surface and subsurface lead contamination. It was determined in the ETC sampling plan that multi-dimensional sampling (MIS) surface samples would be collected from a single DU along the periphery of the southern boundary from the top 6-inches of the soil. It was also concluded that subsurface soil samples would be collected by a direct-push drill rig at a depth of 4-10 feet. This sampling was conducted by ETC under the observation of MEV in August 2011.

Field Investigation
On August 30th, 2011, MEV personnel Mr. John Vaulich and Ms. Amy Mathis monitored the surface sampling for total lead concentration on the subdivided DU11 and the surface and subsurface sampling for total lead contamination at the former gunnery site. This allowed for MEV to witness the sampling process, photo document the event and interview ETC field technicians.

Additional Investigation of DU11
ETC subdivided DU11 into eight separate DUs (DU14 through DU23) with the use of a GPS unit. The boundaries of the new DUs were flagged and marked. ETC collected 50 MIS from a depth of 4-6 inches below the surface with pre-cleaned hand trowels from each new DU. ETC also collected
two field replicate MIS from one of the eight DUIs for use as a batch quality control. MEV confirms that the samples were collected in an appropriate manner according to the Hawaii Department of Health - Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan (TGM) and the DCP's Summer 2008 (Updated March 2009) Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater, referred to as the EHE Document. The samples were delivered to TestAmerica – Honolulu with completed chain of custody forms. The lab was instructed to conduct analysis for total lead via EPA Method 6010. MEV concludes that the field sampling conducted by ETC was done according to protocol.

ETC personnel conducting surface sampling for total lead concentration at the subdivided DU11.

The laboratory results for the subdivided DU11 are shown below:

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>2048.DU14</td>
<td>37</td>
</tr>
<tr>
<td>2048.DU15</td>
<td>19</td>
</tr>
<tr>
<td>2048.DU16</td>
<td>30</td>
</tr>
<tr>
<td>2048.DU17</td>
<td>84</td>
</tr>
<tr>
<td>2048.DU18</td>
<td>23</td>
</tr>
<tr>
<td>2048.DU19</td>
<td>15</td>
</tr>
<tr>
<td>2048.DU20</td>
<td>12</td>
</tr>
<tr>
<td>2048.DU21</td>
<td>12</td>
</tr>
<tr>
<td>2048.DU22</td>
<td>36</td>
</tr>
<tr>
<td>2048.DU23</td>
<td>34</td>
</tr>
</tbody>
</table>

Mean: 27.67
Standard Deviation: 12.74

DOE EAL: 208 (800)

(EA = Maximum allowed concentration in the air; 800 = Maximum allowed concentration in the air)

According to the laboratory results from the additional total lead concentration investigation of DU11, it was determined that the average total lead concentration for all subdivided DU11 was well below the EALs of 200 milligrams per kilogram (mg/kg) for unrestricted land use within the EHE manual requirement to sample the particle fraction that is less than 2 millimeters. This fraction of the soil is considered to be the dust and silt portion most available for uptake by human beings. ETC concluded that the previous elevated lead results were due to discrete pieces of lead within the soil from former solid waste storage activities. ETC stated that the initial results for DU11 may not necessarily reflect the average lead concentrations that are likely to be encountered throughout DU11. In addition, given the future commercial/industrial land use of the Property coupled with the results of the additional sampling activities, potential plant uptake is not considered a concern. Therefore, based on the data, lead within the soil fraction less than 2 millimeters in size was removed from consideration as a contaminant of concern for the Property. Furthermore, ETC concluded that based on review of the data obtained from the site investigation and comparison of COPC concentrations to applicable DOE EALs, there appear to be no retained environmental hazards for the site. As such, further action is not necessary to address concerns associated with the former solid waste operations on the Property.

MEV concurs with this conclusion stating for the particle fraction of the soil that is less than 2 millimeters.

Former Military Gunery

The secondary portion of the sampling conducted by ETC consisted of the surface and subsurface soil sampling for lead at the former military gunery located along the southern property boundary. On August 30, 2011, ETC collected one multi-increment surface soil sample in triplicate; and twenty-one discrete subsurface soil samples from ten boring locations. (One primary multi-increment sample for laboratory analysis and the two field replicate multi-increment samples were collected for quality control purposes.) Due to the size of the single DU, ETC opted to collect one hundred (100) multi-incremental surface soil samples in a stratified, random manner (i.e., collect incremental samples from random locations, ensuring that each portion of the decision unit is represented) within the defined approximate 30 foot wide decision unit located along the south border of the property. MEV confirms that this method follows the DOE TGM and the EHE Document.

Collection of subsurface soil samples was performed using a Geoprobe 66DT system operated by GeoTek Hawaii, Inc. The Geoprobe 66DT is a track mounted, soil probing (i.e., direct push) machine that uses a small amount of static weight combined with percussion as the energy for the advancement of the push rod. According to A&B, approximately 10 feet of fill material was placed on the property several decades ago for agricultural use. It was decided to use a track drill rig using the direct push method with a macro-core to collect bore soil samples from the surface to about 10 feet in an attempt to discern fill and native soil. MEV was present for several of the initial boreholes. The first bore hole was taken from surface to 7 feet. The drill rig was operated by geologist and owner of ETC. Upon inspection it was obvious that several soil horizons were present. Both of these drill cores were taken on the dirt road adjacent to the ditch in the SE corner of the property.)
The laboratory results for the former gunnery are shown below:

### Table 1: Analytical Data – Multi-Instrumental Surface Soil Samples

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample A 69</th>
<th>Sample B 70</th>
<th>Sample C 71</th>
<th>Sample D 72</th>
</tr>
</thead>
<tbody>
<tr>
<td>2048.81.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.82.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.83.60</td>
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<td>4.5 - 5.0</td>
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<tr>
<td>2048.84.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.85.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.86.60</td>
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<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
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<tr>
<td>2048.87.60</td>
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<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.88.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.89.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2048.90.60</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
<td>4.5 - 5.0</td>
</tr>
</tbody>
</table>

**Notes:**
- MLC = Multi-Instrumental Limit
- DOH EAL = Department of Health Environmental Action Level
- CI = Contamination Index
- DUS = Department of Hawaiian Home Lands
- CI = Contamination Index
- ETC = Environmental Testing Consultants

Total lead concentrations were determined to be either below the laboratory reporting limit and/or below the default DOH EAL for unrestricted land use. Based on these findings, ETC concluded that no further action would apply to the southernmost portion of the project site in regards to the

### Table 2: Analytical Data – Discrete Subsurface Soil Samples

<table>
<thead>
<tr>
<th>Sample Depth (ft)</th>
<th>Total Lead (mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>0.5</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>1.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>1.5</td>
<td>4.5 - 5.0</td>
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<tr>
<td>2.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>2.5</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>3.0</td>
<td>4.5 - 5.0</td>
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<tr>
<td>3.5</td>
<td>4.5 - 5.0</td>
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<tr>
<td>4.0</td>
<td>4.5 - 5.0</td>
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<td>4.5</td>
<td>4.5 - 5.0</td>
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<tr>
<td>5.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>5.5</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>6.0</td>
<td>4.5 - 5.0</td>
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<tr>
<td>6.5</td>
<td>4.5 - 5.0</td>
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<tr>
<td>7.0</td>
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<tr>
<td>7.5</td>
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</tr>
<tr>
<td>8.0</td>
<td>4.5 - 5.0</td>
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<tr>
<td>8.5</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>9.0</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>9.5</td>
<td>4.5 - 5.0</td>
</tr>
<tr>
<td>10.0</td>
<td>4.5 - 5.0</td>
</tr>
</tbody>
</table>

**Notes:**
- MLC = Multi-Instrumental Limit
- DOH EAL = Department of Health Environmental Action Level
- CI = Contamination Index
- DUS = Department of Hawaiian Home Lands
- CI = Contamination Index
- ETC = Environmental Testing Consultants

The ETC personnel began collecting the subsurface samples by hand. Upon inspection, it appeared that the fill material lies in the top 2.4 feet of the soil horizon. The parent material is likely basalt with a red clay that formed above it. The red clay is likely the zone of accumulation for oxides. Above this is the yellowish silt which appears to be more leached of nutrients. It is evident from examining the first two core samples that the soil horizon changes from the first drill sample to the second one. Maybe this occurs due to the samples being taken so close to a drainage area and historic fluctuations in water content have caused localized shifts in horizons. It may also be from historic soil horizon disruptions due to ground tilting for agricultural purposes. It was due to soil horizon fluctuations and varying changes in soil consistency, texture and structure throughout the studied depth of 0-10 feet bgs, that induced ETC to collect samples from varying depths throughout the DU. It was expected by following these horizon changes, ETC could more fully characterize the soil at this location.

P.O. Box 884487 Pukalani, Hawaii 96785-0487 • Phone (808)875-0500 • Fax (808)875-1900 • web: www.malamaenvironmental.com

P.O. Box 884487 Pukalani, Hawaii 96785-0487 • Phone (808)875-0500 • Fax (808)875-1900 • web: www.malamaenvironmental.com
potential, small-fraction lead impacts associated with the former “machine gun range.” MEV felt that the work conducted by ETC was done according to protocol and in a professional and knowledgeable manner and agrees with this statement.

Conclusions
The document Site Investigation Report, Former Pauseo Pigpen, by ETC October 2011 will be submitted to the DOH requesting a “no further action” statement and final closure for this project from the State Department of Health’s Solid and Hazardous Waste Branch (SHWB). Based on MEV’s site reconnaissance and review of ETC documentation, the former unpermitted solid waste requires no further sampling or environmental investigation for industrial/commercial land use. MEV concurs with this conclusion.

The Draft Phase II Limited Environmental Site Assessment at the former gunnery will not be submitted to the DOH. This investigation was meant to satisfy the former property owner, A & B, that no contamination was present along the southern boundary of the subject site. It was conducted as a Phase II Environmental Site investigation for property transaction to assess whether the property had been impacted by the former military gunnery and was considered a recognized environmental condition. It should be noted that if the surface and subsurface soil samples in the location of the former gunnery were determined to be lead contaminated, ETC would have been instructed to involve the Hazard Evaluation and Emergency Response (HEER) Office with the DOH and coordinate further investigation and remediation in order to request a “no further action” from them.

It is evident that the former machine gunnery has not caused any adverse environmental impacts to the subject site within the recommended soil fraction size of less than 2 millimeters and requires no further action or submission to the DOH.

Respectfully yours,

Amy A. Mathis, B.S. Geology, Project Coordinator  Date 11/18/11
Environmental Scientist

John S. Vrchlick, M.S. Geological Engineering, Project Supervisor  Date 11/16/11
> Registered Environmental Assessor
> Professional Geologist (California)
> Certified Environmental Manager (Nevada)
Dept. of Health
“No Further Action” Letter
Mr. Sean O'Keefe  
January 9, 2012  
Page 2

former solid waste activities that occurred at the subject site at this time. However, should additional information become available, additional activities may be necessary.

Should you have any questions regarding this letter, please call Mr. Todd Nichols of our Solid Waste Section at (808) 586-4226.

Sincerely,

[Signature]

STEVEN YK CHANG, P.E., Ch.E.  
Solid and Hazardous Waste Branch

Mr. Sean O'Keefe  
A&B Properties, Inc.  
P.O. Box 286  
Puunene, Hawaii 96784

Dear Mr. O'Keefe:

SUBJECT: No Further Action, Former Puunene Piggery  
TMK 2-3-8-0.19  
Puunene, Maui

The Department of Health (DOH), Solid Waste Section (SWS) is in receipt of your email dated December 22, 2011, informing us that our No Further Action letter dated December 14, 2011, contained an error in the TMK number. Therefore, the SWS is issuing this letter which contains the correct TMK number.

The SWS is in receipt of the October 2011, Site Investigation Report for the Former Puunene Piggery, as well as the June 27, 2011, report documenting the removal of solid waste from the subject site. In addition, the DOH inspected the site on July 8, 2011, and noted a minimal amount of visible solid waste. It is our understanding that use of the property will be limited to commercial/industrial land use and that soil will not be removed from the property.

The SWS concurs with your consultant's conclusion that the TPH-O level (730 mg/kg) in DU6 does not appear to be a significant concern due to the biodegradability of TPH-O, the non-potable use of the groundwater beneath the property, and the greater than one hundred (100) foot depth to groundwater.

Based on the information provided, our inspection, and our aforementioned understanding, it appears that you have completed the removal of solid waste from the subject site and have adequately addressed impacts from solid waste activities that occurred at the site. Therefore, the SWS is requiring no further action regarding the

January 9, 2012  
S010574
APPENDIX M
Market Study
August 11, 2011

CMBY 2011 Investment, LLC
c/o Ms. Blanca Lafalette, Project Coordinator
Pacific Rim Land, Inc.
1300 North Hololono Street, Suite 201
P.O. Box 220
Kihei, Hawaii 96753

Re: Market Study, Economic Impact Analysis and Public Costs/Benefits Assessment for the proposed Puunene Heavy Industrial Subdivision in Wailuku, Island and County of Maui

Tax Map Key: (2) 3-B-08-019

Dear Ms. Lafalette:

In accordance with your request, we have inspected the above-referenced property in order to provide a defined scope market study, economic impact analysis and public costs/benefits assessment for the proposed Puunene Heavy Industrial Subdivision ("Proposed Project") in Wailuku, Island and County of Maui. This counseling report and the conclusions herein are based on the on-site inspection of the property, a study of current political and economic conditions, and a historical review of the real estate market in Central Maui and on Maui overall. The effective date of this report is July 1, 2011.

The subject parcel, which consists of approximately 86.030 acres of land, has a State Land Use designation of Agricultural and is zoned for Agricultural District uses by the County of Maui. Although situated within the District of Wailuku, the subject parcel is classified for Agriculture (AG) by the Kihei-Makena Community Plan. As presently envisioned, the Proposed Project, which is still in its preliminary planning stage, will consist of 28 heavy industrial lots east of Makawao Highway, in an area that currently contains primarily agricultural uses, specifically sugar cane production.

The Maui Raceway Park is located to the west of the subject parcel, within Project District 10. The park provides a wide variety of recreational uses including drag racing, auto cross racing, go kart racing, dirt oval track racing, radio controlled model aircraft flying and dirt bike racing. Additional nearby uses include a quarry for Hawaiian Cement and the Maui Consolidated Facility for the Hawaii Army National Guard.

The assignment included the following:

Market Analysis - The Consultant has provided a market analysis for this proposed project by (1) defining and delineating the market area; (2) identifying and analyzing the current

2073 Wolfe Street, Suite 100 ♦ Wailuku, Maui, HI 96793 ♦ Telephone: (808) 243-6491 ♦ Fax: (808) 243-1822
supply and demand conditions that comprise the specific real estate market segment; (3) identifying, measuring and forecasting the effect of anticipated developments or other changes on future supply of each market segment.

Economic Impact Analysis and Public Costs/Benefits Assessment – The Consultant has provided an economic impact analysis and public costs/benefits assessment estimating the general and specific economic effects arising from the development of the proposed subdivision. This report has addressed estimated costs for the land, the sale or lease of lots, and costs for building construction, employment creation, and ongoing business operation. It has also identified and analyzed potential public costs/benefits with regard to the project.

The following report presents a narrative review of the study and our analysis of data along with other pertinent materials on which this report is predicated. It contains data and exhibits gathered in our investigation, and will include a description of the analytical process and our conclusions, as of July 1, 2011.

Thank you for allowing us the opportunity to work on this interesting assignment.

Respectfully submitted,
ACM Consultants, Inc.

[Signature]
Chairman, General Appraiser
State of Hawaii, CGA-039
Expiration: December 31, 2011

[Signature]
Shane M. Fukumoto
Certified General Appraiser
State of Hawaii, CGA-810
Expiration: December 31, 2011

ACM Consultants, Inc. Puunene Heavy Industrial Subdivision, Wailea, Maui

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<td>Exhibit B</td>
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PART I — INTRODUCTION

A. EXECUTIVE SUMMARY

Background

The proposed Paunene Heavy Industrial Subdivision ("Proposed Project") is envisioned as a 28-lot heavy industrial subdivision to be developed on approximately 86.030 acres east of Mokulele Highway, District of Wailuku, Island of Maui. As shown on the State of Hawaii Tax Map, the subject parcel is within the District of Wailuku Island and County of Maui. As of the effective date, the subject site is designated for agricultural uses by State Land Use Law, County of Maui zoning and the Kilaeua-Makena Community Plan. The subject parcel also lies within the proposed Urban Growth Boundary set forth by the (draft) Maui Island Plan (December 2010).

The heavy industrial zoning district provides for a minimum lot size of 10,000 square feet. The sizes of lots in the proposed heavy industrial subdivision shall be determined by the types of uses proposed and the market demand projected approximately six months before the application for subdivision approval is filed with the Development Services Administration, County of Maui. Currently, the plan is to provide ten (10) lots ranging in size from one-half (0.5) acre to one (1) acre; five (5) lots ranging from over one (1) acre to two (2) acres; and the balance ranging from over two (2) acres to twenty (20) acres for a total of twenty eight (28) lots. The Proposed Project will feature interior roads as well as drainage facilities consistent with County requirements.

Study Objectives

ACM Consultants, Inc. has been retained by CBY 2011 Investment, LLC, to analyze the Central Maui heavy industrial market as it relates to this proposed project. In particular, we studied economic trends and demographics, and supply and demand factors for industrial property. In the process, we have gathered as much information as possible on heavy industrial real estate sales on Maui and, more specifically, in the Wailuku-Kahului region. Specific attention has been paid to industrial land ownership, the availability of vacant parcels, and the future supply of additional heavy industrial land.

The objectives of our study were as follows: (1) to define and delineate the market area; (2) to identify and analyze the current supply and demand conditions specific to the subject's market; (3) identify, measure and forecast the effect of anticipated developments or other factors on future supply, and (4) forecast the effect of anticipated economic or other factors on future demand.

Key Supply Factors

The following points summarize the supply for heavy industrial real estate in the Central Maui region at this time:

- When compared to the light industrial market segment, there is very little developable heavy industrial land in Central Maui;
- Available vacant land is located in areas that are not conducive to heavy industrial use, due to the proximity of residential and commercial developments;
- Supply has diminished because of continued conversion to higher-order commercial retail/office uses allowed by the M-2 Heavy Industrial District's "stacked" zoning;
- Other than the Proposed Project, there are no other heavy industrial projects planned for Central Maui.

Key Demand Factors

The following points summarize the demand for heavy industrial real estate in the Central Maui region at this time:

- The growth of Maui's population has led to a greater need for light industrial goods and services providers; however, there has not been a coinciding creation of heavy industrial facilities to support light industrial users;
- Mortgage interest rates continue to be at all-time lows, which typically makes real estate more affordable; however, there are few choices currently available within the heavy industrial market;
- The pent-up demand from heavy industrial users is expected to generate good interest for the proposed project;
- Potential businesses within the Proposed Project are expected to be those that fabricate, process and manufacture materials needed by light industrial users and the general populace.

B. PURPOSE OF THE REPORT

The purpose of this report, as of July 1, 2011, is to generate a market study, economic impact analysis and public costs/benefits assessment in support of land use entitlement requests for the Proposed Project.

C. INTENDED USE OF THE REPORT

The intended use or function of this report is to provide real property information and real estate market data in support of an Environmental Assessment, a State Land Use District Boundary Amendment (Agricultural to Urban), Community Plan Amendment
D. INTENDED USER OF THE REPORT

The intended users of this report are CMBY 2011 Investment, LLC and the appropriate State and County agencies involved in the proposed land use changes.

E. SCOPE OF THE REPORT

The Consultant has provided a current market study of the project by (1) defining and delineating the market area; (2) identifying and analyzing the current supply and demand conditions that make up the specific real estate market; (3) identifying, measuring and forecasting the effect of anticipated developments or other changes on future supply; and (4) to the extent possible, forecasting the effect of anticipated economic or other changes on future demand. The market study was developed and prepared in conformity with and subject to, the requirements of the Code of Professional Ethics and the Standards of Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal Practice.

Furthermore, the Consultant provided an economic impact analysis and public costs/benefits assessment estimating the general and specific economic effects arising from the development of the proposed subdivision.

F. STATEMENT OF COMPETENCY

ACM Consultants, Inc. has been actively involved in the real estate appraisal research and consulting business since 1982. Our business emphasis has focused mainly on the counseling and valuation of residential and commercial properties located within the State of Hawaii. The company considers itself competent to conduct a market study for a proposed heavy industrial project in Wailuku Island and County of Maui.

G. EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS

1. As of July 1, 2011, the Proposed Project was still in the preliminary stages of planning. A Proposed Land Development Plan, prepared by Chun Engineering, Inc., was provided by the client and offered a visual indication of the proposed layout of the development. The Consultant is not liable for any changes in the project plan past this date, nor for information that has not been developed, released or communicated to the Consultant.

2. The Consultant has no control over economic conditions and other international events that could have an affect upon Hawaii’s economy and the Maui real estate market. As a result, this report has not made any assumptions regarding potential conflicts with other nations, or external factors affecting economic conditions here.

3. The counseling report is also subject to standard "Limiting and Contingent Conditions" located in the Addenda.

H. CONFIDENTIALITY PROVISION

The contents of this market study, economic impact analysis, and public costs/benefits assessment are confidential. Release of this counseling report by ACM Consultants, Inc. is limited to you for the intended uses stated above. Any further release of this report, or portions herein, is strictly prohibited and you shall accept the risk and liability for any such release without the previous written consent of ACM Consultants, Inc. Further, you shall indemnify and defend ACM Consultants, Inc., and its individual consultants/appraisers, from any claims arising out of any such unauthorized disclosure.
I. CERTIFICATION

The undersigned does hereby certify that except as otherwise noted in this consulting report:

1. The Consultant's compensation is not contingent upon the reporting of a predetermine value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

2. The Consultant has no present or prospective interest in the property that is the subject of this report, and no personal interest or bias with respect to the parties involved. Any "Estimate(s) of Market Value" in the consulting report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the properties in the vicinity of the property appraised.

3. The Consultant has personally inspected the property, and is a signatory of this Certification.

4. To the best of the Consultant's knowledge and belief, all statements of fact and information in this report are true and correct, and the Consultant(s) have not knowingly withheld any significant information.

5. No one provided significant professional assistance to the person(s) signing this report.

6. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and the Consultant's personal unbiased professional analyses, opinions and conclusions.

7. All analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Appraisal Practice.

8. This counseling report is subject to and in conformance with the Code of Professional Ethics and Standards of Professional Conduct of the Appraisal Institute. The analyses, opinions and conclusions of this counseling report have been made in conformity with, and are subject to, the requirements of the Uniform Standards of Professional Appraisal Practice (USPAP).

9. This counseling report is to be used only in its entirety and no part is to be used without the whole report. All conclusions and opinions concerning the real estate are set forth in the counseling report were prepared by the Consultant(s) whose signature(s) appears on the counseling report. No change of any item in the counseling report shall be made by anyone other than the Consultant, and the Consultant shall have no responsibility for any such unauthorized change.

10. The Appraisal Institute, of which this Consultant is a member, has a legal right to review this report.

11. The qualifications of this Consultant, including completed educational requirements of his/her candidacy are located in the Addendum to this report. Any member signing the report has completed the requirements of the Appraisal Institute's continuing education program.

12. The Consultant has performed a previous appraisal of the subject property within the three years prior to this assignment.

ACM Consultants, Inc.

[Signature]

Gordon W. Koizumi, MAI, CRE
Certified General Appraiser, State of Hawaii, CGA-189
Expiration December 31, 2011

[Signature]

Shane M. Fukuda
Certified General Appraiser, State of Hawaii, CGA-810
Expiration December 31, 2011
PART II — FACTUAL DATA

A. REGIONAL DATA - MAUI COUNTY

Maui County is the third most populous of the four counties of Hawaii, with a total resident population of 154,834 (2010 Census); a change of 20.17 percent from 2000 and 52.23 percent since 1990. Maui County consists of the islands of Maui, Molokai, Lanai, and Kahoolawe. Ninety percent (90%) of County residents live on Maui Island; the Island of Maui consists of a total of 734.5 square miles, or 470,080 acres. Population projections for Maui County and the Island of Maui are illustrated on the table below.

The following graph illustrates the resident population change in Maui County from 1990 through 2010. The graph indicates that although Maui's population has been steadily growing, it now appears to be rising at a decreasing rate.

Source: U.S. Census Bureau, American Community Survey
Like all the Hawaiian Islands, Maui, Molokai and Lanai are blessed by warm air temperatures year-round, and ocean waters that range from 72.7°F in winter to 77.8°F in summer. The islands’ distance from other continents, the moderating effects of the surrounding water and the tropical location combine to create this pleasant climate. Hawaii’s topography, particularly the mountains and valleys and location of each island, contributes to the great variety of microclimates within very small areas. On Maui, the West Maui Mountains and Haleakalā are the primary geological features affecting the weather. Due in part to the above geographical factors, Maui, for sixteen out of the last seventeen years, was selected “Best Island In The World” by readers of Conde Nast Traveler magazine.

Visitor Industry

Historically, Maui hotel occupancies typically exceeded any area in the state with the exception of Waikiki. Its high rating is due to a number of factors. First, Maui receives the good fortune of location and climate. Second, Maui has the infrastructure in place to move tourists to a diverse variety of activities with a minimum of inconvenience and down time. The accommodations on Maui are another reason. Maui resort hotels have consistently ranked above other Hawaii resort destinations. In the Conde Nast Traveler magazine, nine of the “Top 20 Hawaii Resorts” for 2010 were Maui County resorts. The Four Seasons Resort Maui at Wailea topped the list, while other Maui County resorts garnering honors included: Hotel Hana Maui and Hanae Spa (2nd); Four Seasons Resort Lanai at Manele Bay (3rd); Four Seasons Resort Lanai, The Lodge at Koele (5th); Fairmont Kea Lani (9th); Grand Wailea (11th); Ritz-Carlton Kapalua (12th); Hyatt Regency Maui Resort & Spa (13th); and Westin Maui Resort & Spa (16th 20th).

With the possible exception of Kauai, Maui is more dependent on tourism than any of Hawaii’s four counties. That sector is not treating Maui very well today. For years, Maui has worked very hard at cultivating a worldwide image as a premier, upscale tropical island destination. In fact, it is the only county government in Hawaii that spends money to support tourism. In the wake of the current financial crisis, Maui’s tourism counts and hotel occupancy have fallen significantly. Even the upscale and affluent markets, it appears, have curtailed their spending on trips to the Valley Isle.

Tracking the tourism counts during this decade begins with the effects of the September 11, 2001 terrorist attacks on this country which had a drastic impact on the tourism industry. The final Maui visitor count for 2001 was 2,104,480. In 2002, the visitor count rebounded slightly to 2,139,427 as the visitors slowly returned during the mild to latter part of the year. Visitor counts from 2003 to 2007 indicate positive increases. As a result of the dismal economic conditions in 2008 and 2009, total visitor arrivals declined by 13.56 percent (2,129,048) and 9.24 percent (1,932,560), respectively. In these years. The lowest visitor arrival in Hawaii and many other visitor destinations worldwide were severely impacted by the national and global economic recession. However, in 2010 the visitor count rebounded with a 10.38 percent jump to 2,172,860, as the economic conditions began to show signs of stability.

Source: UN/TEO Economic Information Service

In 2010, Maui County had the second highest occupancy rate of all the Hawaii counties at just 68.2 percent, behind Oahu at 78.7 percent. Meanwhile, Kauai showed occupancy of 59.11 percent and Big Island at 56.44 percent. Maui’s occupancy rate increased by 13.71 percent from 2009 to 2010; the fifth increase witnessed in several years. The hotel occupancy rate generally follows the trend of total visitor arrivals.

Source: UN/TEO Economic Information Service
Visitor shopping opportunities have increased in recent years with the opening of The Maui Marketplace, a 275,000 square foot shopping complex, modeled after Oahu's successful Waikiki Center. The Maui Marketplace is now home to such retail superstores like Lowe's Hardware, Pier One Imports, Sports Authority, Starbucks Coffee, and Office Max, as well as many small local retailers and restaurants. Also opening in the same Kahului area were Home Depot, Wal-Mart, Big K and Costco. In addition, the Shaws at Wailea opened in December 2000 and added approximately 150,000 square feet of high-end retail space in the Wailea Resort. At about the same time, the 150,000 square foot Pi'ilani Shopping Center opened in Kihei with Safeway as its anchor tenant. The latest entry into the retail sector is the Lahaina Gateway, which opened in 2007. Dubbed a "lifestyle center," Lahaina Gateway, offers almost 137,000 square feet of gross leasable area. Tenants include Home and Noble, Foodland Farms, Office Max, Outback Steakhouse, Melting Fire, Central Pacific Bank and many other smaller retail shops.

Maui offers more than any other Neighbor Island in the way of proven vacation experiences. It has a larger tourism activities industry relative to the size of its economy than any other county. Such activities include ocean recreation, helicopter tours, biking down Haleakala, zip lining, and golfing, among numerous other activities. Maui's well-developed ocean recreation industry ranges from windsurfing to snorkeling, scuba diving and sailing cruises which leave regularly from Lahaina and Ma'alaea Harbors.

Maui also has theme destinations, such as the Maui Tropical Plantation, Maui Nut Botanical Gardens, Alii Kula Lavender Farm, and Surfing Goat Dairy. But the premier theme destination on the Island is the Maui Ocean Center. This center, featuring the marine environment of the Hawaiian Islands, is modeled after five other aquarium parks developed elsewhere in the world by Coral World International. This ocean center is located just behind the Maalaea Boat Harbor, and is easily accessible from Kahului/Wailea, and the resort areas of Lahaina/Kaanapali and Kihei/Wailea. The Maui Ocean Center anchors the 187-acre Maalaea Harbor Village, which also includes a retail strip shopping center, restaurants and other services.

When the United States and the world in general recover from the current economic crisis, it is anticipated that Maui will continue to be a strongly favored destination for Mainland tourists. The Island has a large share of condominiums available for families and groups on a budget. The California recovery in the early 2000's fueled higher demand for condominium rentals and this may possibly happen again in the next decade.

Hotels have not been adding much in the way of jobs, in fact, many hotel and other tourism-related industries have cut back their work force. Even when tourism numbers were growing steadily, job creation in the visitor industry was not matching that growth. Today, with tourism waning, the work force is noticeably decreasing. While tourism still dominates the labor force, the profitability problems of the large resorts have led managers to refine their operations.

Real Estate

Residential real estate can be divided into three broad categories (single-family homes, condominiums and residential lots) and four important geographic regions. With a variety of property types in each of the regions, the market has proven capable of moving up and down with relatively little correlation amongst regions.

All of the neighborhoods have single-family housing and residential lots. However, several neighborhoods such as Kapalua, Keonapali, and Wailea are virtually comprised solely of luxury housing. Areas such as Kahului have no luxury housing and Wailea has very little. All other areas have a mix.

With respect to condominium units, Upcountry and East Maui have virtually no condominium properties. All other areas have condominium units. When looking at leasehold versus fee simple projects, South Maui and Central Maui have very few leasehold condominiums. Only West Maui has a mixture of both types.

Areas such as Upcountry and East Maui are made up primarily of agricultural and rural properties. All other areas are limited in this property type.

Owner-occupied housing on Maui runs about 56 percent of all occupied housing units. The total housing stock has been growing at a rate of about 1,000 units a year in the 1980's. The total accelerated to 1,200-2,000 new units in the late 1980's, well short of demand. The Maui population has expanded tremendously for the past 10 to 12 years, but housing was not being built at the same pace as the 1980s. As a result, demand for housing during that period outpaced supply and homes prices and rents rose dramatically. The median single-family home price on Maui averaged $462,821 in 2010, which is a drop of 7.2 percent from 2009's average of $498,708. Median sales price for a single family home was $454,760 in 2009, $427,887 in 2007, $497,450 in 2006, and $581,321 in 2005. Years 2005, 2006, and 2007 are considered the peak of the real estate market.

Since then, the real estate market has changed direction, with a less stable economy and more stringent lending practices. In 2010, interest rates averaged 4.69 percent, down from the previous year's average of 5.04 percent. Average annual interest rates have been on a steady decline since 2006 when the average interest rate was 6.41 percent. The 2010 average interest rate represented the lowest
annual average since 1971. While interest rates remain relatively stable, the current economic recession and tightened lending continue to stifle Maui real estate.

The following summarizes a sales volume history for Maui County from 1990 to 2010, which includes resales and new project sales.

<table>
<thead>
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The real estate market increased significantly between 2002 and 2006. Single-family sales saw noteworthy increases in 2003, where the number of single-family sales leaped upwards of 42 percent.

There was a 13 percent dip in 2004, followed by a rebound of almost 7 percent in 2005. For 2006, there was a decrease of 18 percent, with a subsequent upward bounce of almost 7 percent in 2007. Then, with the eroding economic conditions and financial crisis in 2008 and 2009, Maui County experienced a 20 and 23 percent drop in sales in each of the respective years. This was the biggest decline in sales since 1991, when sales of single-family homes dropped by 25 percent.

In 2010, however, there was a significant increase in the number of single-family sales. This is attributed to the low property prices which have attracted market participants. The market for single-family homes has experienced a price depreciation of about 30 percent since the peak of the market in 2006 and 2007.

The following graph further illustrates the single-family sales volume history for Maui County from 2000 to 2010.

Similarly, condominium sales had experienced significant increases since 1999 in terms of units sold, achieving a new high in 2003 and a slight decrease in 2003. In 1999, 1,248 condominium units were sold, registering a 34 percent increase from the prior year. In 2001, the number of sales fell slightly, but rebounded significantly in 2002. In 2003, however, total condominium sales skyrocketed to 2,001, fell slightly to 1,935 units in 2004 and then jumped to 2,041 units in 2005. It appears that 2006 was the turning point for condominium sales values, as condominium sales plunged over 38 percent, followed by another 3 percent fall in 2007. For 2008, sales volume shrank 33 percent. This was however offset by a 38 percent increase in 2010. Again, this is due to the falling unit prices which have attracted market participants.

The following graph further illustrates the condominium sales volume history for Maui County from 2000 to 2010.
Land sales increased steadily between 2001 and 2004, but dropped 11 percent in 2005 with only 421 sales, then another 37 percent to 253 sales in 2006. This trend continued in 2007, with an 11 percent slide to 226 sales, surpassed by a huge 57 percent plunge in 2008. The first increase in four years was witnessed in 2009, as vacant land sales volume increased by 13 percent and again increased in 2010 by 15 percent. Many developers, realties and lenders consider the passage of the Workforce Housing Ordinance (December 2006; revised 2010) and the Water Availability Ordinance (December 2007; revised 2011) to have had a significant contribution to the severe decline of sales of vacant land.

The following graph further illustrates the vacant land sales volume history for Maui County from 2000 to 2010.

Median prices continued to rise until 2006 for all categories of real estate. The average monthly median prices in 2006, for land parcels, single-family homes and condominium units, increased 29 percent, 2 percent and 33 percent, respectively. In 2007, average monthly median prices for land and single-family property decreased 19 percent and 10 percent, respectively, while the average median price for a condominium increased 6 percent. It should be noted that the average condominium median price were heavily influenced upward by December closings in Honua Kai, a luxury condominium property.

For 2008, the average monthly median prices for single-family homes retreated by approximately 8 percent. Vacant land saw a gain of about 4 percent over 2007, while condominiums decreased by 6 percent. In 2009, vacant land median price again increased by little over 3 percent. However, single-family and condominium properties decreased by 13 and 12 percent, respectively. As the economic recession continued into 2010, the median sales price for all property types declined. Vacant land showed the largest drop of 33 percent from 2009 levels, and single family and condominium properties decreased by 7 and 16 percent, respectively.

Construction and Development

The construction industry, in the mild part of this decade, benefited from a robust economy and building climate.

Three new commercial centers were built in 2000. The Wailea Shopping Village had been demolished and was replaced with the Shops at Wailea, which includes 150,000 square feet of upscale retail and restaurant space. Also, the 150,000 square foot Pali Village shopping center was built at the same time and anchored by a 55,000 square foot Safeway store, one of the largest Safeways in the state. The Maui Galleria Harbor Village shopping complex, where the premier Maui Ocean Center presently stands, was also built during the same period; however, since then, no other project has been attempted and the majority of the lots in this commercial subdivision sit vacant. As previously discussed, the Lahaina Gateway was completed in 2008 and injected an additional 137,000 square feet of retail space.

The effects of the late-2008 financial crisis and subsequent economic recession are still clearly visible across the island, as many new commercial and industrial projects completed during this period remain empty, or are having difficulty selling off or leasing units.

Construction of single-family and condominium properties has fallen significantly, as developers have curtailed building to meet their anticipated sales levels. As mentioned earlier, the single-family and condominium real estate markets have softened, with median prices decreasing as well as an increase in marketing days. Although the economic recession has played a big part in the decrease of construction of residential properties, the enactment of two ordinances—the Workforce Housing Ordinance (2006; revised 2010)
and the Water Availability Ordinance (2007; revised 2011), which have forced stringent requirements on developers, has also greatly affected construction on Maui.

The following graph illustrates the trend of residential building permits in Maui County from 1999 through 2010. As shown in the following graph, residential permits peaked in 2005 at the height of the real estate market. As previously discussed, many feel that the passage of County ordinances relating to development in 2006 and 2007, coupled with increased construction costs and poor economic conditions, have severely limited the ability to feasibly create new housing projects.

![Residential Building Permits, Maui County](image)

Source: U.S. Census Bureau: American Community Survey

In Central Maui, the majority of the residential construction is within the Kehalani and Maui Lani projects, which are being developed with several new subdivisions and condominium projects. Situated in the Kehalani district are Koa, which offers both house lots and single-family homes, Kakaako and Cortez, both consisting of house and lot packages; Villas of Kehalani and Milo Court, which are townhouse condominium developments. Presently, there are four ongoing projects on Maui Lani. They include Haiku and Traditions (single-family homes), Sand Hills Place (house lots), and Kauhale (both house lots and single-family homes).

The demand for housing in the Central Maui area had been extremely strong up to mid-2006, with projects usually sold out prior to completion of construction. Due to the more recent downward trend of the economy and residential real estate market, developers are now finding themselves holding inventory and most new construction has ceased.

Meanwhile, Spencer Homes completed construction of a 410-unit affordable project in 2008, called Waiako Gardens. Approximately half of the homes met County affordable housing pricing requirements. This project was welcomed by the community as "affordable" prices were set to be below $300,000. This project gained approval by the Maui Nal Affordable Housing Taskforce which was set up in response to the growing need for affordable housing on Maui.

Up to 2006, Kehel had also seen an spurt in residential development brought on by ongoing residential projects including Ke Alii Ocean Villas (townhouse condominiums) and Malino Estates (single-family homes) by Tawney Development, KamaI I Aliana (single-family homes) by Billfish Brothers, Inc., and Signature Homes' Hokuulani Golf Villas (residential condominiums). Other current South Maui projects are Kiheiana Woena (house lots) and Ka Ani (townhouse condominiums). Similar to Central Maui, the developers of ongoing projects have slowed construction while continuing to market their units; whereas, previous Kehel developments were often sold prior to construction completion.

In Wailea, the Shops at Wailea and Wailea Town Center are the only established commercial developments. Both centers target the high-end residents of this resort community and Wailea's upscale visitors. Phase I of Wailea Town Center was completed in 2006 while Phase II was completed in 2007. It contains neighborhood services which include retail and office owner-occupied. The second phase included more commercial condominium units and residential units on the second floor. Current condo owners in this project include Coldwell Banker and First Hawaiian Bank. This development was met with high demand as all of the units have already sold and some have even resold. Another commercial retail/office project, Wailea Gateway Center, was completed in 2009.

In retail, the most significant addition to Maui is the Lahaina Gateway, situated along Honoapiilani Highway across from the Lahaina Cannery Mall. It was dubbed as a "lifestyle center" with specialty retail shops, services and restaurants. Opened in late 2007, this 137,000 square foot center includes anchor tenants such as Office Max, Barnes & Noble, Outback Steakhouse, The Melting Pot, and Lahaina Fers, a supermarket owned by Foodland's Sullivan family.

Prior to Lahaina Gateway, Maui Marketplace on Dairy Road was the last large retail development to be built, at 275,000 square feet. This center contains the likes of Lowe's Hardware, Office Max, Sports Authority, Old Navy, Petco, Fier One Imports, Burger King and Starbucks Coffee.
Wai-Mart and Home Depot are also located on Dairy Road, immediately west of the Maui Marketplace. These outlets joined earlier arrivals Costco and Kmart, as well as Alexander & Baldwin’s neighboring Triangle Square, in carving up the Maui retail pie. However, the local malls are answering the challenge with more food and entertainment, and retailers that can compete in their niche. Maui’s largest mall, Queen Kaahumanu Center in Kahului, has been challenged by the presence of these large box retailers and vacancies are very noticeable.

In Kaanapali, Whalers Village has taken a turn toward the luxury market popular with the Japanese. After completing a $3 million renovation and a change in its tenant mix, this oceanfront center now aims for both westbound and eastbound visitors. Japanese visitors are targeted with Duty Free Shoppers, Louis Vuitton, Prada, Loewe and other high-end shops.

The 150,000-square-foot Shops at Wailea opened in 2000, offering upscale shopping in its high-end retail shops. Tenants include Louis Vuitton, Coach, Balenci, Fendi, Tiffany & Co., Banana Republic, and Georgiou. Restaurants in this mall include Ruth Chris Steak House, Tommy Bahama Cafe and Emporium, and Loulu’s. Other retailers include Crazy Shirts, H&M, Gap, Wolf Camara, and Whaler’s General Store.

Agriculture

Agriculture on Maui is dominated by larger operations like Hawaii Tropical Pineapple Company and Alexander & Baldwin’s Hawaii Commercial and Sugar (HC&S).

Pineapple now confronts more foreign competition from places like Thailand. In 2007, Maui Land & Pineapple Company shut down the canning portion of its operations to rely solely on the more profitable fresh fruit segment. Downzizing of the plantation occurred in 2008, which resulted in a reduction of over 200 employees. In December 2009, Maui Land & Pineapple Company announced that it would be shutting down its agricultural area, citing continued annual losses. However, a new company, Hawaii Tropical Pineapple Company, was formed the following week and was able to take over a portion of the pineapple operations.

HC&S survives as Hawaii’s only remaining sugar operation due in part to its economies of scale, its land configuration (a relatively compact and contiguous area in the isthmus of the Valley Isle), and its commitment and ability over the years to reinvest and upgrade plant and equipment. But the last active sugar plantation in the state is facing other hardships, namely water. There had been drought conditions on Maui between 2007 and 2009, contributing to low yields. According to HC&S, future viability is heavily dependent on continued stream diversions; however, there have been oppositions to this continued practice. HC&S continues to re-evaluate its operations to remain viable, including consideration of potential biodiesel and other energy alternatives.

Another of Maui’s sugar operation casualties, Pioneer Mill in West Maui, is missed visibly. For years, proponents of maintaining and sustaining Hawaii’s sugar industry argued that growing sugarcane imported to this economy is important. It underestimated, non-pecuniary benefit of sugar kept the land green and attractive for tourists and locals alike, and its cultivation contributed to the recharge of groundwater resources. Economists call this situation an “externality,” an activity that afflicts others for better or worse, without those others paying or being compensated for activity.

Anyone who doubts that logic now only to drive the West Maui coast from Olowalu to Kaanapali and look muku, at an entire mountain side of dry brush and unused fields. As with many cases where sugar plantations have shut down, once diversified agriculture crops are just not land intensive enough to utilize all the vacant land. Coffee and seed corn operations are possibilities, but they make only a small dent.

In addition to sugar and pineapple cultivations, Maui also offers rich opportunities for agricultural diversification by small farmers and large agribusinesses. Top among new agricultural products are papaya, artichokes, coffee, Kona oranges, and strawberries, and Chinese cabbage from Kula. Mokule‘ia offers its sweet potatoes, lettuce and almonds, as well as taro.

High-Tech

Maui’s contribution to Hawaii’s high-tech industry remains pre-eminent in the state. It also represents genuine diversification of the economy. The Maui Research and Technology Park is Kula Kula all of its infrastructure in place, and has completed three major building projects. Most important, it houses one of the country’s most powerful supercomputers. The park now hosts over 30 companies and over 300 employees on 415 acres.

With access to one of the most powerful supercomputers in the world, funded by the U.S. Air Force, the Maui Research and Technology Park is continuing its efforts to diversify the Maui economy into something fundamentally different from what exists in the county or anywhere else in the state.

An office building was developed by the Maui Economic Development Board in 2006, and contains approximately 31,500 square feet of rentable area on a 2.8-acre site. Another completed project is Park Plaza, a 26-unit commercial office condominium building developed by Goodfellow Brothers and Retail Brothers. Since its completion in 2006, sales have been very sluggish.
The Park is sticking to its long-run strategic plan to capitalize on its location at the center of the Pacific Basin. Its extensive fiber-optic network to the U.S. Mainland makes it one of the most fiber-rich environments in the world, greater than many facilities actually located on the Mainland.

County Government

Maui County is unique in having several inhabited islands in its jurisdiction: Maui, Molokai, as well as Lanai, and the uninhabited island of Kahoolawe.

Maui County has an elected Mayor and County Council, and the Liquor Control Commission is semi-autonomous with appointed directors. Although all courts are conducted by the State, the County is responsible for prosecution and the Mayor appoints the prosecutor. The council has nine members, each residing in one of nine districts; however, voters cast ballots for all nine seats. Unlike other states, Hawaii has only two layers of government: State and County. The State is responsible for many functions that elsewhere come under the jurisdiction of municipalities, such as schools, hospitals, and airports. Also, unlike other states, Hawaii has statewide zoning implemented by the State Land Use Commission. The County has zoning authority within the boundaries established by the commission.

The lack of affordable housing continues to be a concern within the County of Maui. Maui is one of the most expensive counties for single-family home buyers. A record high median price of $780,000 was set in July 2006 for a single-family home. Since then, the median single-family price has continued to fall, with an average monthly median sales price of $463,821 in 2010, down from $496,708 in 2009, $574,760 in 2008 and $627,137 in 2007. According to the latest State of Hawaii Data Book, 8 percent of the houses are overcrowded on Maui and 41.4 percent of the households pay more than the recommended limit of 30 percent of their income on housing. In fact, 27.1 percent pay more than 43 percent on housing.

This heightened effort by the County resulted in the passage of Ordinance 3418 on December 5, 2006, under which all proposed developments are subject to review if there are to contain five or more units or lots. Under this ordinance, if the average sales price is projected to be less than $400,000, 40 percent of the total units must be priced to meet the various affordable categories. If the average sales price is the project is $600,000 or more, then 30 percent of the units must be affordable priced. An alternative to providing the affordable units is to pay an in-lieu fee equal to 30 percent of the average projected sales price of the market rate units multiplied by the number of affordable units required in the development. Or, the owner may elect to provide land which is equal in value to the in-lieu fee. This ordinance has had a profound effect on residential development since its passage. The subsequent reduction in proposed projects had many in the building and real estate industries questioning whether the ordinance created too much of an obstacle for developers.

In an effort to stimulate residential construction, the ordinance was revised by the County Council as Ordinance No. 3719, effective February 26, 2010, reducing the amount of required affordable housing units built on site to 25 percent, provided the average sales price of the market units is projected to be less than $600,000. If the average sales price in the project is $600,000 or more, then 20 percent of the units must be affordable priced. The new law also clarified the calculation of required affordable units built off site, based on 50 percent of the total number of on-site market units, regardless of their projected average sales price.

The water availability ordinance is another law that has made an impact on the development community. On December 14, 2007, the County of Maui passed into law Ordinance 3502. As a result, the Department of Water Supply (DWS) is presently restricting the issuance of meters for all uses in the central and south Maui service areas and this bill restricts issuance of any building permits until the DWS can issue a meter consistent with the provisions of the bill. In order to do so, the DWS director needs to provide verifiable, long-term supply of water to the property. Landowners and developers in the development community have been openly critical of the ordinance, some calling it a de facto moratorium on housing. Not surprisingly, sales of vacant development lands have been impacted.

The ordinance was revised by the County Council as Ordinance No. 3818, effective April 5, 2011, exempting infill development (10 residential dwellings or less) within areas already developed and having consistent land use, workforce housing units built by a qualified housing provider, residential development projects with 100 percent affordable units; and public or quasi-public development projects. The exemptions are only applicable within areas serviced by the Water Department’s Central or West Maui water systems. Time will tell if the latest versions of both ordinances will help to achieve their intended goals.
B. NEIGHBORHOOD DESCRIPTION

The Proposed Project is designated by the Kihei-Makena Community Plan, but is considered to be in the Wailuku District by the State of Hawaii. Furthermore, its primary industrial market is expected to originate from Central Maui. As such, the following neighborhood description describes the Central Maui Region.

Since real estate is fixed in location, its marketability and rentability are strongly influenced by economic and social trends in its immediate environment. The continuing attractiveness of this neighborhood environment to potential users and tenants, and its competitive relation to those of substitute properties, must therefore be evaluated and forecast by the consultant. In particular, perceived neighborhood trends affect both the quality and quantity of the revenues the subject property can reasonably be expected to generate.

A neighborhood of income-producing properties is a geographic area characterized by similarity of uses and/or users, within which any change has a direct and immediate effect on the subject property and its value.

The geographic area surrounding the subject property is defined by physical and man-made boundaries, and encompasses an area known as Wailuku-Kaahului. This region is located on the north shore of the Island of Maui and encompasses the civic and business centers of Wailuku and Kahului. The Island’s major seaport and primary airport are also located within the boundaries of this region. The surrounding agricultural land of Central Maui, and the eastern half of the West Maui Mountains, is also within the Wailuku-Kaahului neighborhood. The boundaries of the Wailuku-Kaahului region are the northern shoreline from Poelua Bay to Baldwin Park on the north, Kaahului Gulch and Lowrie Ditch on the east, Spanish Road to Waiakapu Road to Hanaoapilani Highway to Pakekea Gulch on the south, and the Wailuku Judicial District boundary on the west.

Population is concentrated in the urban centers of the region. Wailuku has maintained its role as the civic-financial-cultural center while Kahului has strengthened its role in recent years as the business and industrial center. In addition to the urban centers of Wailuku-Kahului, the region also includes the more rural settlements of Wailea to the north and Waiakapu and Pukalani to the southeast. Agricultural lands are adjacent to the lower slopes of the West Maui Mountains and in the central plain south and east of Kahului. This green barrier is a significant part of the settlement pattern because of its open space and economic value. Kahului Harbor and Airport are major land users along the Kahului shoreline. As major ports of entry for people and goods, they serve as an important center of jobs and economic activity.
The major thoroughfares through Kahului and Wailuku are Kauhakou Avenue which begins in Kahului and provides primary access to Wailuku as well as Lahaina and Kehi Hana Highway, which is actually a continuation of Kauhakou Avenue, leads from Kahului to the eastern or “upcountry” portions of the Island; and Pauene Avenue which provides access to all major areas in Kahului and ultimately leads to Kalahana Highway which provides by-pass access to Kahului and Kehi. The Kauhakou Avenue also runs into Main Street, and via secondary access, runs into Wailuku Beach Road and Lower Main Street.

Kahului, adjacent to Wailuku, is situated on the northwest portion of the Island of Maui, and is the central commercial, industrial and residential area of Maui. Kahului Town contains Maui’s major shopping centers, centralized industrial areas, financial institutions, medical office facilities and business offices. Additionally, the Kahului Airport and Kahului Harbor are located in Kahului proper and houses the majority of firms providing various goods and services throughout the Island, as well as to Lanai and Molokai. Consistent with its central location, post office facilities, community library, parks, schools (elementary, intermediate, high school and a community college), churches of various denominations, entertainment facilities, food outlets and a fire station are located in Kahului.

Wailuku, at one time, was the heart of Maui’s business activities. Decentralization of business to nearby Kahului and lack of maintenance and modernization of buildings to keep up with the new shopping habits brought about a gradual decline. However, since the creation of the municipal parking area in Wailuku, several new buildings have been built or renovated and a rejuvenation of the Wailuku Town is being experienced. The current Community Plan envisions Wailuku as the “governmental, cultural and professional center of Maui”. Located in Wailuku are the various government agencies, courts, hospital, major recreational facilities and police station.

Wailuku’s Fire Station sits in the heart of Wailuku Town, and until the opening of the Kahului Fire Station, was the only one in Central Maui. Kahului Fire Station is a 21,300 square foot facility that includes two main buildings and is situated on Dairy Road.

The Maui Memorial Medical Center, which is Maui’s primary facility of medical and emergency service, is located between the connecting boundaries of Kahului and Wailuku. In 2006, work was completed on a new wing for the hospital. The Police Station is also conveniently located nearby.

Numerous preschools, elementary, intermediate and high schools are located throughout Kahului and Wailuku, with the University of Hawaii at Maui College also located on Kauhakou Avenue, in Kahului.

In order to fully understand and appreciate Kahului and Wailuku’s potential for expansion, as well as factors that could limit the growth of this region, a brief summary of recent or proposed developments in these Central Maui districts along with a few important issues facing future development are in order.

RESIDENTIAL

The residential districts surrounding these two centers are significantly different in character. Wailuku Town is comprised of older residential areas, interspersed with business uses, varying lot sizes, and a more haphazard street pattern representative of older subdivisions. Surrounding Wailuku Town are more modern residential subdivisions, primarily within the Kahului Project District. The residential areas in Kahului are also varied. The older projects feature wide curvilinear streets and larger lots; whereas the newer subdivisions, primarily within the Wailuku Project Districts, feature smaller lots, narrow roadways, and some zero lot line development. There are also several gated communities with golf-course frontage.

In Kahului, the major residential area is represented by Alexander & Baldwin, Inc.’s Kahului Town Development. This subdivision consists of 14 increments that were built between 1951 and 1981. There is a total of 3,400 lots within the 14 increments. Kahului Town is distinguished as the first planned “new town” in Hawaii to provide quality housing at affordable prices.

Today, Kahului Town is a bustling residential community. The ongoing Maui Land Project District development will include up to 3,300 single-family residential units, ranging from executive golf homes to affordable units and span 1,000 acres on the south side of Kahului and east side of Wailuku. In addition to single-family and multi-family residential units, the Maui Land development includes a golf course, churches, a school and a recreational center. Already, several phases have been constructed and sold over the past several years including The Greens, The Grand Fairways, The Bluffs, The Islands, Sandhills Estates, Legends Phase I and II and Na Hoku. New developments in Maui Land include Traditions, a 123 house-and-lot single-family subdivision and the proposed Parkways of Maui Land, a 210-lot single-family subdivision.

In Wailuku, the older residential areas are mixed with small businesses throughout central Wailuku Town. There are three primary residential subdivisions on the outskirts of the Town including Wailuku Heights, Waihele Terrace, Wailuku Heights and Leisure Estates.
The older Wailuku Heights area was extended by two exclusive and prestigious phases. The first extension offers 270 lots while the second phase offers an additional 130 lots to the subdivision. Once verdant pastureland, Wailuku Heights is nestled in the West Maui Mountains and offers underground utilities, scenic views and a landscaped park.

Directly below the Wailuku Heights neighborhood is the Kahului Project District. Single-family residential developments in this area include the Ohia and Mahanae subdivisions. These projects, by Towne Development and Stanfors Development, were sold strictly as house-and-lot packages. Kahului Gardens and Ilahi at Kahului, both condominium projects, were also built by the same developers and were completed shortly after in 2005.

Two other single-family projects were then constructed in Kahului in 2006 and 2007. These included Kau at Kahului (72 residential lots) and Alolea at Kahului (97-unit house and lot subdivision), developed by Towne Development. In 2008, Stanfors Development developed the Cottages at Kahului (114-unit house and lot subdivision).

More recent construction in the Kahului Project District included Maile Court, a 97-unit duplex-style condominium developed by Towne Development, and the Villas at Kahului at a 103-unit townhouse condominium developed by Stanfors Development.

In addition to construction in the Kahului Project District, residential development spread southerly in the Wailuku area in a small community in Wailuku proper. Jesse Spencer completed the last home in Wailuku Gardens at the end of 2005, a 410-unit affordable housing project. In 2007, two house/lot subdivisions also came to market in Wailuku, Wailoa-15 (16 lots) and Wailoa-Hoakulea (105 lots) by Scott Nukawa. Another unique subdivision that was constructed in the Wailuku area is the Wailuku Country Estates Subdivision, which consists of 184 agriculture lots located near the Pauwela Camp neighborhood just north of Wailuku Town.

**COMMERCIAL**

Commercial development in Kahului is concentrated along the major thoroughfares in strip fashion, while Wailuku's main commercial activity is concentrated in the central core of the town. Due to the central location of these communities, there has historically been strong demand for commercial space in Central Maui, and vacancies within established projects in this region tended to be very low. However, the recent downturn has resulted in less demand for commercial space and higher vacancies, as well as reduced rental rates.

In addition to these centers, Kahului is home to other large retailers including Costume, Kmart, Home Depot, and Wal-Mart. All of the major financial institutions and the large automobile dealerships are also located in Kahului. The Maui Arts and Cultural Center was built in 1993 and includes a 1,200-seat theater, a 250-seat studio theater, an art gallery, meeting rooms, dance studios, an event lawn, administrative offices and a restaurant/gift shop. In 2011, the original stage that served the 5,000 person grand amphitheater was replaced by the $13 million-dollar, state-of-the-art, Yokouchi Pavilion. The Maui Arts and Cultural Center sits on 12-acres at Keopuolani Park, which is located between the University of Hawaii Maui College and the Maui Botanical Gardens.

The hub of commercial activity in Wailuku is concentrated on an area along Main Street and Main Street. Known as Old Wailuku Town, this neighborhood is characterized by oak, low-rise buildings consisting of small, individual shops and offices. Commercial buildings surrounding this area of Wailuku include the State office building, the County office buildings, and the judicial building.

The town is home to numerous professionals in the fields of architecture, engineering, law, financial management, real estate and banking. All of the major financial institutions have branches in Wailuku Town. Notable office buildings in Wailuku include One Main Plaza, Wailuku Executive Center, Maui Realty Services, the Trust Building, and Wells Professional Plaza. Wailuku's office market is...
also feeling the effects of the economic slowdown with evidence of higher vacancies and increasing rents.

INDUSTRIAL

Vacant industrial land has typically been difficult to acquire due to the lack of inventory in the market. Much of the vacant land in Central Maui's industrial parks is being held by business owners, some of whom are waiting for more ideal conditions to build new facilities. Others may be looking for a turn around in the real estate market before putting their property up for sale. However, the same economic downturn that has significantly impacted demand for commercial space in Central Maui has taken its toll on industrial space. Vacancies have increased, while at the same time warehouse rents and land prices have declined.

Kahului

There are several industrial parks in Kahului, but the largest and most established are the Maui (Kahului) Industrial Park, which is bordered by Hana Highway, Puunene Avenue, Dairy Road and Kamehameha Avenue. It includes low-rise warehouse and commercial uses and is occupied by a mixture of industrial, retail and office tenants.

Maui Business Park, Phases I-A and I-B (76 acres), has also attracted commercial, office and industrial users along Dairy Road and Hoakea Street. Phase II of Maui Business Park is currently in design and will ultimately add approximately 179 acres of light industrial land surrounding the first phase.

Other existing industrial subdivisions include the Airport Triangle on about 13 acres, the 40-lot Kamehameha Parkway No. 2, and the Central Maui Baseyard on Mokuleia Highway.

Wailuku

Existing industrial subdivisions in Wailuku include Wailuku Industrial Park, The Millyard, Waike Baseyard and Consolidated Baseyard. The oldest of which is the Wailuku Industrial Park, an improved light industrial subdivision with 74, four simple lots off of Lower Main Street in Wailuku. Lots range from 10,106 square feet to a parcel 3,089 acres in size. This subdivision is approximately 95 percent developed and includes the Wailuku Town Center anchored by Sack 'N Save.

The Millyard was developed in 1983 as an improved light industrial subdivision located at the old Wailuku Sugar Mill site. This industrial subdivision contains 57 lots, and is home to the Wailuku Post Office which opened there during the late-1990s. Approximately 84 percent of this subdivision has been developed with a mixture of commercial and light industrial uses. The Millyard Plaza is one of the largest complexes in this subdivision. Also, several dentists and veterinarians have seen fit to build their own free-standing facilities in

The Millyard, which has developed into more of an office park than an industrial center.

Completed in 2000, the Waike Baseyard in Wailuku consists of 19 lots on approximately 15 acres of land. This subdivision was immediately sold prior to subdivision completion. Consolidated Baseyards, also in Wailuku, was completed in 2007. Built on about 23 acres of land, the 35 lots in this light industrial park saw very strong interest and were sold quickly. The majority of purchasers were local business owners who intended to relocate their operations. These subdivisions were geared toward true industrial users.

The most recent development in the Wailuku area is the Maui Land Village Center. This project completed construction in 2009 and features 72 lots zoned Village-Mixed Use Commercial/Residential. This zoning allows for a mixture of commercial, industrial, and residential use on each property. Businesses that intend to occupy this subdivision include Paradise Beverage, Ace Hardware, Menehune Water, 7-11 Gas Station, Oceanic Time Warner Cable, Times Supermarket, Walgreens, etc. However, only a handful of transactions have actually closed to date. Absorption in this project is moving at a slow pace, which is directly attributed to the economic recession.

CONCLUSION

All public utilities including electricity, water, telephone, and sewer service are available in Kahului and Wailuku, as is police, fire and ambulance services. Propane gas is not a public utility, however, it is available. All charges for public services are standardized for the Island of Maui.

With the increase of public transportation now available on Maui, Kahului and Wailuku are easily accessible from most parts of the Island. This and the fact that it is central to airport and harbor facilities, commercial and industrial establishments, properties located in this area are ideal.

Due to this region being the center of County, State and Federal offices, as well as community services, properties in these areas are anticipated to be in greater demand in the years ahead. Based on the desirability of this area and forecasted demand here, property values are expected to continue their appreciation in the long-term.
C. PROJECT DATA

ENVIROMS

The Puumene Heavy Industrial Subdivision (the "Proposed Project") is a
proposed heavy industrial subdivision with up to 28 lots, situated east
of Makulele Highway, District of Wailea, Island County of Maui.

Makulele Highway is the primary roadway connecting Kahului to Kula
and runs in a generally north-south direction. It is an asphalt-paved
four-lane thoroughfare with two lanes in each direction, divided by a
median. Makulele Highway has street lights, as well as overhead and
underground utilities. A dedicated bicycle and pedestrian path is
situated along the eastern side of the roadway.

Puumene is primarily a commercial area between the Central Maui
and South Maui region. The majority of the surrounding land is being
utilized for commercial sugar cane production. Makalapa Park,
the Hawaiian Cement quarry, the Maui Army National Guard Armory,
and the Maui Humane Society are located nearby. Central Maui
Bassyard, a light/heavy industrial yard, is situated approximately one mile to the north.

Although the immediate area is unpopulated, the Proposed Project will be conveniently
located with respect to its major supporting facilities, such as shopping,
schools, employment, residential and recreational areas in both
Central Maui and South Maui.

DESCRIPTION OF
THE REAL ESTATE:

Property Data:

Legal Description: A title report was not available for review by the
Consultant. The following legal description was excerpted from a
copy of a "Limited Warranty Deed with Reservation of Easements,
Covenants, Reservations and Restrictions" recorded with the Bureau of
Conveyances on March 17, 2011:

All of that certain parcel of land (being portion of the land(s)
described in and covered by Land Patent Number 81-10, Land
Commission Award Number 5230 to Keawamokli) situate, lying
and being at Pulehu, District of Wailea, Island County of
Maui, State of Hawaii, being LOT 2 of the PUA'A Subdivision,
pursuant to survey dated March 8, 2011, to wit:

Beginning at a pipe at the northeasterly corner of this lot, the
coordinates of said point of beginning referred to Government
Survey Triangulation Station "PUU HELE" being 2,265.91 feet north
and 17,073.01 feet east and running by estimates measured
directly from true South:

1. 190° 00' 428.45 feet Lot 3 of the Pua'a Subdivision to
a pipe;

2. 190° 00' 180.00 feet along same to a pipe;

3. 260° 00' 50.00 feet along same to a pipe;

4. 315° 00' 200.00 feet along same to a pipe;

5. Thence along same on a curve to the left with a radius of
512.00 feet, the chord azimuth and
distance being:

   299° 00' 283.91 feet along same to a pipe;

6. 283° 00' 170.00 feet along Lot 3 of the Pua'a
Subdivision to a pipe;

7. 296° 00' 390.00 feet along same to a pipe;

8. Thence along same on a curve to the right with a radius of
262.00 feet, the chord azimuth and
distance being:

   345° 00' 455.63 feet to a pipe;

9. 24° 00' 240.00 feet along Lot 3 of the Pua'a
Subdivision to a pipe;

10. Thence along same on a curve to the left with a radius of
410.00 feet, the chord azimuth and
distance being:

   346° 30' 476.18 feet to a pipe;

11. 313° 00' 235.00 feet along Lot 3 of the Pua'a
Subdivision to a pipe;

12. Thence along same on a curve to the right with a radius of
380.00 feet, the chord azimuth and
distance being:

   313° 00' 40.00 feet along same to a pipe;

13. 22° 00' 70.00 feet along same to a pipe;

14. 289° 00' 400.00 feet along same to a pipe;

15. 10° 00' 130.00 feet along same to a pipe;

16. 320° 00' 230.00 feet along same to a pipe;

17. 350° 00' 200.00 feet along same to a pipe;

18. 20° 00' 160.00 feet along same to a pipe;

This report was not available for review by the Consultant.
Census Tract: The Proposed Project is identified as being within Census Tract No. 307.01.

Owner of Record: The owner of record, as identified by County of Maui public records, is CAMY 2011 Investment, LLC.

Transaction History: Public records indicate that Proposed Project was conveyed from Alexander & Baldwin, Inc. to CAMY 2011 Investment, LLC for a purchase price of $3,500,000. This transaction was recorded in the Bureau of Conveyances on March 17, 2011 as Document No. 11-D44566. There were no other conveyances of the Proposed Project within three (3) years prior to the effective date of this report.

Subject Offering Information: A search of Maui Multiple Listing Service did not reveal any listing of the subject parcel within three (3) years prior to the effective date of this report.

Real Property Tax Assessments and Taxes: Research at the Maui County Real Property Assessment Division revealed the following assessments and taxes for the subject parcel during the tax periods between 2007 and 2011.

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<td>Total</td>
<td>$2,821,600</td>
<td>$2,259,300</td>
<td>$3,540,600</td>
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<tr>
<td>Over $1,000 (Agricultural)</td>
<td>$5,800</td>
<td>$5,000</td>
<td>$4,500</td>
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<tr>
<td>R.P. Taxes</td>
<td>$3,192.32</td>
<td>$2,895.50</td>
<td>$3,376.70</td>
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</table>

For 2011-2012, the County of Maui Real Property Tax Division records show the subject parcel’s market assessment at $2,830,200; however, it is being taxed at $350,400 due to its dedicated agricultural use. The tax rate per $1,000 valuation is $5.80 for Pets 500 (Agricultural). Based on this rate, the subject’s real property tax amounts to $3,192.32 ($550,400 x $5.80). No known special assessments are on record against the subject property.

Land Use Controls: The Proposed Project is located in a State of Hawaii designated Agricultural District and is zoned by the County of Maui as Agricultural District. As shown on the Kula-Makena Community Plan Map, and verified with the Maui County Land Use and Codes Division, the subject property is located in an area classified as Agriculture.

Site Description: The Proposed Project has a land area of 86.030 acres and has a highly irregular shape.

Topography and Soil Conditions: A physical inspection of the property confirmed that topography is generally level to gently sloping. As derived from an USDA Natural Resources Conservation Service online web soil survey, the Proposed Project appears to have primarily Waiakoa extremely stony silty clay loam, 3 to 5 percent slopes, eroded (WID2), with some parts of Aloe cobby sandy loam, 3 to 7 percent slopes (Acb).

The Consultant has not been provided with soil, subsoil or other engineering studies to determine the load-bearing capacity of the subject; however, based on typical construction in the neighborhood and our knowledge of other properties in the immediate vicinity, the project site is presumed to have stable soil conditions and any drainage problems are assumed to be correctable.

Access: As shown on an August 10, 2011 map by R.T. Tonaka Engineers, Inc., "Land Use Policy Exhibit Map Showing Proposed Easements B-1, B-2, B-3, B-4, B-5 and B-6", vehicular access to the Proposed Project from Makawao Highway will be via proposed easements over adjacent parcels. The proposed access easements will consist of portions of Kamaaina Road, South Firebreak Road and Lower Kiel Road, which are private roadways situated on land owned by the State of Hawaii and Alexander & Baldwin, Inc. ("A&B").

Encompassing portions of Kamaaina Road, South Firebreak Road and Lower Kiel Road, proposed Easements B-1, B-3, B-4 and B-5 would need to be granted by the State of Hawaii. Should this access not be obtained within the next five (5) years, the Developer has secured an alternate means of access via A&B via an easement around the northern and eastern sides of Reserve No. 6.

Easements and Restrictions: According to a copy of a "Limited Warranty Deed with Reservation of Easements, Covenants, Reservations and Restrictions", recorded with the Bureau of Conveyances on March 17, 2011, the Proposed Project is encompassed by a 20-foot wide road easement along its westerly boundary. The document further describes a utility easement in favor of Maui Electric Company (Limited and Hawaion Telson granting perpetual right and easement over Easement 3 for utility purposes.

Flood Status: Flood Hazard Districts are delineated on Flood Boundary and Floodway Maps and the Federal Insurance Rate Maps prepared by the Federal Insurance Administration and Federal Emergency Management Agency. The subject parcel is situated on Map Number 150002043806 by the Federal Emergency Management
Agency; revised September 25, 2009, and lies in Flood Zone X. Zone X within Maui County indicates areas determined to be outside of the 0.2 percent annual chance flood plain. Flood insurance is not required for properties within this flood zone.

Utilities: Potable water and sewer service are currently unavailable, while electricity and telephone service are available from overhead lines in the area.

Historic Uses: According to the property owner, the subject property was used as a pig farm since the 1960s and was additionally used as an unpermitted scrap metal storage site since approximately 1995. Prior to the piggy use, the subject property was partly used for cultivation of sugarcane and also as a pineapple camp. Prior to that use, the subject property was part of the Puunene Naval Air Station.

Current Use: On the day of inspection, it was noted the subject parcel had been cleared of previously abandoned scrap metal material and the on-site dilapidated structures had been razed. A broadcast antenna was observed on the northern side of the property.

Most Appropriate Use: Under its agricultural zoning, the subject parcel has poor agricultural potential because of unfavorable soil quality. The proposed industrial subdivision is the most appropriate use of this site from a market perspective. The subject parcel has easy access to all urban areas on the island. It is located between Central Maui and South Maui, yet still is easily accessible to the West Maui and the Upcountry regions.

In addition to the support for heavy industrial use established in the following Market Study section, evidence of the appropriateness of the subject parcel's proposed heavy industrial use was found in the December 2010 Draft Maui Island Plan. The subject parcel is recognized by the Plan and has been included in its Urban Growth Boundary.

Furthermore, the current Kihei-Makena Community Plan has classified approximately 561 acres near the subject parcel as Project District 10 "Old Puʻunene Airport area". The project district suggests "Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy Industrial use." In this light, the creation of the Proposed Project would be consistent with the County of Maui's long-range planning goals for the area.

Description of the Proposed Project

Land & Improvements: The Proposed Project is envisioned as a 28-lot heavy industrial subdivision to be developed on approximately 86.030 acres east of Mokulele Highway, District of Wailuku, Island of Maui, and County of Maui. As shown on the State of Hawaii Tax Maps, the subject parcel is within the District of Wailuku, Island and County of Maui. As of the effective date, the subject site is designated for agricultural uses by State Land Use law, County of Maui zoning and the Kihei-Makena Community Plan. The subject parcel also lies within the proposed Urban Growth Boundary set forth by the (draft) Maui Island Plan (December 2010).

The heavy industrial zoning district provides for a minimum lot size of 10,000 square feet. The sizes of lots in the proposed heavy industrial subdivision shall be determined by the types of uses proposed and the market demand projected approximately six months before the application for subdivision approval is filed with the Development Services Administration, County of Maui. Currently, the plan is to provide ten (10) lots ranging in size from one-half (0.5) acre to one (1) acre; five (5) lots ranging from over one (1) acre to two (2) acres; and the balance ranging from over two (2) acres to twenty (20) acres for a total of twenty-eight (28) lots. The Proposed Project will feature interior roads as well as drainage facilities consistent with County requirements.

Likely Purchasers or Tenants: In light of its unique location, away from the central business districts, Kahului Harbor and Kahului Airport, the proposed subdivision is expected to attract pure industrial users. These types of users have been displaced from the central areas of Kahului and Wailuku, since Maui's "stacked" zoning allows higher-order business use on industrial land.

Those looking for pure industrial space will likely include businesses that manufacture or treat goods from raw materials, in addition to industrial warehouse users and those seeking secured basements. Commercial uses such as retail businesses, professional offices, and service companies are not expected for the Proposed Project, due to its lack of exposure, coupled with the potential for odor, dust, smoke, gas, noise, vibration, etc. from heavy industrial users in the project.
PART III - ANALYSIS AND CONCLUSION

A. MARKET STUDY

For the purpose of estimating the market response to the Proposed Project, a market study was conducted to determine how current supply and demand for industrial properties might be affected by the development of up to 28 heavy industrial lots. The extent of our survey encompassed existing, ongoing (in sales process), and proposed industrial developments on Maui, specifically in the Central Maui region of Wailuku-Kahului.

One of the more difficult factors in determining the success of a proposed project is estimating future supply and demand. There are several components, including the design and pricing of the proposed project. This, of course, is well within the developer's control but has not yet been determined. Another is the overall market environment at the time of pre-sale and project completion. This is, obviously, more difficult to define because it involves forecasting such variables as interest rates, overall market conditions, and general and specific sector real estate market conditions.

The added complications with most development projects are the time frames and time lags involved. Since most subdivision projects take several years between conception and completion, market and interest rate conditions can change significantly. Thus, a project may commence in a favorable environment and be completed in an unfavorable one (or vice versa). Furthermore, real estate is a cyclical industry and sales activity tends to move in spurts. It is not unusual for a new project to sell half its units in the first year of marketing and require 2 to 3 years (or longer) to sell the remaining half. Thus, the notion of a linear sales rate may be deemed unrealistic for practical purposes, but is a useful and convenient tool for planning.

INDUSTRIAL OVERVIEW

The area identified as the Central Maui region encompasses the major communities of Kahului and Wailuku. This popular area contains the major business, civic and transportation centers for the entire island of Maui. Many businesses service the entire island from this convenient Central Maui location; and as a result, demand for industrial space is strong here.

Central Maui has approximately 83 percent of the land in Maui's Industrial and Commercial subdivisions, with the largest amount situated in Kahului. This is not unusual, considering Kahului is home to the Island's primary harbor and airport. Industrial developments in Kahului include the Maui Industrial Park, Kamehameha Parkway Subdivision No. 2; Maui Business Park Phase I-A and I-B; Airport
Table 3 - Summary of Commercial and Industrial Development Projects on Maui

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Location</th>
<th>Gross Project Area in Acres</th>
<th>Primary Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXISTING (Central Maui)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maui Industrial Park, Hana Highway</td>
<td>Kaahol</td>
<td>135</td>
<td>Mixed-Use, Light/Heavy Industrial</td>
</tr>
<tr>
<td>Dairy Boar Industrial Subdivision</td>
<td>Kahului</td>
<td>65</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Keawahaie Park-ay Industrial Subdivision</td>
<td>Kahului</td>
<td>12</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Kailua Square Subdivision</td>
<td>Kahului</td>
<td>12</td>
<td>Retail &amp; Commercial</td>
</tr>
<tr>
<td>West Business Park, Phones 1A &amp; 1B</td>
<td>Kapolei</td>
<td>75</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Waike Industrial Subdivision</td>
<td>Kahului</td>
<td>50</td>
<td>Light/Heavy Industrial</td>
</tr>
<tr>
<td>Westlake Industrial Park</td>
<td>Wailuku</td>
<td>35</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>The Millyard Subdivision</td>
<td>Wailuku</td>
<td>30</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Waike Bayside Subdivision</td>
<td>Wailuku</td>
<td>15</td>
<td>Light Industrial</td>
</tr>
<tr>
<td>Consolidated Bayside Subdivision</td>
<td>Wailuku</td>
<td>15</td>
<td>Light Industrial</td>
</tr>
<tr>
<td>Westlake Village Center</td>
<td>Wailuku</td>
<td>15</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Total</td>
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<td>386</td>
<td></td>
</tr>
<tr>
<td>EXISTING (Kahului)</td>
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<td></td>
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<tr>
<td>Kahal Commercial Center</td>
<td>Kahal</td>
<td>16</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Kahal Business Park</td>
<td>Kahal</td>
<td>7</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Kahal Business Park</td>
<td>Kahal</td>
<td>14</td>
<td>Retail &amp; Commercial</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>EXISTING (West Maui)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waieku Industrial Subdivision</td>
<td>Lehua</td>
<td>37</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Kahului Business Park (Phases 1 &amp; 2)</td>
<td>Lehua</td>
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<tr>
<td>Total</td>
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<td>72</td>
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<tr>
<td>PROPOSED</td>
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<tr>
<td>Punaaua Heavy Industrial Park (SUBJECT)</td>
<td>Wailuku</td>
<td>40</td>
<td>Heavy Industrial</td>
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<tr>
<td>Maui Business Park, Phase I</td>
<td>Kahului</td>
<td>179</td>
<td>Commercial, Mixed-use, Light Industrial</td>
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<tr>
<td>Waike Industrial Park</td>
<td>Wailuku</td>
<td>33</td>
<td>Light Industrial</td>
</tr>
<tr>
<td>Kahului Master Plan</td>
<td>Kahului</td>
<td>16.3</td>
<td>Mixed-Use, Light Industrial</td>
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<tr>
<td>Kahului Subdivision</td>
<td>Kahului</td>
<td>23</td>
<td>Commercial, Mixed-use, Light Industrial</td>
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<tr>
<td>Waike Industrial Park</td>
<td>Wailuku</td>
<td>9</td>
<td>Light Industrial</td>
</tr>
<tr>
<td>Kamehameha Business Park</td>
<td>Kahului</td>
<td>7.5</td>
<td>Commercial, Mixed-use, Light Industrial</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>419</td>
<td></td>
</tr>
</tbody>
</table>

As research was conducted into industrial land in Central Maui, it became very clear that the vast majority of the available, undeveloped land is zoned for light industrial use. Most of the land in Central Maui zoned for heavy industrial use has already been built upon or is being utilized for yard purposes. The minimal amount of vacant land that is available to the market was found in areas considered unsuitable for heavy industrial uses, due to its proximity to residential and commercial developments. The sections to follow discuss the supply and demand factors of the heavy industrial market, as well as their potential influence on the Proposed Project.

HEAVY INDUSTRIAL SUPPLY CHARACTERISTICS

The Central Maui region contains approximately 442 acres of land zoned Heavy Industrial Districts. The Hawaiian Commercial & Sugar mill in Punaaua occupies about 40 acres, while the future power generation plant site for Maui Electric Company was sold to be approximately 65 acres in size. Much of the remaining 337 acres is situated around the Kahului Harbor and Kahului Airport. These lands are utilized in the daily operation of the harbor and airport facilities and were not considered to be available to the market.

Other heavy industrial areas in Central Maui include Waike Industrial Subdivision, Airport Industrial Subdivision, as well as portions of The Millyard and Kahului Industrial Subdivisions. The land underlying Queen Kamauna Center, Maui Mall, and the former Maui Land and Pineapple Company cannery is zoned for heavy industrial use, as are the Hoakul Avenue area and two adjacent properties at the corner of Kamauna Avenue and Kahului Beach Road. Most of these areas have been improved with commercial and light industrial uses or are being held for future development.

Research of the Central Maui heavy industrial market revealed very little vacant land available. The following photographs depict various vacant heavy industrial parcels in Central Maui:

Photograph 1
Photograph 2

Photographs 1 and 2 depict two vacant heavy industrial parcels on Inti Kala Street in The Millyard Subdivision that are currently available for sale. The first lot is situated between a commercial retail/office project (at right) and the Wailuku Post Office (at left). The second lot is located on the northern side of the Wailuku Post Office, at the corner of Inti Kala Street and Ena Street.
The recently conveyed heavy industrial lot depicted in Photograph 3 is located along Kaahumanu Avenue and is temporarily being used as a baseyard. The property is accessed from Waikea Avenue and is situated between Queen Kaahumanu Center (at left) and a gas station (at right).

Photograph 4 depicts a heavy industrial area on the northern side of Waikea Avenue that is currently being marketed. The property was formerly utilized by Maui Land & Pineapple Company for their canning operation. Single family residences and senior housing are located across Waikea Avenue, while Queen Kaahumanu Center is to the adjacent north.

The heavy industrial lot depicted in Photograph 5 is bounded by Haleakala Highway, Kahoa Street and Kale Street. Neighboring properties include commercial retail/office projects and car dealerships.

Photograph 6 depicts an existing heavy industrial lot at the corner of Keolani Place and Haleakala Highway. Keolani Place is the entry roadway to the Kahului Airport. A hotel is being constructed on the adjacent parcel and Casco (at right) is located across Haleakala Highway.

Photograph 7 was previously listed for sale and is situated along Kahului Beach Road, between the Harbor Lights Condominium project (at right) and a commercial retail/office property. Kahului Harbor is located to the east across Lower Beach Road, while the University of Hawaii Maui College is in the west.

The aforementioned vacant heavy industrial land parcels represent most of the limited supply currently available to the market. However, they are all situated in areas deemed unsuitable for heavy industrial uses. The adjacent residential and commercial developments would likely object to the odor, dust, smoke, gas, noise, vibration, etc. that can be generated by a heavy industrial operation. As such, the highest and best use of these lots would likely be for commercial retail/office use, which is currently allowed by the M-2 Heavy Industrial District zoning. Market evidence shows that the trend of commercial retail/office projects being built on industrial land has increased. The demand for developable industrial land for commercial use has led to a significant rise in unit prices, in addition to the decrease of an already limited supply.

There have not been any pure heavy industrial projects created in Central Maui for over a decade. During this period, the focus has
been on the light Industrial market, evidenced the creation of the Maui Business Park, Waikea Business Park, Waitea Business Park, and Mau Place Village Center. The most recent development of heavy Industrial land was the Airport Triangle Subdivision; however, this project houses commercial retail/office centers and car dealerships. As of the effective date, the Proposed Project represents the only planned heavy industrial development for the island. Creation of this additional supply will help alleviate the pent-up demand from pure heavy industrial users and allow them the opportunity to acquire suitable land to build new facilities or expand their current operations.

HEAVY INDUSTRIAL DEMAND CHARACTERISTICS

Demand is analyzed from two perspectives: The first is "demographic" demand: the number of units needed for a given market or employment base. Second is "effective" demand: the process which involves looking at the number of buyers who would be qualified and interested in purchasing Industrial properties.

Population

Population growth on Maui over the last 20 years (1980 to 2000) has been exceptionally high. Overall, population growth for the County of Maui during 1980 to 1990 was 41.67 percent. Meanwhile, the 2000 census figures indicate that population in Maui County increased by 56.73 percent between 1990 and 2000. Maui County was the fastest growing county in the state. With this growth in population came a surge in real estate prices. This increase, driven primarily by foreign and domestic investment and speculation, put the price of homes in Maui County well above the reach of many local residents, and affordable housing became a major concern to everyone. The most recent census data indicates an increase of 20.12 percent in population from 2000 to 2010. Maui County's resident population now stands at 134,834 (2010 census).

According to Population and Economic Projections, Maui County: 2006 to 2035, (Maui County Data Book 2009); the projected population of Maui County is expected to be 192,600 by 2030 and 202,520 by the year 2035. The 2030 and 2035 estimates represent 24.4 and 30.8 percent increases over the 2010 census numbers, respectively.

Central Maui's population grew by approximately 26 percent from 32,310 people in the 1990 census to 40,867 people in the 2000 census. The 2010 census showed an increase to 53,456 people, up about 31 percent from the 2000 census. Central Maui has consistently maintained over 30 percent of the total population of Maui County during this period and its proportion of the County's population increased between 2000 and 2010. The population of South Maui and West Maui accounted for approximately 18 and 14 percent of Maui County's population, respectively, in each of the past census counts.

Population of Maui Districts

Employment and Household Income

The unemployment rate on Maui had been on a decline since 1992 when unemployment was at 8.0 percent. In 2007, the unemployment
rate was 2.8 percent. For 2008, this rate rose to 4.5 percent, after seeing monthly-monthly gains beginning May 2006. This trend continued in 2009, with the average unemployment rate jumping to 8.7 percent. The unemployment rate was 8.9 percent in January 2010 and gradually declined throughout the year ending at 7.4 percent in December 2010; the lowest it has been since late 2008. The average unemployment rate for 2010 was 8.3 percent.

Household income figures have also been increasing. The estimated median annual household income for Maui in 2010 was $76,000 (Source: U.S. Department of Housing and Urban Development), a rise of approximately 53 percent over the 1999 median household income of $49,489 (Source: US Census 2000) and a 96 percent increase over the 1989 figure of $38,771 (Source: US Census 1990). During the 12-year period from 1999 to 2010, this represented an average increase of over 4 percent per year.

Mortgage Interest Rates

From late-1991 to 2002, mortgage rates varied from 6.0 to 9.0 percent. In 2003, mortgage rates for a 30-year fixed rate mortgage fell below 6.0 percent for the first time since Freddie Mac began tracking 30-year mortgage rates in 1971. Over the next six years, the monthly interest rate fluctuated between 5.23 and 6.76 percent. However, due to cuts to the Federal Funds Rate in late 2008, interest rates in 2009 dipped below the 5.0 percent level on numerous occasions. The average interest rate for 2009 was 5.04 percent. Through 2010, the interest rate has averaged 4.69 percent, with the lowest rate seen in October at 4.23 percent. Records that reach back earlier than Freddie Mac’s indicate that this rate is below record lows witnessed in the 1940s, during World War II. Mortgage rates have been generally decreasing over the last four months since February 2011. (See Table 3 below.)

<table>
<thead>
<tr>
<th>30-Year Fixed Mortgage Rates</th>
<th>5 Years Tilting</th>
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<tr>
<td>7.00</td>
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<tr>
<td>5.00</td>
<td>4.80</td>
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</tbody>
</table>

The lower mortgage rates typically mean that real estate becomes more affordable to a larger segment of the population. At the same time, however, prices rise. The rising prices can be driven even higher if developers are restrained from building additional inventory by government restrictions, the unavailability of development land, or unreasonably high land prices.

The aforementioned demographic statistics highlight significant growth for Maui over the past two decades. This has led to a considerable increase of light industrial goods and services providers in the Central Maui region. As discussed previously, light industrial businesses have been accommodated with the creation of the Maui Business Park, Welko Business Subdivision, Consolidated Business and Maui Land Village Center.

However, there has not been a coinciding expansion for the heavy industrial businesses that fabricate, process, and manufacture the materials needed by light industrial users. These heavy industrial businesses may include boiler and steel works; chemical manufacturer; concrete or cement products manufacturers; lumber yards; machine shops; oil storage plants; planting mills; petroleum product manufacturers or wholesale petroleum storage operators; plastic manufacturers; rolling mills; asphalt manufacturers; gas manufacturers; quarry and stone mills, rock, sand, gravel or earth excavation, crushing and distribution facilities; petroleum refineries; and saw mills.
The Proposed Project will also be attractive to other businesses such as automotive wrecking companies, factories, junkyard operators, soap manufacturers, crematories, fertilizer manufacturers, and slaughterhouses. These types of operations are typically not acceptable for populated areas, due to odor, dust, smoke, gas, noise, vibration, etc.

Other Market Influences

Urban Growth

The island of Maui has seen significant growth in virtually all aspects (e.g., population, visitor arrivals, economy) of the community through the last 20 years. Most of the industrial development is typically found in Central Maui where industrial land is currently about 63 percent of the island’s total. Its proximity to the air and sea ports has resulted in the concentration of retail, office, service and industrial uses in the Wailuku-Kahului region. As a result, Central Maui has become the center of commerce for the Island of Maui.

Over the past decade, there have been several light industrial subdivisions that have been introduced and have been success fully absorbed by the market until 2006. However, heavy industrial development has not followed suit. Instead, vacant land zoned for heavy industrial use in Central Maui, and on the Island as a whole, has become increasingly rare. Much of the entitled land is situated by Kahului Harbor and Kahului Airport and is utilized in their operations. The remaining inventory of heavy industrial land in Central Maui has been depleted to a point where rising land values and industrial rents are making it unfeasible for heavy industrial users to build suitable facilities or expand their current operations.

Stacked Zones

One of the primary reasons for the reduction of heavy industrial land is the M-2 Heavy Industrial District’s stacked zoning. In addition to heavy and light industrial uses, the current zoning structure allows higher-order business uses. Examples of new commercial retail/office developments built on heavy industrial land include the Airport Triangle Subdivision, Casita and Kmart. This has also led to the continued conversion of improved properties for commercial retail/office use. 444 Hana Highway was originally a warehouse situated on heavy industrial land; however, the property was redeveloped and now houses numerous commercial retail/office businesses, as well as Marco’s restaurant.

It is becoming increasingly difficult for heavy industrial users to find suitable space for their operations. Recent evidence of this can be seen in the Nokon Avenue area, which is zoned for heavy industrial use. The Consultant is aware of a towing and metals recycling business owner that purchased land and relocated his operation to the area. His property is on interior lot that sits behind a retail strip center, a fuel center/car wash facility and a proposed medical office complex that have frongage along Hana Highway. Although his business is out of character with his neighbors, it is the Consultant’s opinion that the lack of suitable land elsewhere in Central Maui was a factor in his purchase.

Other areas, such as along South Wakiwaka Avenue, Kahului Beach Road and near the Milllary, are also zoned Heavy Industrial District. However, the neighboring uses are primarily commercial retail/office in nature. Furthermore, continued urban expansion has led to residential developments nearby. Both of these factors would likely not be supportive of heavy industrial use.

Some heavy industrial users have moved to the Central Maui baseyard on Malaekahana Highway. While this has solved their problem of doing business in an unsuitable environment, the baseyard offers only short-term land rent. There is no stability for the heavy industrial business user, because there are no lease ownership opportunities, nor the ability to build permanent improvements on the leased sites.

Economic Climate

The economic downturn being witnessed across the nation has significantly affected Maui, through a drop in visitor counts and the drastic slowdown of construction. These industries are two of the primary employment forces on the Island and their decline has had an adverse impact on the local economy. Combined with a more stringent lending environment, the real estate market has been stagnant for the past 4 to 5 years.

However, the real estate market is cyclical. Although the causes and characteristics of these cycles vary, the implications for market participants remain similar in each cycle. On a basic level, when economic activity increases and interest rates rise, real estate becomes less affordable, resulting in decreases in demand and falling prices. Then, as economic activity slows and interest rates decline, properties again become more affordable and, consequently, demand and prices go up repeating the cycle. According to economists, the local economy has begun its recovery with an expected rebound in 2012 and 2013. The real estate market will likely follow suit in the years to follow. As previously stated, the Proposed Project is presently in its planning stage and would require approximately 4 to 5 years to acquire all necessary entitlements and begin construction. The Developers expect the construction phase to be approximately 30 months, followed by the sell-off of the individual lots. Based on this projection, the project may be very well timed with the economic recovery, thus, encountering strong demand from their target market.
Market Absorption of Industrial Land

Due to the lack of development of pure heavy industrial subdivisions on the island, the Consultant has researched the overall industrial market to establish an anticipated absorption rate for the Proposed Project. As discussed previously, recently built subdivisions in Central Maui have catered to the light industrial market. Since many of the products and services needed by light industrial businesses are provided by heavy industrial users, it is reasonable to expect the demand for heavy industrial land to shadow light industrial land absorption.

Recently built subdivisions in Central Maui indicate significantly fast absorption rates. The 11 lots released by the developer of Waika Baseyard in October 2005 totaled just over five acres and were absorbed within five months. This would indicate an absorption rate of 11.90 acres per year.

Consolidated Baseyards was completed in 2006, with 35 marketable lots totaling approximately 21 acres. There were 27 lots, totaling almost 16 acres, immediately sold between October and December 2006. The remaining eight lots, of approximately 6 acres, were sold in 2007. Overall, monthly absorption averaged 1.6 acres, which would translate into about 19 acres per year.

Development of Waika Baseyard and Consolidated Baseyards occurred during the most recent peak of the market, evidenced by their high absorption rates. Other projects that were brought to market during less robust times have witnessed longer marketing periods. To account for the cyclical nature of the real estate market, the Consultant has researched all commercial/industrial subdivisions constructed and marketed over the last 20 years in Central Maui. There were seven (7) subdivisions developed during this time. With the exception of Mala Lani Village Center, which only began closing lots within the last two years, all other subdivisions have been successfully absorbed by the market. Over the last 20 years, approximately 17.474 acres of industrial land has been absorbed, which reflects a straight-line absorption rate of 8.74 acres per year. (Refer to Table 4)

Table 4 – Absorption of Industrial Land (1991-2011)

<table>
<thead>
<tr>
<th>Subdivision/Park</th>
<th>Tax Map Key</th>
<th>Year Introduced</th>
<th>Acres</th>
<th>Absorbed Land Area</th>
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<tr>
<td>Kaneakanea Park</td>
<td>(3) 3-7 Plat 12</td>
<td>1991</td>
<td>19.34</td>
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<tr>
<td>Aina Tialea (Haleiwa Park)</td>
<td>(3) 3-6 Plat 78</td>
<td>1993-1994</td>
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<tr>
<td>Mala Business Park 1-A</td>
<td>(3) 3-6 Plat 60</td>
<td>1985</td>
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<tr>
<td>Mala Business Park 1-B</td>
<td>(3) 3-6 Plat 64</td>
<td>2000</td>
<td>31.95</td>
<td></td>
</tr>
<tr>
<td>Waika Baseyard</td>
<td>(3) 3-6 Plat 27</td>
<td>2000</td>
<td>13.50</td>
<td></td>
</tr>
<tr>
<td>Consolidated Baseyards</td>
<td>(3) 3-6 Plat 94</td>
<td>2007</td>
<td>19.95</td>
<td></td>
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<tr>
<td>Mala Lani Village Center</td>
<td>(3) 3-6 Plat 97</td>
<td>2010</td>
<td>8.10</td>
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</tr>
<tr>
<td><strong>Total in Area:</strong></td>
<td></td>
<td></td>
<td><strong>174.75</strong></td>
<td></td>
</tr>
</tbody>
</table>

Although the number of heavy industrial users is less than light industrial users, many heavy industrial users require substantial amounts of land to function efficiently. Examples of this include towing and vehicle storage base yards, industrial fabricating, portable toilet rental companies, septic tank pumping services, metal recycling facilities, and construction waste disposal operations. The current vision for the Proposed Project is to provide ten (10) lots ranging in size from one-half (0.5) acre to one (1) acre; five (5) lots ranging from over one (1) acre to two (2) acres and the balance ranging from over two (2) acres to twenty (20) acres for a total of twenty five (25) lots. It is expected that the aforementioned potential users, among others, will show strong interest for the Proposed Project's heavy industrial lots.

CONCLUSION

Besides the Proposed Project, there are no other heavy industrial subdivisions currently planned for the Island of Maui. Given this limited supply, it is anticipated that there will be significant interest for its heavy industrial product. The location of the Proposed Project is ideal for heavy industrial use. The absence of residential development in the immediate vicinity should discourage any the demand for higher-end commercial retail/offices facilities in the project. This was shown to be a recurring issue for other heavy industrial areas in Central Maui. Mokulele Highway is expected to adequately accommodate any incremental increase in traffic and the project will be convenient to all of Maui's populated communities.

The Maui Raceway Park is located to the west of the subject parcel, within Project District 10. The park provides a wide variety of recreational uses including drag racing, auto cross racing, go kart racing, dirt oval track racing, radio controlled model aircraft flying and dirt bike racing. Additional nearby uses include a quarry for Hawaiian Cement, the Maui Consolidated Facility for the Hawaii Army National Guard and commercial sugar cane production for HC&S. Heavy industrial operations are also located at the Central Maui
B. ECONOMIC IMPACT ANALYSIS AND PUBLIC COST/BENEFIT ASSESSMENT

Assumptions and Conditions

Estimated construction costs, multipliers, tax rates, interest rates, earnings estimates, demographic information and per capita government expenditures were utilized by the Consultant in determining the economic and fiscal impacts of this proposed residential subdivision. These figures and statistics were obtained through conversations with those active in the construction industry, in addition to the review of various construction budgets, demographic and governmental reports. This consulting report has been based on the assumption that all information gleaned from third party sources is accurate for analytical purposes.

All conclusions in this consulting report have been stated in 2011 dollars, rounded to the nearest $1,000. In doing so, the Consultant has assumed that all construction costs, multipliers, tax rates, interest rates, earnings estimates, demographic information and per capita government expenditures will remain constant throughout the overall 12.5-year construction time forecasted for the development of the subdivision and subsequent lot build-out. The Consultant recognizes that the Developer intends to create a lot-only project and that the individual lot buyers may not necessarily build immediately. However, for the purposes of this analysis, it has been assumed that building construction would commence in conjunction with the lot sales. Although the cyclical nature of the real estate market would undoubtedly produce varied annual assessments and impacts, for the purposes of this report, these have been reported as unweighted averages.

Economic Impacts Related to Development Activities

Construction of the Subdivision and Lot Build-Out

For the purposes of this analysis, it has been assumed that the entitlement process will take approximately 4 to 5 years, with subdivision construction to begin in 2016. According to the client, subdivision construction costs were estimated to be $20,000,000. The forecasted construction time is approximately 30 months, with an average construction cost of $8,000,000 per year.

Based on an average lot size of 102,491 square feet, and an assumed building-to-lot ratio of 30 percent, the average building size in this subdivision is estimated to be approximately 31,000 square feet. Assuming site work costs for each lot is about $397,000 and building construction costs of $125 per square foot, the average development cost per building is estimated to be $6,252,000, or $174,504,000 for the 28 buildings. It was further assumed that the
lot build-out would take approximately 10 years, resulting in an average of $17,304,000 per year.

For the purposes of this analysis, it has been assumed that the aforementioned costs are inclusive of all the work, roads, utilities and landscaping. It also includes the cost of hiring the civil and electrical engineers, soil engineer, environmental engineer, archaeologists, real estate appraiser, traffic engineer, planner, and other consultants.

Indirect Sales
Development and construction activities will also generate indirect sales, through the supply of goods and services to the various construction companies, in addition to the families of their employees. By the same token, these suppliers and their families will purchase goods and services from other companies. This chain reaction continues over and over, with some of the revenues leaking out of Hawaii’s economy with each cycle.

Based on State economic multipliers, off-island indirect sales were estimated at about $5,920,000 per year during the subdivision construction. Meanwhile, Maui indirect sales were estimated at about $4,144,000 per year.

For the subsequent lot build-out, off-island indirect sales were estimated at about $14,348,000 per year. Meanwhile, Maui indirect sales for this period were estimated at about $10,944,000 per year.

Sale of Individual Heavy Industrial Lots
The 28 lots will have a total net land area of about 65.88 acres or approximately 2,849,733 square feet of heavy industrial zoned land. At a preliminary assumption of $20.00 per square foot, the sales of these lots are expected to generate gross sales revenue of about $57,395,000.

Taxable Expenditures and Sales
Final sales generated by the subdivision construction totaled $2,129,000 per year and were considered to be from the personal consumption expenditures of the construction workers and indirect employees during this period. These are sales that are subject to the State of Hawaii General Excise Tax of 4.166 percent.

Intermediate sales, taxed at 0.5 percent, were determined to be from construction expenditures and indirect sales related to the lot build-out, less personal consumption expenditures. Thus, the intermediate sales during the lot build-out were forecasted to be $34,731,000 per year. When added to the final sales, the taxable expenditures and sales amounted to $45,142,000 annually.

Profits Realized
The Consultant has forecast profit and risk premium from the subdivision construction to be $2,766,000 per year, over the 2.5-year period. Meanwhile, the forecasted profit and risk premium from the lot build-out amounted $5,387,000 per year, over the 10-year period.

It should be noted that these figures consider both direct and indirect sales at all levels of business. For example, in addition to the profit to the Developer, there will be profit expectations by subcontractors, service vendors, supply companies, and supportive goods and services providers.

Direct and Indirect Employment
New job opportunities created by this development will start with the design and entitlement process, employing architects, engineers, surveyors, and land use planners. Site work, road work and the installation of utility and drainage lines typically utilize heavy equipment operators, tractor-trailer drivers and utility personnel. Vertical construction of the heavy industrial buildings and lot improvements will employ masons, carpenters, sheet metal workers, roofers, drywall installers, plumbers, electricians and painters. Finish work will require cabinet makers, carpet and tile installers, interior decorators, and landscapers.

The increase in construction will also create the need for supplementary companies to strengthen their labor force. These jobs may be from building supply companies, hardware stores, equipment rental companies, and shipping/warehousing companies. In addition, the construction laborers and their families will patronize local goods and services providers. Grocers, restaurants, service stations, auto repair shops, financial institutions, recreational venues, medical facilities and personal care businesses could be considered potential companies that would need to bolster their employee count.
Based on State economic multipliers, direct jobs on Maui were forecasted to average 32 jobs annually, while indirect jobs were forecasted to average 33 jobs annually, resulting in an estimated annual average of 65 Maui jobs directly and indirectly tied to the subdivision construction. Meanwhile, indirect employment on Oahu could possibly add an average 17 jobs per year.

For the lot build-out, 70 direct and 72 indirect Maui jobs were forecasted annually, resulting in an estimated annual average of 142 Maui jobs directly and indirectly tied to the lot build-out. Meanwhile, indirect employment on Oahu could possibly add an average 38 jobs per year.

**Direct and Indirect Payroll**

Payroll directly related to the subdivision construction was estimated to be $1,562,000 per annum, based on statistics gleaned from the State of Hawaii Department of Labor and Industrial Relations (DLIR) job counts determined in the previous section. It should be noted that most construction positions are expected to be filled by Maui laborers. Indirect Maui payroll came out to $1,206,000 per year, while indirect Oahu payroll was $702,000 annually. Total direct and indirect payroll attributed to the subdivision construction was forecasted to be $3,470,000 per year.

Payroll directly related to the lot build-out was estimated to be $4,292,000 per annum. Again, construction positions are expected to be filled by Maui laborers. Indirect Maui payroll came out to $2,632,000 per year, while indirect Oahu payroll was $1,570,000 annually. Total direct and indirect payroll attributed to the lot build-out was forecasted to be $8,494,000 per year.

**Supported Population**

Statistical information obtained from the DLIR indicated Maui residents supported by construction jobs attributed to the subdivision construction are expected to be 70 residents per year, while residents supported by indirect jobs attributed to the subdivision construction were estimated to be 36 residents per year. In all, 179 residents per year on Maui and Oahu will potentially be supported by the subdivision construction.

Maui residents supported by construction jobs attributed to the lot build-out are expected to be 154 residents per year, while residents supported by indirect jobs attributed to the lot build-out were estimated to be 80 residents per year. Oahu residents supported by indirect jobs created by this development were estimated to be 30 residents per year. In all, 392 residents per year on Maui and Oahu will potentially be supported by the lot build-out.

**Economic Impacts of Stabilization**

**Supported Households**

Statistical information obtained from the DLIR indicated that 24 households per year on Maui are expected to be supported by construction jobs attributed to the subdivision construction, while households annually supported through indirect jobs amounted to 25. Oahu households annually supported through indirect jobs created by the subdivision construction were estimated to be 18. In all, 61 households on Maui and Oahu will potentially be supported annually by the subdivision construction.

63 households per year on Maui are expected to be supported by construction jobs attributed to the lot build-out, while households annually supported through indirect jobs amounted to 54. Oahu households annually supported through indirect jobs created by the lot build-out were estimated to be 36. In all, 129 households on Maui and Oahu will potentially be supported annually by the lot build-out.

It should be noted that this category does not necessarily represent additional housing units needed for direct and indirect employees, but indicates the potential number of households that would be financially linked to monies earned by such workers.

**Employment and Wages**

As discussed previously, the average lot size within the Puuone Heavy Industrial Subdivision will be 2,335 acres. At a 30 percent floor area-to-lot ratio, the average building size within the subdivision is forecasted to be approximately 31,000 square feet. Assuming a $300 square foot per employee ratio, the subdivision is estimated to have about 1,736 employees upon stabilization. Assuming an average annual wage of $36,025 per employee, the annual wages of the subdivision workforce is estimated to be $60,911,000.

**Gross Sales Revenue and Profit**

Given the heavy industrial uses expected for this project, an assumption of $250 gross sales revenue per square foot was applied to the total building area of the subdivision. This resulted in estimated annual gross sales revenue of $217,000,000 for the subdivision. Assuming an average profit margin of 10 percent, the annual profit generated within the subdivision from the gross sales revenue was calculated to be $21,700,000 per year.

**Property Values**

Upon stabilization of the subdivision, average property value was assumed to be $2,222,000, or $174,504,000 for the entire subdivision.
County of Maui

Typically, the County accumulates revenue from developments in the form of fees, such as for permits and impact fees attributed to the development. However, permit fees are charged to cover the County's cost to provide services like plan review, inspections, etc. Impact fees are more common in residential development; however, even for industrial/commercial developments, the amount of the fees is typically based on an amount that will offset the anticipated additional burden to County facilities. In both cases, no net cost or benefit was considered at the County level.

Cumulative expenditures typically include the County's share of infrastructure and facility improvements, which may include interior roads, water sources, drainage and sewer systems, and recreational areas. In the case of the subject, the Developer will bear the majority of these improvement costs.

State of Hawaii

The majority of the revenues to the State of Hawaii will be recognized through various taxes, including Conveyance Tax, Excise Tax, Corporate Income Tax, and Personal Income Tax. For the purposes of this analysis, a conveyance tax based on $0.20 per $100 of value was assumed for the lot sales. With the average lot value being approximately $7,357,000, the conveyance tax due to the development lot sales is about $1,471,000.

Excise tax is based on two rates, 4.166 percent for final sales and 0.5 percent for intermediate sales. The course of the subdivision construction and subsequent lot build-out periods, the cumulative tax expectancy for final sales amounted to $4,559,000, while intermediate sales should equal $6,495,000.

Corporate income tax is realized on profits gained through the subdivision construction and subsequent lot build-out periods, which was estimated to be $3,801,000. Meanwhile, personal income tax was forecasted to be $3,974,000. As such, cumulative revenues related to the subdivision construction and subsequent lot build-out periods were $14,401,000.

Cumulative expenses to the State are not expected. The subject's access point from Makulele Highway, a State roadway, is currently a signalized intersection. Given the heavy commercial vehicles that already operate in the area, it is assumed that there would not be a need to expand traffic control measures on Makulele Highway.

Regardless, it is assumed that the Developer would bear the majority of improvement costs necessary for project development.

County of Maui

Upon stabilization, County benefits would primarily be generated in the form of real property taxes. As previously discussed, the net taxable value of the 28 improved properties was determined to be about $65,995,000. The 2011 tax rate for Pitt Code 400 (Industrial) is $7.00 per $1,000 of assessed value. Thus, the tax obligation for the 28 improved properties was calculated at $1,161,000 per year.

The Pauena Heavy Industrial Subdivision is slated to be built on State of Hawaii Tax Map Key: (3) 3-8-08-019. According to the County of Maui Real Property Tax Division, the Developer currently pays approximately $3,000 per year in property taxes for this parcel. This amount was deducted from the annual revenues at stabilization, as the County will no longer receive this income. The resulting net real property tax revenue at stabilization was estimated to be about $1,158,000 annually.

County of Maui annual costs at stabilization were considered to be for general services, infrastructure maintenance, and public safety. These expenditures are more commonly attributed to the residential aspect of the island population; however, for the purposes of this analysis, proportionate per-capita annual expenditures were utilized. This was based on the assumption that each employee is also a resident of Maui County. The Consultant acknowledges that in using this methodology, the results represent what is likely the high end of the annual cost expectancy to the County.

On a per-capita basis, the annual cost for services was estimated to be approximately $2,779 per year, plus debt service of $226 per year. Assuming that each employee spends approximately 20 percent of their time on their job site, the proportionate annual cost for County services was estimated as $556, with proportionate annual debt service of $45. The resulting net cost was estimated to be $1,043,000.

State of Hawaii

Upon stabilization, State benefits would be through the receipt of Personal Income Tax, Excise Tax, and Corporate Income Tax as a result of the ongoing businesses. An annual basis, personal income tax from the subdivision employee wages amounted to $2,772,000, while excise tax on the gross sales revenue of the businesses was estimated to be $9,040,000 per year. Corporate income tax as a...
result of the gross sales revenue of the businesses was forecasted to be $1,389,000 per year. Total annual revenues at upon stabilization amounted to $13,921,000.

Annual expenditures to the State were said to be from the services to residents, and debt service attributed to general improvements. Proportionate per-capita annual expenditures were utilized, similar to the County cost analysis. Again, the Consultant acknowledges that in using this methodology, the results represent what is likely the high end of the annual cost expectation to the State.

On a per-capita basis, the annual cost for services was estimated to be approximately $7,442 per year, plus debt service of $339 per year. Assuming that each employee spends approximately 20 percent of their time at their job site, the proportionate annual cost for County services was estimated at $1,488, with proportionate annual debt service of $72. The resulting net cost was estimated to be $2,708,000.

Conclusion

The development of the Puunene Heavy Industrial Subdivision is expected to generate significant expenditures by the project developer, as well as by the secondary owners and developers of the 26 heavy industrial lots. These expenditures are expected to favorably impact the County and State economies on a broad scale, and in a multitude of ways.

- Site work and infrastructure construction for this subdivision will immediately infuse capital into the County and State economies. Numerous consultants will be involved in the initial planning stages, and the construction trades will benefit from the job creation of this project.
- Advertising for the project and marketing of the lots will benefit graphic artists, advertising companies, newspapers, real estate sales agents, escrow companies, etc.
- Site work and the development of each individual lot (by secondary owners) will again result in additional work for engineers, architects, material suppliers, equipment rentals and sales, landscaping companies, and other related industries.
- The new buildings (by individual lot owners) will not only attract existing businesses, but it should also stimulate the generation of new businesses and employment growth. This will have an indirect effect on retail businesses, restaurants and service establishments as the expanded workforce purchases goods and services. This should pass through the entire community, causing a ripple effect and increase the amount of capital flowing through Maui.
- Upkeep of this subdivision and the buildings will also translate into work for maintenance companies, painting companies, real estate management and leasing groups, etc.
- During the development of the Puunene Heavy Industrial Subdivision, fiscal benefits to the State of Hawaii will be realized through the receipt of additional income tax, general excise tax, and conveyance tax associated with construction activities. Based on the assessment assumptions contained herein, the cumulative benefits over the course of the development, which includes subdivision construction and subsequent lot build-out, are anticipated to outweigh the public cost to the State.
- Upon stabilization, fiscal benefits from the ongoing operation of the Puunene Heavy Industrial Subdivision will include increases in real estate taxes collected by the County of Maui, as well as additional income tax and general excise tax inflow for the State of Hawaii. Based on the assessment assumptions contained herein, the resulting annual public benefits are expected to consistently outweigh annual public costs, at both the County and State levels.
EXHIBITS

EXHIBIT A
Photographs of the Subject Site
Photograph No. 1
View of northerly portion of subject. The camera is facing southerly.

Photograph No. 2
View of southerly portion of subject. The camera is facing northerly.

Photograph No. 3
View of easterly portion of subject. The camera is facing northwesterly.

Photograph No. 4
View of westerly portion of subject. The camera is facing northerly.
### Pop-Facts: Demographic Snapshot Report

**Population**

<table>
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<tr>
<th>Description</th>
<th>Total County %</th>
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<tr>
<td>2015 Projection</td>
<td>153,962</td>
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<tr>
<td>2010 Estimate</td>
<td>146,130</td>
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<td>2000 Census</td>
<td>128,064</td>
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<td>1990 Census</td>
<td>100,374</td>
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**Growth 2010-2015**

| Growth 2010-2015 | 5.11% |
| Growth 2000-2010 | 14.03% |
| Growth 1990-2000 | 27.05% |

**2010 Est. Pop by Single Race Class**

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<td>Black or African American Alone</td>
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<td>Amer Indian and Alaska Native Alone</td>
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<td>Asian Alone</td>
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<td>Native Hawaiian and Other Pacific Islander Alone</td>
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**2010 Est. Pop Hispanic or Latino by Origin**

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<td>All Other Hispanic or Latino</td>
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**2010 Est. Hispanic or Latino by Single Race Class**

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**Description**

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<td>Laotian</td>
<td>90</td>
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<tr>
<td>Thai</td>
<td>37</td>
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<tr>
<td>All Other Asian Races, Including 2+ Categories</td>
<td>2,483</td>
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**Estimated Population by Language**

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<tbody>
<tr>
<td>Arab</td>
<td>145</td>
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<tr>
<td>Czech</td>
<td>180</td>
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<tr>
<td>Danish</td>
<td>1,000</td>
</tr>
<tr>
<td>English</td>
<td>8,902</td>
</tr>
<tr>
<td>French (except Basque)</td>
<td>2,059</td>
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<tr>
<td>French Canadian</td>
<td>582</td>
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<tr>
<td>German</td>
<td>6,284</td>
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<tr>
<td>Greek</td>
<td>153</td>
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<td>Hungarian</td>
<td>666</td>
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<tr>
<td>Irish</td>
<td>5,515</td>
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<td>Italian</td>
<td>5,796</td>
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<tr>
<td>Lithuanian</td>
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<tr>
<td>United States or American</td>
<td>1,240</td>
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<tr>
<td>Norwegian</td>
<td>1,106</td>
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<tr>
<td>Polish</td>
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<td>Portuguese</td>
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<td>Russian</td>
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<td>Scottish</td>
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<td>Scots-Irish</td>
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<td>Slovak</td>
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<td>Sub-Saharan African</td>
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<td>Swedish</td>
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<td>Ukrainian</td>
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<td>Welsh</td>
<td>857</td>
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<td>West Indian (see Holding groups)</td>
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<tr>
<td>Other ancestry</td>
<td>93,362</td>
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### Pop-Facts: Demographic Snapshot Report

#### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County %</th>
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<tbody>
<tr>
<td>2010 Est. Male Population by Age</td>
<td>74,631</td>
</tr>
<tr>
<td>Age 0-4</td>
<td>5,031 6.74</td>
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<tr>
<td>Age 5-9</td>
<td>4,610 6.18</td>
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<tr>
<td>Age 10-14</td>
<td>4,417 5.92</td>
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<tr>
<td>Age 15-17</td>
<td>2,877 3.85</td>
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<tr>
<td>Age 18-20</td>
<td>2,410 3.24</td>
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<tr>
<td>Age 21-24</td>
<td>3,457 4.63</td>
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<tr>
<td>Age 25-34</td>
<td>11,900 15.93</td>
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<tr>
<td>Age 35-44</td>
<td>13,278 17.11</td>
</tr>
<tr>
<td>Age 45-54</td>
<td>10,579 14.17</td>
</tr>
<tr>
<td>Age 55-64</td>
<td>9,582 12.88</td>
</tr>
<tr>
<td>Age 65-74</td>
<td>4,740 6.35</td>
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<tr>
<td>Age 75-84</td>
<td>2,474 3.31</td>
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<tr>
<td>Age 85 and over</td>
<td>1,074 1.46</td>
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<tr>
<td>2010 Est. Average Age, Male</td>
<td>37.32</td>
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<td>2010 Est. Female Population by Age</td>
<td>71,162</td>
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<tr>
<td>Age 0-4</td>
<td>4,703 6.57</td>
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<td>Age 5-9</td>
<td>4,369 6.11</td>
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<td>Age 10-14</td>
<td>4,135 5.92</td>
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<td>Age 15-17</td>
<td>2,766 3.87</td>
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<td>Age 18-20</td>
<td>2,229 3.11</td>
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<td>Age 21-24</td>
<td>3,166 4.42</td>
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<td>Age 25-34</td>
<td>9,029 12.46</td>
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<td>Age 35-44</td>
<td>9,933 13.88</td>
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<td>Age 45-54</td>
<td>11,119 15.54</td>
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<td>Age 55-64</td>
<td>9,232 12.90</td>
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<tr>
<td>Age 65-74</td>
<td>5,195 7.20</td>
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<tr>
<td>Age 75-84</td>
<td>3,212 4.49</td>
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<tr>
<td>Age 85 and over</td>
<td>1,734 2.42</td>
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<tr>
<td>2010 Est. Average Age, Female</td>
<td>39.64</td>
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<tr>
<td>2010 Est. Average Age, Female</td>
<td>39.53</td>
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<tr>
<td>Description</td>
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<tr>
<td>--------------------------------------------------</td>
<td>--------</td>
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<tr>
<td><strong>2010 U.S. Pop. Age 15+ by Marital Status</strong></td>
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<tr>
<td>Total, Never Married</td>
<td>37,238</td>
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<tr>
<td>Male, Never Married</td>
<td>21,914</td>
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<tr>
<td>Female, Never Married</td>
<td>15,324</td>
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<tr>
<td>Married, Spouse Present</td>
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<tr>
<td>Married, Spouse absent</td>
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<td>Widowed</td>
<td>6,128</td>
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<td>Male Widowed</td>
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<td>Female Widowed</td>
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<tr>
<td>Divorced</td>
<td>13,090</td>
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<tr>
<td>Male Divorced</td>
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<tr>
<td>Female Divorced</td>
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<td><strong>2010 U.S. Pop. Age 15+ by Education Attainment</strong></td>
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<td>Less than 9th grade</td>
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<td>Some High School, no diploma</td>
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<td>High School Graduate (GED)</td>
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<td>Some College, no degree</td>
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<tr>
<td>Bachelor's Degree</td>
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<tr>
<td>Master's Degree</td>
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<tr>
<td>Professional School Degree</td>
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<td>Doctorate Degree</td>
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<td><strong>2010 U.S. Pop. Age 25+ by Education Attainment</strong></td>
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<td>Less than 9th grade</td>
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<tr>
<td>Some High School, no diploma</td>
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<tr>
<td>High School Graduate (GED)</td>
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<td>Some College, no degree</td>
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<tr>
<td>Bachelor's Degree</td>
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<tr>
<td>Master's Degree</td>
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<th>Total</th>
<th>County</th>
<th>%</th>
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<tr>
<td><strong>Households</strong></td>
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<td>2015 Projection</td>
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<tr>
<td>2010 Estimate</td>
<td>50,686</td>
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<tr>
<td>2000 Census</td>
<td>48,907</td>
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<td></td>
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<tr>
<td>1990 Census</td>
<td>33,143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth 200-2015</td>
<td>6.17%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth 2010-2015</td>
<td>15.95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Growth 1990-2000</td>
<td>31.26%</td>
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<td></td>
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<tr>
<td><strong>2010 U.S. Households by Household Type</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Family Households</strong></td>
<td>12,016</td>
<td>48.60</td>
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<tr>
<td>Nonfamily Households</td>
<td>15,992</td>
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<td><strong>2010 U.S. Group Quarter Population</strong></td>
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<tr>
<td>Family Households</td>
<td>1,408</td>
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<tr>
<td>Nonfamily Households</td>
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<td>7.05</td>
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<tr>
<td><strong>2010 U.S. Income by Income</strong></td>
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<tr>
<td>Less than $15,000</td>
<td>50,880</td>
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<tr>
<td>Income $15,000 - $24,999</td>
<td>4,374</td>
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<tr>
<td>Income $25,000 - $34,999</td>
<td>4,201</td>
<td>8.26</td>
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<td>Income $35,000 - $49,999</td>
<td>6,415</td>
<td>12.79</td>
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<td>Income $50,000 - $74,999</td>
<td>9,847</td>
<td>19.31</td>
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<tr>
<td>Income $75,000 - $99,999</td>
<td>8,241</td>
<td>16.30</td>
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<td>Income $100,000 - $124,999</td>
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<td>8.88</td>
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<tr>
<td>Income $125,000 - $149,999</td>
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<td>Income $150,000 - $199,999</td>
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<td>2.51</td>
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<td>Income $200,000 - $499,999</td>
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<tr>
<td>Income $500,000 and more</td>
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<td>1.55</td>
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<tr>
<td><strong>2010 U.S. Average Household Income</strong></td>
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<tr>
<td><strong>2010 U.S. Median Household Income</strong></td>
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<tr>
<td><strong>2010 U.S. Per Capita Income</strong></td>
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</table>
### Pop-Facts: Demographic Snapshot Report

#### County, (see appendix for geography), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian Medicine</td>
<td>62.01</td>
</tr>
<tr>
<td>Black or African American Alone</td>
<td>31.83</td>
</tr>
<tr>
<td>American Indian and Alaska Native Alone</td>
<td>55.00</td>
</tr>
<tr>
<td>Asian Alone</td>
<td>73.33</td>
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<tr>
<td>Native Hawaiian and Other Pacific Islander Alone</td>
<td>57.68</td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>41.94</td>
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<tr>
<td>Two or More Races</td>
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<tr>
<td>Hispanic or Latino</td>
<td>53.95</td>
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<tr>
<td>Non-Hispanic or Latino</td>
<td>67.58</td>
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</table>

#### 2010 Race/Ethnicity by Age of Resident Children

<table>
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<tr>
<td>Asian Medicine</td>
<td>31.08</td>
</tr>
<tr>
<td>Black or African American</td>
<td>43.73</td>
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<tr>
<td>American Indian and Alaska Native</td>
<td>31.83</td>
</tr>
<tr>
<td>Asian</td>
<td>31.08</td>
</tr>
<tr>
<td>Hispanic, or Latino</td>
<td>67.58</td>
</tr>
<tr>
<td>Non-Hispanic or Latino</td>
<td>67.58</td>
</tr>
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</table>

#### 2010 Age, Race/Ethnicity by Household Size

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-person household</td>
<td>11.72</td>
</tr>
<tr>
<td>2-person household</td>
<td>15.54</td>
</tr>
<tr>
<td>3-person household</td>
<td>8.73</td>
</tr>
<tr>
<td>4-person household</td>
<td>6.92</td>
</tr>
<tr>
<td>5-person household</td>
<td>3.72</td>
</tr>
<tr>
<td>6-person household</td>
<td>1.88</td>
</tr>
<tr>
<td>7 or more person household</td>
<td>1.84</td>
</tr>
<tr>
<td>2.84</td>
<td></td>
</tr>
</tbody>
</table>

#### 2010 Households by Presence of People

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households with 1 or more People under Age 18</td>
<td>76.80</td>
</tr>
<tr>
<td>Married-Couple Family</td>
<td>21.80</td>
</tr>
<tr>
<td>Other Family, Male Householder</td>
<td>21.80</td>
</tr>
<tr>
<td>Nonfamily, Male Householder</td>
<td>21.80</td>
</tr>
<tr>
<td>Nonfamily, Female Householder</td>
<td>21.80</td>
</tr>
</tbody>
</table>

#### 2010 Households by Number of Vehicles

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County %</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Vehicles</td>
<td>2.09</td>
</tr>
<tr>
<td>2 Vehicles</td>
<td>4.09</td>
</tr>
<tr>
<td>3 Vehicles</td>
<td>4.09</td>
</tr>
<tr>
<td>4 Vehicles</td>
<td>4.09</td>
</tr>
<tr>
<td>5 or more Vehicles</td>
<td>4.09</td>
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#### 2010 Estimated Average Household Age

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>2011 Present</td>
<td>37.10</td>
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<td>2010 Estimate</td>
<td>34.09</td>
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<tr>
<td>2000 Census</td>
<td>29.89</td>
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<td>1990 Census</td>
<td>25.33</td>
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<table>
<thead>
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<th>Description</th>
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<tbody>
<tr>
<td>Growth 1990-2000</td>
<td>4.16%</td>
</tr>
<tr>
<td>Growth 2000-2010</td>
<td>1.89%</td>
</tr>
<tr>
<td>Growth 2010-2015</td>
<td>3.95%</td>
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#### 2010 Exit Poverty Status

<table>
<thead>
<tr>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2010 Families at or Above Poverty</td>
<td>84.95</td>
</tr>
<tr>
<td>2010 Families at or Above Poverty with Children</td>
<td>84.95</td>
</tr>
<tr>
<td>2010 Families Below Poverty</td>
<td>17.81</td>
</tr>
<tr>
<td>2010 Families Below Poverty with Children</td>
<td>13.45</td>
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## Pop-Facts: Demographic Snapshot Report

### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>2010 Est. Pop Age in Force Employment Status</td>
<td>116,907</td>
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<tr>
<td>In Armed Forces</td>
<td>396</td>
<td>0.34</td>
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<tr>
<td>Civilian - Employed</td>
<td>77,635</td>
<td>66.41</td>
</tr>
<tr>
<td>Civilian - Unemployed</td>
<td>3,784</td>
<td>3.19</td>
</tr>
<tr>
<td>Not in Labor Force</td>
<td>33,422</td>
<td>28.46</td>
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### Non-Profit Private Workers by Type of Worker

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>For-Profit Private Workers</td>
<td>74,231</td>
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</tr>
<tr>
<td>Non-Profit Private Workers</td>
<td>50,672</td>
<td>68.76</td>
</tr>
<tr>
<td>Local Government Workers</td>
<td>2,815</td>
<td>3.79</td>
</tr>
<tr>
<td>State Government Workers</td>
<td>6,815</td>
<td>0.88</td>
</tr>
<tr>
<td>Federal Government Workers</td>
<td>1,139</td>
<td>1.44</td>
</tr>
<tr>
<td>Self-Emp Workers</td>
<td>1,801</td>
<td>2.41</td>
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<tr>
<td>Unpaid Family Workers</td>
<td>290</td>
<td>0.04</td>
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### County, (see appendix for geographies), aggregate

<table>
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<tr>
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<th>Total County</th>
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<tbody>
<tr>
<td>2010 Est. Pop Age by Occupation</td>
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<tr>
<td>Architect/Engineer</td>
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<td>3.63</td>
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<tr>
<td>Building Grounds Manuf</td>
<td>5,556</td>
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<td>Business/Financial Ops</td>
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<td>Community/Soc Serv</td>
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<td>Computer/Mathematical</td>
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<td>0.06</td>
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<tr>
<td>Construction/Extraction</td>
<td>6,360</td>
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<tr>
<td>Edu/Training/Library</td>
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<td>5.50</td>
</tr>
<tr>
<td>Farm/Past/Poultry</td>
<td>789</td>
<td>1.05</td>
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<tr>
<td>Food Prep/Serving</td>
<td>999</td>
<td>1.34</td>
</tr>
<tr>
<td>Health Practitioner/Tec</td>
<td>2,343</td>
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<td>Healthcare Support</td>
<td>1,610</td>
<td>2.18</td>
</tr>
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<td>Maintenance Repair</td>
<td>1,062</td>
<td>1.42</td>
</tr>
<tr>
<td>Legal</td>
<td>139</td>
<td>0.23</td>
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<tr>
<td>Life/Phys/Sci Scientist</td>
<td>318</td>
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<tr>
<td>Management</td>
<td>6,543</td>
<td>8.82</td>
</tr>
<tr>
<td>Office/Admn Support</td>
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<td>11.04</td>
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<tr>
<td>Production</td>
<td>2,145</td>
<td>2.89</td>
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<tr>
<td>Promotive Sales</td>
<td>2,472</td>
<td>3.33</td>
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<tr>
<td>Sales/retail</td>
<td>8,881</td>
<td>11.96</td>
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<tr>
<td>Personal Care/Service</td>
<td>2,810</td>
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<tr>
<td>Transportation/Moving</td>
<td>3,712</td>
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### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
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<tbody>
<tr>
<td>2010 Est. Pop Age by Occupation</td>
<td>74,231</td>
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<tr>
<td>Blue Collar</td>
<td>15,101</td>
<td>20.34</td>
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<tr>
<td>White Collar</td>
<td>18,455</td>
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<tr>
<td>Service and Firm</td>
<td>20,325</td>
<td>27.38</td>
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### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>2010 Est. Workers Age 55+ Travel Time to Work</td>
<td>72,261</td>
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</tr>
<tr>
<td>Less Than 15 Minutes</td>
<td>26,723</td>
<td>36.94</td>
</tr>
<tr>
<td>15 - 29 Minutes</td>
<td>21,220</td>
<td>29.37</td>
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<td>30 - 44 Minutes</td>
<td>12,554</td>
<td>17.37</td>
</tr>
<tr>
<td>45 - 54 Minutes</td>
<td>4,876</td>
<td>6.65</td>
</tr>
<tr>
<td>60 or More Minutes</td>
<td>3,324</td>
<td>4.50</td>
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### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 Est. Avg. Travel Time to Work in Minutes</td>
<td>22.72</td>
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<tr>
<td>Owner Occupied</td>
<td>50,880</td>
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<tr>
<td>Renter</td>
<td>26,315</td>
<td>35.38</td>
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<tr>
<td>1990 Owner Occ. H/H Avg. Length of Residence</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2010 Renter Occ. H/H Avg. Length of Residence</td>
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### County, (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total County</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>2010 Renter Occ. H/H Avg. Length of Residence</td>
<td>8</td>
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*Prepared By: Nielsen Johnson New Media (214) 666-6881*

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### Pop-Facts: Demographic Snapshot Report

**County (see appendix for geographic, aggregate):**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>County %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 U.S.: All Owners/Dwellings, Housing Values</td>
<td>29,365</td>
<td>0.23</td>
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<tr>
<td>Value Less than $20,000</td>
<td>67</td>
<td>0.23</td>
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<tr>
<td>Value $20,000 - $49,999</td>
<td>35</td>
<td>0.11</td>
</tr>
<tr>
<td>Value $50,000 - $99,999</td>
<td>110</td>
<td>0.44</td>
</tr>
<tr>
<td>Value $100,000 - $199,999</td>
<td>66</td>
<td>0.23</td>
</tr>
<tr>
<td>Value $200,000 - $299,999</td>
<td>82</td>
<td>0.28</td>
</tr>
<tr>
<td>Value $300,000 - $399,999</td>
<td>360</td>
<td>1.03</td>
</tr>
<tr>
<td>Value $400,000 - $499,999</td>
<td>625</td>
<td>2.14</td>
</tr>
<tr>
<td>Value $500,000 - $699,999</td>
<td>2,089</td>
<td>10.21</td>
</tr>
<tr>
<td>Value $700,000 - $899,999</td>
<td>7,835</td>
<td>13.10</td>
</tr>
<tr>
<td>Value $900,000 - $999,999</td>
<td>4,622</td>
<td>15.79</td>
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<tr>
<td>Value $1,000,000 or more</td>
<td>8,863</td>
<td>30.30</td>
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<tr>
<td>Value $1,000,000 or more</td>
<td>3,625</td>
<td>12.89</td>
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<tr>
<td>Value $1,000,000 or more</td>
<td>4,008</td>
<td>13.70</td>
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**2018 Est. Median All Owners/Occupied Housing Value:** 552,872

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 U.S.: Housing Units by Units, Structure Type</th>
<th>2018 Est. Median All Owners/Occupied Housing Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Unit Attached</td>
<td>2,366</td>
<td>55.97</td>
</tr>
<tr>
<td>1 Unit Detached</td>
<td>37,418</td>
<td>55.97</td>
</tr>
<tr>
<td>2 Units</td>
<td>3,871</td>
<td>5.78</td>
</tr>
<tr>
<td>3 or 4 Units</td>
<td>2,482</td>
<td>3.71</td>
</tr>
<tr>
<td>5 to 9 Units</td>
<td>9,881</td>
<td>13.26</td>
</tr>
<tr>
<td>10 to 19 Units</td>
<td>4,302</td>
<td>6.42</td>
</tr>
<tr>
<td>20 to 49 Units</td>
<td>7,024</td>
<td>10.49</td>
</tr>
<tr>
<td>50 or More Units</td>
<td>64</td>
<td>0.10</td>
</tr>
<tr>
<td>Mobile Home/Trailer</td>
<td>0</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**2018 Est. Median All Owners/Occupied Housing Unit:** 66,980

<table>
<thead>
<tr>
<th>Description</th>
<th>2019 U.S.: Housing Units by Year, Structure Type</th>
<th>2018 Est. Median All Owners/Occupied Housing Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing Unit Built 2000 or Later</td>
<td>11,984</td>
<td>16.52</td>
</tr>
<tr>
<td>Housing Unit Built 1999</td>
<td>13,092</td>
<td>19.55</td>
</tr>
<tr>
<td>Housing Unit Built 1990 to 1999</td>
<td>14,833</td>
<td>20.93</td>
</tr>
<tr>
<td>Housing Unit Built 1980 to 1989</td>
<td>16,550</td>
<td>24.71</td>
</tr>
<tr>
<td>Housing Unit Built 1970 to 1979</td>
<td>5,562</td>
<td>8.30</td>
</tr>
<tr>
<td>Housing Unit Built 1960 to 1969</td>
<td>2,756</td>
<td>4.11</td>
</tr>
<tr>
<td>Housing Unit Built 1959 or Earlier</td>
<td>4,145</td>
<td>6.16</td>
</tr>
<tr>
<td>Housing Unit Built 1959 or Earlier</td>
<td>2,707</td>
<td>4.08</td>
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</table>

**2018 Est. Median All Owners/Income:** 193

---

### Appendix: Area Listing

<table>
<thead>
<tr>
<th>Area Name</th>
<th>Type</th>
<th>Reporting Detail</th>
<th>Aggregate</th>
<th>Reporting Level</th>
<th>County</th>
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</thead>
<tbody>
<tr>
<td>Geography Code</td>
<td>Geography Name</td>
<td>Geography Code</td>
<td>Geography Name</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18009</td>
<td>Mass County, III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Project Information:**

- **Site:** 1
- **Order Numbers:** 949720959

---

**Notes:**

- **1939 will appear when at least half of the Housing Units in this report area were built in 1939 or earlier.**
### Pop-Facts: Demographic Snapshot 2010 Report

#### Population

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Place</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010 Estimate</strong></td>
<td>43,795</td>
</tr>
<tr>
<td><strong>2000 Census</strong></td>
<td>40,867</td>
</tr>
<tr>
<td><strong>1990 Census</strong></td>
<td>36,464</td>
</tr>
<tr>
<td><strong>Growth 2010-2015</strong></td>
<td>5,331%</td>
</tr>
<tr>
<td><strong>Growth 2000-2010</strong></td>
<td>14.51%</td>
</tr>
<tr>
<td><strong>Growth 1990-2000</strong></td>
<td>26.48%</td>
</tr>
</tbody>
</table>

#### 2010 race

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Alone</td>
<td>7,916</td>
</tr>
<tr>
<td>Black or African American Alone</td>
<td>2,161</td>
</tr>
<tr>
<td>American Indian and Alaska Native Alone</td>
<td>1,999</td>
</tr>
<tr>
<td>American Indian and Alaska Native Alone</td>
<td>2,194</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Island</td>
<td>1,723</td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>4,685</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>12,282</td>
</tr>
</tbody>
</table>

#### 2010 race

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Hispanic or Latino</td>
<td>41,668</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>5,127</td>
</tr>
<tr>
<td>Mexican</td>
<td>1,499</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>2,135</td>
</tr>
<tr>
<td>Cuban</td>
<td>7</td>
</tr>
<tr>
<td>All Other Hispanic or Latino</td>
<td>1,486</td>
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</tbody>
</table>

#### 2010 race

<table>
<thead>
<tr>
<th>Category</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Alone</td>
<td>810</td>
</tr>
<tr>
<td>Black or African American Alone</td>
<td>6</td>
</tr>
<tr>
<td>American Indian and Alaska Native Alone</td>
<td>66</td>
</tr>
<tr>
<td>Asian Alone</td>
<td>380</td>
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<tr>
<td>Native Hawaiian and Other Pacific Island</td>
<td>367</td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>632</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2,056</td>
</tr>
</tbody>
</table>

---

**CENTRAL MAUI**

Prepared by: MarketPlace

Prepared on: Tues, Aug 31, 2010

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## Pop-Facts: Demographic Snapshot 2010 Report

**Place, (see appendix for geography), aggregate**

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 Eq. Pop. Age 5+ by Race by Nat.</td>
<td>20,346</td>
<td></td>
</tr>
<tr>
<td>Chinese, except Taiwanese</td>
<td>473</td>
<td>2.32</td>
</tr>
<tr>
<td>Filipino</td>
<td>10,764</td>
<td>52.90</td>
</tr>
<tr>
<td>Japanese</td>
<td>7,119</td>
<td>35.97</td>
</tr>
<tr>
<td>Asian Indian</td>
<td>20</td>
<td>0.13</td>
</tr>
<tr>
<td>Korean</td>
<td>451</td>
<td>2.22</td>
</tr>
<tr>
<td>Vietnamese</td>
<td>131</td>
<td>0.64</td>
</tr>
<tr>
<td>Cambodian</td>
<td>2</td>
<td>0.01</td>
</tr>
<tr>
<td>Thai</td>
<td>23</td>
<td>0.11</td>
</tr>
<tr>
<td>All Other Asian Races Including 2+ Categories</td>
<td>1,133</td>
<td>5.58</td>
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</table>

**2010 Eq. Population by Age**

<table>
<thead>
<tr>
<th>Age</th>
<th>Total</th>
<th>Place %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>38</td>
<td>0.18</td>
</tr>
<tr>
<td>5-9</td>
<td>25</td>
<td>0.65</td>
</tr>
<tr>
<td>10-14</td>
<td>14</td>
<td>0.03</td>
</tr>
<tr>
<td>15-17</td>
<td>77</td>
<td>1.66</td>
</tr>
<tr>
<td>18-20</td>
<td>814</td>
<td>17.4</td>
</tr>
<tr>
<td>21-24</td>
<td>284</td>
<td>6.31</td>
</tr>
<tr>
<td>25-34</td>
<td>145</td>
<td>3.1</td>
</tr>
<tr>
<td>35-44</td>
<td>801</td>
<td>17.1</td>
</tr>
<tr>
<td>45-54</td>
<td>1</td>
<td>0.01</td>
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<tr>
<td>55-64</td>
<td>76</td>
<td>1.66</td>
</tr>
<tr>
<td>65-74</td>
<td>269</td>
<td>5.45</td>
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<tr>
<td>75-84</td>
<td>557</td>
<td>12.2</td>
</tr>
<tr>
<td>85+</td>
<td>46</td>
<td>0.98</td>
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</tbody>
</table>

**2010 Eq. Population by Sex**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Total</th>
<th>Place %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23,094</td>
<td>50.63</td>
</tr>
<tr>
<td>Female</td>
<td>23,402</td>
<td>49.37</td>
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</table>

**2010 Eq. Population by Age & Sex**

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0-4</td>
<td>38</td>
<td>19</td>
<td>57</td>
</tr>
<tr>
<td>Age 5-9</td>
<td>25</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Age 10-14</td>
<td>14</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Age 15-17</td>
<td>77</td>
<td>77</td>
<td>154</td>
</tr>
<tr>
<td>Age 18-20</td>
<td>814</td>
<td>814</td>
<td>1,628</td>
</tr>
<tr>
<td>Age 21-24</td>
<td>284</td>
<td>284</td>
<td>568</td>
</tr>
<tr>
<td>Age 25-34</td>
<td>145</td>
<td>145</td>
<td>290</td>
</tr>
<tr>
<td>Age 35-44</td>
<td>801</td>
<td>801</td>
<td>1,602</td>
</tr>
<tr>
<td>Age 45-54</td>
<td>1</td>
<td>1</td>
<td>2</td>
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<tr>
<td>Age 55-64</td>
<td>76</td>
<td>76</td>
<td>152</td>
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<tr>
<td>Age 65-74</td>
<td>269</td>
<td>269</td>
<td>538</td>
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<tr>
<td>Age 75-84</td>
<td>557</td>
<td>557</td>
<td>1,114</td>
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<tr>
<td>Age 85+</td>
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<td>1,114</td>
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</tbody>
</table>

Source: Nielsen SMB 2010 Data 2010. Place, (see appendix for geography), aggregate.
## Pop-Facts: Demographic Snapshot 2010 Report

### Place, see appendix for geography; aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Place</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 Est. Male, Population by Age</td>
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<tr>
<td>Age 0 - 4</td>
<td>1,747</td>
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<td>Age 5 - 9</td>
<td>1,517</td>
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<td>Age 10 - 14</td>
<td>1,855</td>
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<td>Age 15 - 17</td>
<td>907</td>
<td>3.45</td>
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<tr>
<td>Age 18 - 20</td>
<td>836</td>
<td>3.18</td>
</tr>
<tr>
<td>Age 21 - 24</td>
<td>1,125</td>
<td>4.25</td>
</tr>
<tr>
<td>Age 25 - 34</td>
<td>4,061</td>
<td>15.14</td>
</tr>
<tr>
<td>Age 35 - 44</td>
<td>3,425</td>
<td>12.66</td>
</tr>
<tr>
<td>Age 45 - 54</td>
<td>3,031</td>
<td>11.25</td>
</tr>
<tr>
<td>Age 55 - 64</td>
<td>2,046</td>
<td>7.54</td>
</tr>
<tr>
<td>Age 65 - 74</td>
<td>1,420</td>
<td>5.35</td>
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<tr>
<td>Age 75 - 84</td>
<td>1,016</td>
<td>3.82</td>
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<tr>
<td>Age 85 and over</td>
<td>412</td>
<td>1.56</td>
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</table>

### 2010 Est. Median Age, Male

<table>
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<th>%</th>
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</thead>
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<td>35.35</td>
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</tbody>
</table>

### 2010 Est. Average Age, Male

<table>
<thead>
<tr>
<th>Description</th>
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</tr>
</thead>
<tbody>
<tr>
<td>37.10</td>
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</tbody>
</table>

### 2010 Est. Female Population by Age

<table>
<thead>
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<th>Description</th>
<th>Total Place</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 0 - 4</td>
<td>1,620</td>
<td>7.67</td>
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<tr>
<td>Age 5 - 9</td>
<td>1,437</td>
<td>6.42</td>
</tr>
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<td>Age 10 - 14</td>
<td>1,452</td>
<td>6.29</td>
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<tr>
<td>Age 15 - 17</td>
<td>903</td>
<td>3.91</td>
</tr>
<tr>
<td>Age 18 - 20</td>
<td>692</td>
<td>3.00</td>
</tr>
<tr>
<td>Age 21 - 24</td>
<td>1,092</td>
<td>4.53</td>
</tr>
<tr>
<td>Age 25 - 34</td>
<td>2,271</td>
<td>9.17</td>
</tr>
<tr>
<td>Age 35 - 44</td>
<td>3,037</td>
<td>13.53</td>
</tr>
<tr>
<td>Age 45 - 54</td>
<td>3,041</td>
<td>13.16</td>
</tr>
<tr>
<td>Age 55 - 64</td>
<td>2,190</td>
<td>8.71</td>
</tr>
<tr>
<td>Age 65 - 74</td>
<td>1,478</td>
<td>5.75</td>
</tr>
<tr>
<td>Age 75 - 84</td>
<td>1,045</td>
<td>4.07</td>
</tr>
<tr>
<td>Age 85 and over</td>
<td>756</td>
<td>2.97</td>
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</table>

### 2010 Est. Median Age, Female

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Place</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>38.76</td>
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### 2010 Est. Average Age, Female

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Place</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.80</td>
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<td></td>
</tr>
</tbody>
</table>
### Pop-Facts: Demographic Snapshot 2010 Report

**Place:** (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Household:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010 Estimate</td>
<td>15,750</td>
<td></td>
</tr>
<tr>
<td>2000 Census</td>
<td>12,652</td>
<td></td>
</tr>
<tr>
<td>Growth 2010-2015</td>
<td>5,878</td>
<td></td>
</tr>
<tr>
<td>Growth 2000-2010</td>
<td>16.70%</td>
<td></td>
</tr>
<tr>
<td>Growth 1990-2000</td>
<td>26.80%</td>
<td></td>
</tr>
</tbody>
</table>

| **2010 Est. Households by Household Type** |       |       |
| Familiy Households | 14,750 | 71.51 |
| Nonfamily Households | 3,842 | 21.69 |

| **2010 Est. Group Quarters Population** | 937 |       |

| **2010 Est. HHs Below Poverty Level** | 1,186 | 8.05 |

| **2010 Est. HHs with Income Below Poverty Level** | 14,750 |       |
| Income Less than $11,000 | 1,261 | 8.17 |
| Income $11,000 - $24,999 | 1,268 | 9.17 |
| Income $25,000 - $34,999 | 1,200 | 7.97 |
| Income $35,000 - $49,999 | 1,789 | 12.20 |
| Income $50,000 - $74,999 | 2,255 | 15.08 |
| Income $75,000 - $99,999 | 2,328 | 15.80 |
| Income $100,000 - $124,999 | 1,388 | 9.42 |
| Income $125,000 - $149,999 | 938 | 6.50 |
| Income $150,000 - $199,999 | 888 | 6.03 |
| Income $200,000 - $499,999 | 553 | 3.75 |
| Income $500,000 and more | 109 | 0.74 |

| **2010 Est. Average Household Income** | $81,332 |       |
| **2010 Est. Median Household Income** | $65,071 |       |
| **2010 Est. Per Capita Income** | $25,887 |       |

---

**Pop-Facts: Demographic Snapshot 2010 Report**

**Place:** (see appendix for geographies), aggregate

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010 Median HH income by Single Race Class, or Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Alone</td>
<td>57,933</td>
<td></td>
</tr>
<tr>
<td>Black or African American Alone</td>
<td>50,606</td>
<td></td>
</tr>
<tr>
<td>American Indian and Alaska Native Alone</td>
<td>60,414</td>
<td></td>
</tr>
<tr>
<td>Asian Alone</td>
<td>71,339</td>
<td></td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander Alone</td>
<td>77,698</td>
<td></td>
</tr>
<tr>
<td>Some Other Race Alone</td>
<td>71,777</td>
<td></td>
</tr>
<tr>
<td>Two or More Races</td>
<td>61,990</td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>44,619</td>
<td></td>
</tr>
<tr>
<td>No Hispanic or Latino</td>
<td>56,685</td>
<td></td>
</tr>
</tbody>
</table>

| **2010 Est. Families by HH type, Presence of children** |       |       |
| Married-Couple Family, own children | 3,524 | 32.27 |
| Married-Couple Family, no own children | 4,200 | 39.19 |
| Male Householder, own children | 249 | 2.83 |
| Male Householder, no own children | 372 | 3.44 |
| Female Householder, own children | 1,008 | 9.02 |
| Female Householder, no own children | 1,228 | 11.24 |

| **2010 Est. Households by Household Size** | 14,750 |       |
| 1-person household | 3,075 | 20.88 |
| 2-person household | 3,028 | 20.02 |
| 3-person household | 2,440 | 16.33 |
| 4-person household | 2,344 | 15.88 |
| 5-person household | 1,340 | 9.06 |
| 6-person household | 723 | 4.91 |
| 7 or more person household | 851 | 5.86 |

| **2010 Est. Average Household Income** | $31,318 |       |

---

*Prepared by: Nielsen MarketScan*
<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households by Presence of People</td>
<td></td>
</tr>
<tr>
<td>2010 Ex. Households by Presence of People</td>
<td>14,735</td>
</tr>
</tbody>
</table>

| Households w/ 1 or more People under Age 18   |       |
| Married-Couple Family                          | 5,877 |
| Married-Couple Family; Male Householder        | 4,009 |
| Married-Couple Family; Female Householder      | 1,868 |
| Nonfamily, Male Householder                    | 3     |
| Nonfamily, Female Householder                  | 6     |

| Households by People under Age 18              |       |
| Married-Couple Family                          | 8,858 |
| Married-Couple Family; Male Householder        | 3,664 |
| Married-Couple Family; Female Householder      | 1,287 |
| Nonfamily, Male Householder                    | 1,206 |
| Nonfamily, Female Householder                  | 2,241 |

| Households by Number of Vehicles               |       |
| No Vehicles                                    | 1,015 |
| 1 Vehicle                                      | 4,413 |
| 2 Vehicles                                     | 5,283 |
| 3 Vehicles                                     | 2,300 |
| 4 Vehicles                                     | 1,570 |
| 5 or more Vehicles                             | 365   |

| Average Number of Vehicles                     | 2.03  |

| Households by Family                        |       |
| 2010 Estimate                                 | 10,921|
| 2010 Project                                | 11,589|
| 2010 Census                                 | 9,312 |
| 1990 Census                                 | 7,649 |
| Growth 2010-2015                             | 6.12% |
| Growth 1990-2010                             | 17.28%|
| Growth 1990-2010                             | 23.34%|

| Households by Income Status                   |       |
| 2010 Estimated Income                         |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |

| Households by Education                      |       |
| 2010 Estimated Education                     |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |

| Households by Occupation                      |       |
| 2010 Estimated Occupation                     |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |

| Households by Income Status                   |       |
| 2010 Estimated Income                         |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |

| Households by Education                      |       |
| 2010 Estimated Education                     |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |

| Households by Occupation                      |       |
| 2010 Estimated Occupation                     |       |
| 2010 Project                                 |       |
| 2010 Census                                  |       |
| 1990 Census                                  |       |
| Growth 2010-2015                              |       |
| Growth 1990-2010                              |       |
| Growth 1990-2010                              |       |
# Pop-Facts: Demographic Snapshot 2010 Report

**Place: [Please provide location information]**

## 2010 Pop. Characteristics by Occupation Classification

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>21,397</td>
<td></td>
</tr>
<tr>
<td>White Collar</td>
<td>10,953</td>
<td>51.09</td>
</tr>
<tr>
<td>Blue Collar</td>
<td>4,775</td>
<td>22.21</td>
</tr>
<tr>
<td>Service and Farm</td>
<td>5,669</td>
<td>26.49</td>
</tr>
</tbody>
</table>

## 2010 Pop. Characteristics by Travel Time to Work

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7,166</td>
<td></td>
</tr>
<tr>
<td>Less than 15 Minutes</td>
<td>3,900</td>
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</tr>
<tr>
<td>15 - 20 Minutes</td>
<td>2,576</td>
<td></td>
</tr>
<tr>
<td>30 - 44 Minutes</td>
<td>3,632</td>
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</tr>
<tr>
<td>45 - 59 Minutes</td>
<td>1,770</td>
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</tr>
<tr>
<td>60 or more Minutes</td>
<td>889</td>
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</tr>
</tbody>
</table>

## 2010 Pop. Characteristics by Travel Time to Work (Minutes)

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>2,546</td>
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</tr>
<tr>
<td>1 Day Attached</td>
<td>1,538</td>
<td></td>
</tr>
<tr>
<td>1 Unit Attached</td>
<td>10,542</td>
<td></td>
</tr>
<tr>
<td>2 Units</td>
<td>490</td>
<td></td>
</tr>
<tr>
<td>3 or 4 Units</td>
<td>545</td>
<td></td>
</tr>
<tr>
<td>5 to 9 Units</td>
<td>1,892</td>
<td></td>
</tr>
<tr>
<td>10 to 19 Units</td>
<td>468</td>
<td></td>
</tr>
<tr>
<td>20 to 29 Units</td>
<td>304</td>
<td></td>
</tr>
<tr>
<td>30 or more Units</td>
<td>199</td>
<td></td>
</tr>
</tbody>
</table>

## 2010 Pop. Characteristics by Housing Tenure

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>14,734</td>
<td></td>
</tr>
<tr>
<td>Owner Occupied</td>
<td>9,000</td>
<td></td>
</tr>
<tr>
<td>Renter Occupied</td>
<td>5,735</td>
<td></td>
</tr>
</tbody>
</table>

## 2010 Pop. Characteristics by Housing Tenure (Owner Occupied)

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>168</td>
<td></td>
</tr>
</tbody>
</table>

## 2010 Pop. Characteristics by Housing Tenure (Renter Occupied)

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

---

*This row intentionally left blank. No total category data is available.

**1990 will appear when at least half of the Housing Units in this report are built in 1990 or earlier**
## Appendix: Area Listing

<table>
<thead>
<tr>
<th>Geography Code</th>
<th>Geography Name</th>
<th>Geography Code</th>
<th>Geography Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1523700</td>
<td>Kahului CDP</td>
<td>1577510</td>
<td>Waimea-Waimea CDP</td>
</tr>
<tr>
<td>1599950</td>
<td>Waiaku CDP</td>
<td>1577450</td>
<td>Waikuku CDP</td>
</tr>
</tbody>
</table>

### Project Information:

- **Site:** 1
- **Order Number:** 999114179

---

**EXHIBIT C**

Current County of Maui M-2 Heavy Industrial District Zoning Ordinance
Chapter 19.26
M-2 HEAVY INDUSTRIAL DISTRICT

Sections:
19.26.010 Generally
19.26.020 Use regulations
19.26.030 Height regulations
19.26.040 Area regulations
19.26.050 Yards


Those uses which include the manufacture or treatment of goods from raw materials are permitted in the M-2 heavy industrial district. Those uses which are listed under subsection 28 of Section 19.26.020 cannot be automatically included in the heavy industrial district because of their hazardous or offensive nature. Provision is made whereby the location and conduct of uses is subject to review and approval of the commission and council of the county of Maui as conforming to the intent of this title. (Prior code § 8-1.13(a))


Within the M-2 district, no building, structure or premises shall be used and no building or structure hereafter erected, structurally altered, replaced, or enlarged except for one or more of the following uses:
1. Any use permitted in the B-1, B-2 and B-3 business districts and M-1 district; provided, however, that no building, structure or portion thereof shall be hereafter erected, converted, or moved onto any lot in an M-2 district for dwelling purposes, including hotels and motels, except living quarters used by watchmen or custodians of industrially used property;
2. Alcohol manufacture;
3. Automobile welding, if conducted within a building;
4. Brick, tile or terra cotta manufacture;
5. Boiler and steel works;
6. Canneries, except fish canneries;
7. Chemical manufacture;
8. Concrete or cement products manufacture;
9. Factories;
10. Foundries;
11. Freight classification yard (railroad);
12. Junk establishment used for storing, depositing, or keeping junk or similar goods for business purposes, provided such establishment shall not be nearer than eight feet from any other property line of the storage of the junk or similar goods except in buildings entirely enclosed with walls;
13. Lime kilns which do not emit noxious and offensive fumes;
14. Lumber yard;
15. Machine shops;
16. Oil storage plants;
17. Oilcloth or stockings manufacture;
18. Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;
19. Petroleum products manufacture or wholesale storage of petroleum;
20. Paper mill;
21. Plastic manufacture;
22. Railroad repair shops;
23. Rolling mills;
24. Ship works;
25. Soap manufacture;
26. Sugar mills and refineries;
27. In general those uses which may be objectionable or offensive by reason of emission of odor, dust, smoke, gas, noise, vibration and the like and not allowed in any other district; provided, however, that any use not specified in this section shall be approved by the commission as conforming to the intent of this title;
28. All of the following uses are declared to be special uses and a use permit shall be obtained from the commission with approval of the council of the county for the location and operation thereof in the M-2 district:
   a. Acetylene gas manufacture or bulk storage;
   b. Acid manufacture;
   c. Ammonia, bleaching powder or chlorine manufacture;
   d. Asphalt manufacture of refueling and asphaltic concrete plant;
   e. Blast furnace or coke oven;
   f. Cement, lime, gypsum, or plaster of paris manufacture;
   g. Crematories;
   h. Creosote treatment plants;
   i. Explosives manufacture or storage;
   j. Fertilizer manufacture;
   k. Fish canneries;
   l. Garbage, offal or dead animals reduction or dumping;
   m. Gas manufacture;
   n. Glue manufacture;
   o. Quarry or stone mill;
   p. Rock, sand or gravel or earth excavation, crushing or distribution;
   q. Petroleum refinery;
   r. Saw mill;
   s. Slaughter of animals;
   t. Stock yard or feeding pens;
   u. Tannery or the curing or storage of raw hides. (Prior code § 8-1.13(b))

19.26.030 Height regulations.

No building or structure, and no enlargement of any building or structure, except smoke stacks or chimneys, shall be hereafter erected or maintained so as to exceed six stories. (Prior code § 8-1.13(c))


Every lot within an M-2 district shall have a minimum lot area of not less than ten thousand square feet with a minimum lot width of seventy-five feet. (Prior code § 8-1.13(d))
A. Front Yard. There shall be a front yard of not less than ten feet from any setback line for street widening purposes; and if no such line exists, then from the main street or front boundary.

B. Side Yard.
1. Where the side or rear of the lot in an M-2 district abuts upon the side or rear of a lot of any residential, duplex, apartment, hotel, agricultural or farming districts, there shall be a side yard of ten feet.
2. In all other cases, a side yard for a heavy industrial building shall not be required.

C. Rear Yard.
No rear yard spacing shall be required except where the M-2 district abuts upon an agricultural, farming, residential, duplex, apartment or hotel district, in which case there shall be a rear yard of not less than fifteen feet. (Prior code § B-1.12(e))

Chapter 19.24
M-1 LIGHT INDUSTRIAL DISTRICT

Sections:
19.24.010 Generally
19.24.020 Use regulations
19.24.030 Height regulations
19.24.040 Area regulations
19.24.050 Yards

19.24.010 Generally.

The M-1 light industrial district is designed to contain mostly warehousing and distribution types of activity, and permits most compounding, assembly, or treatment of articles or materials with the exception of heavy manufacturing and processing of raw materials. Residential uses are excluded from this district. (Prior code § B-1.12(a))

19.24.020 Use regulations.

A. Within the M-1 district, no building, structure or premises shall be used and no building or structure hereafter erected, structurally altered, replaced, or enlarged except for one or more of the following uses:
1. Any use permitted in a B-1, B-2, or B-3 district, provided, however, that no building, structure or portion thereof shall be hereafter erected, converted, or moved onto any lot in an M-1 district for dwelling purposes, including hotels and motels, except living quarters used by watchmen or custodians of industrially used property;
2. Animal kennels;
3. Carpet cleaning plants;
4. Cold storage plants;
5. Commercial laundries;
6. Craft, cabinet and furniture manufacturing;
7. Assembly of electrical appliances, radios and phonographs including the manufacture of small parts such as coils, condensers, crystal holders and the like;
8. Farm implement sales and service;
9. General food, fruit and vegetable processing and manufacturing plants;
10. Ice cream and milk producing, manufacturing and storage;
11. Laboratories—experimental, photo or motion picture, film or testing;
12. Light and heavy equipment and product display rooms, storage and service;
13. Machine shop or other metal working shop;
14. The manufacture, compounding or treatment of articles or merchandise from the following previously prepared materials: aluminum, bone, cellophane, canvas, cloth, cork, feathers, felt, fibre, fur, glass, hair, horn, leather, plastics, precious or semi-precious metals or stones, shell, tobacco and wood;
15. The manufacture, compounding, processing, packing or treatment of such products as candy, cosmetics, drugs, perfumes, pharmaceutical, toilettries, and food products except the rendering or refining of fats and oils;
16. The manufacture, dyeing and printing of cloth fabrics and wearing apparel;
17. The manufacture of musical instruments, toys, novelties and rubber and metal stampers;
18. Manufacture of pottery and figurines or other similar ceramic products;
19. Milk bottling or central distribution stations;
20. Plumbing shops having more than five employees;
21. Poultry or rabbit slaughter incidental to a retail business on the same premises;
22. Radio transmitting and television stations, provided that towers are of the self-sustaining type without guy wires;
23. Replating shop;
24. Retail lumber yard including mill and sash work, except that mill and sash work shall be conducted within a completely enclosed building;
25. Small boat building;
26. Soda water and soft drink bottling and distribution plants;
27. Tire repair and retreading including recapping and retreading;
28. Vocational and trade schools giving general instruction as prescribed by the State Department of Education;
29. Warehouse, storage and loft buildings;
30. Weaving apparel manufacturing;
31. Wholesale business, storage buildings, nonexplosive goods and warehouses;
32. Apartment houses.

B. The above uses are to be conducted wholly within a completely enclosed building, or within an area enclosed on all sides except the front of the lot, by a solid fence or wall or cyclone fence at least six feet in height. (Prior code § 8-1.12(b))

19.24.030 Height regulations.

No building or structure nor the enlargement of any building or structure shall be erected or maintained to exceed four stories or forty-eight feet in height; provided, however, that the height of such building or structure shall not exceed one and one-half times the width of the widest street which it fronts. (Prior code § 8-1.12(c))

19.24.040 Area regulations.

Every lot within an M-1 district shall have a minimum lot area of not less than seven thousand five hundred square feet, having an average lot width of sixty-five feet. (Prior code § 8-1.12(d))

19.24.050 Yards.

A. Front Yard.
1. Where all the frontage between intersecting streets is located within business districts or industrial districts, no front yard shall be required.
2. Where the frontage is located abutting the residential district, there shall be a front yard of not less than ten feet from any setback line for street widening purposes; and if no such line exists, then from the main street or front boundary.

B. Side Yard.
1. Where the side of a lot in an M-1 district abuts upon the side or rear of a lot in an agricultural, farming, hotel, apartment, duplex or any type of residential district, there shall be a side yard of not less than ten feet.
2. In all other cases a side yard for light industrial building shall not be required.

C. Rear Yard.
1. In the case where the rear lot in an M-1 district abuts upon the side or rear of a lot in any residential, agricultural, farming, hotel, apartment or duplex district, there shall be a rear yard of not less than ten feet.
2. In all other cases a rear yard for M-1 building shall not be required.
3. No accessory building or buildings shall be allowed in the required rear yard of any lot occupied by any building containing light industrial business use except for off-street parking purposes. (Prior code § 8-1.12(e))

Chapter 19.20

B-3 CENTRAL BUSINESS DISTRICT

19.20.010 Generally
19.20.020 Permitted uses
19.20.030 Height regulations
19.20.040 Area regulations
19.20.050 Yards

19.20.010 Generally.

This district is applied to the central business district and permits general business enterprises, particularly financial, governmental, commercial and professional activities. Its distinguishing feature is the greater height limit permitted in the area. Manufacturing and machine industries are excluded from the zone. (Prior code § 8-1.10(a))

19.20.020 Permitted uses.

Within the B-3 district, there shall be permitted any use permitted in a B-1 district and B-2 community business district, with the following exceptions:
A. Living or sleeping quarters in any detached accessory building or structure on the same lot;
B. Automobile repair shops and garages;
C. Automobile painting or steam cleaning;
D. Automobile upholstery shops;
E. Avionics or canvas stores;
F. Equipment rental and sales yards;
G. Hatcheries;
H. Lumber yards;
I. Machine shops;
J. Plumbing shops;
K. Storage buildings and warehouses (separate from main building);
L. Storage yards;
M. Trucking and truck storage;
N. Used car lots. (Prior code § 8-1.10(b))

19.20.030 Height regulations.

No building or structure nor the enlargement of any building or structure shall be erected or maintained to exceed four stories or forty-eight feet in height; provided, however, that the height of such building or structure shall not exceed one and one-half times the width of the widest street which it fronts. (Prior code § 8-1.12(c))

19.20.040 Area regulations.

The minimum lot area shall be six thousand square feet and the minimum lot frontage shall be sixty feet. (Prior code § 8-1.10(d))
Chapter 19.18
B-2 COMMUNITY BUSINESS DISTRICT

Sections:

19.18.010 Generally
19.18.020 Permitted uses
19.18.030 Area regulations
19.18.040 Height regulations
19.18.050 Yards

19.18.010 Generally.

A community business district is intended to provide all types of goods and services for the community, with the exception of those uses more generally associated with industrial district, but at a lower intensity of use than in the central business district. (Prior code § B-1.9(a))

19.18.020 Permitted uses.

Within the B-2 district, the following uses shall be permitted:

1. Any use permitted in a B-1 neighborhood business district; however, no living or sleeping quarters shall be permitted in any detached accessory building or structure on the same lot;
2. Amusement enterprises, including billboard or pool halls;
3. Antique shops;
4. Apartments;
5. Art galleries;
6. Auctioneer establishments;
7. Auditoriums and theaters;
8. Automobile parking lots and/or buildings;
9. Automobile parts stores;
10. Automobile service stations, with or without auto repair; provided all auto repair operations are conducted in enclosed buildings; and provided further, that tire rebuilding or battery manufacturing shall not be permitted within this district;
11. Automobile upholstery shops;
12. Awning or canvas shops;
13. Banks;
14. Baseball or football stadiums and other sport activities and amusements;
15. Bath houses, commercial (plunge);
16. Baths, Turkish and the like, including mausoleum;
17. Block-printing establishments;
18. Bowling alleys;
19. Business offices and agencies;
20. Catering establishments employing not more than five persons;
21. Charity relief organizations;
22. Clinics, medical or dental;
23. Custom dressmaking or millinery shops;
24. Dancehalls;
25. Dancing and Hula studios;
26. Dressmaking shops;
27. Dry goods and/or department stores;
28. Equipment rental and sales yards;
29. Feed stores;
30. Gymnasiums;
21. Haberdasheries and women's apparel shops;
22. Hardware and garden supply stores;
23. Ice cream and milk manufacturing plants employing not more than twenty-five persons;
24. Jewelry stores or fine art shops, including interior decorating;
25. Libraries;
26. Marinas;
27. Miniature golf courses;
28. Museums;
29. Music conservatories or music studios;
30. News and magazine stands;
31. Nurseries (flower or plants); provided, that all incidental equipment and supplies, including fertilizers and empty cans, are kept within enclosed buildings;
32. Nursing and convalescent homes;
33. Parcel delivery stations;
34. Pet shops, not involving the treatment or boarding of animals;
35. Photo studios;
36. Physical culture studios;
37. Plumbing shops within wholly enclosed buildings and employing not more than five persons;
38. Printing, lithography or publishing shops;
39. Private clubs or fraternal organizations;
40. Private schools or business colleges;
41. Professional and financial buildings;
42. Public parking areas;
43. Radio and television stations;
44. Religious, benevolent, and philanthropic societies;
45. Restaurants, cafes or bars, including drive-ins;
46. Sanitariums;
47. Shoe stores;
48. Sign-painting shops within wholly enclosed buildings and employing not more than five persons;
49. Skating shops;
50. Tailor shops;
51. Trade schools;
52. Used car lots, provided all repair and maintenance is conducted within a wholly enclosed building;
53. Mortuaries, subject to the approval of the commission;
54. Warehouses and yards which are adjunct to, and part of, the operation of the permitted uses listed above, may be permitted by the commission, provided such uses are determined to conform to the intent of this article, and subject to such terms and conditions as may be warranted. Such uses shall be conducted wholly within a completely enclosed building or within an area enclosed on all sides by a solid fence or wall at least six feet in height and provided, that no goods, materials, or objects shall be stacked higher than the fence or wall so erected;
55. Bed and breakfast homes, subject to the restrictions and standards of section 19.64.030 of this title;
56. Any other retail businesses or commercial enterprises which are similar in character of rendering sales of commodities or performance of services to the community and not detrimental to the welfare of the surrounding areas; provided, however, that such uses shall be approved by the commission as conforming to the intent of this article. (Ord. 2609 § 6, 1997; Ord. 1960 § 1, 1990; prior code § 8-1.9(b))

19.18.030 Area regulations.

The minimum lot area shall be six thousand square feet and the minimum lot frontage shall be sixty feet. (Prior code § 8-1.9(c))

19.18.040 Height regulations.

The maximum height of any building shall be limited by the total floor area which shall not exceed in square feet two hundred percent of the total lot area, and provided further, that no building be more than six stories in height. (Prior code § 8-1.9(d))

19.18.050 Yards.

No yard spacing shall be required, except such areas that shall be required for off-street parking, with the exception that where the side or rear of a lot in a B-2 community business district abuts a lot in any residential, apartment house or hotel district, the abutting side or rear yard shall have the same yard spacing as that required in the abutting residential, apartment house or hotel district, respectively, and provided further, that any apartment shall provide yard space in accordance with the requirements of the apartment district. (Ord. 1960 § 2, 1990; prior code § 8-1.9(e))
Chapter 19.16

B.1 NEIGHBORHOOD BUSINESS DISTRICT

Sections:
19.16.010 Generally.
19.16.020 Permitted uses.
19.16.030 Required conditions.
19.16.040 Area regulations.
19.16.050 Height regulations.
19.16.060 Yards

19.16.010 Generally.

A neighborhood business district is one wherein retail businesses or service establishments supply commodities or perform services to meet the daily needs of the neighborhood. (Prior code § 8-1.8(4))

19.16.020 Permitted uses.

Within the B.1 district, the following uses shall be permitted:
A. Barber or beauty shops;
B. Baker goods stores;
C. Book, stationery or gift stores;
D. Candy stores;
E. Churches;
F. Day care centers and nurseries;
G. Delicatessen stores;
H. Drugstores;
I. Florist shops;
J. Grocery stores and meat markets;
K. Ice cream or snack counters;
L. Laundermats;
M. Liquor stores (package only);
N. Gasoline retailing, provided it is owned and operated as an adjunct to a neighborhood store; and provided further, that no servicing, repairing, storing, washing, or maintenance of vehicles will be permitted on the premises;
O. Other similar retail businesses or service establishments which supply commodities or perform services primarily for residents of the surrounding neighborhood; provided, however, such uses shall be approved by the commission as conforming to the intent of this title;
P. One single-family dwelling per lot, provided the lot is sufficiently large to provide a lot area six thousand square feet for the dwelling after the area for the business, parking and other accessory areas for the business have been subtracted; or living and sleeping quarters for a single family constructed above the ground floor of the business building;
Q. Bed and breakfast homes, subject to the restrictions and standards of section 19.64.030 of this title; and
R. Home occupations in single-family dwellings permitted pursuant to subsection P. (Ord. 3622 § 5, 2009; Ord. 2609 § 5, 1997; prior code § 8-1.8((j)))

19.16.030 Required conditions.

A. All business, services, or processing shall be conducted wholly within completely enclosed buildings, except for day care centers, nurseries, automobile parking, and/or off-street loading.
B. All goods produced on the premises, whether primary or incidental, shall be sold at retail and only on the premises where produced. (Prior code § 8-1.8((c))

19.16.040 Area regulations.

The minimum lot area shall be six thousand square feet and the minimum lot frontage shall be sixty feet. (Prior code § 8-1.8((d))

19.16.050 Height regulations.

No building shall exceed two stories and thirty feet in height. (Prior code § 8-1.8((e))

19.16.060 Yards.

There shall be a front yard of fifteen feet, side yard of six feet, and a rear yard of six feet; except that for any two-story building, a side yard of ten feet, and a rear yard of ten feet shall be required. (Prior code § 8-1.8((f))
A BILL FOR AN ORDINANCE ESTABLISHING TITLE 19.25, MAUI COUNTY CODE, RELATING TO M-3 INDUSTRIAL DISTRICT

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Chapter 19.25, Maui County Code, is amended to read as follows:

"Chapter 19.25

M-3 INDUSTRIAL DISTRICT

19.25.018 Purpose and Intent

19.25.028 Permitted uses.

19.25.038 Accessory uses and structures

19.25.048 Special Use

19.25.058 Development Standards

19.25.068 Rule making authority

19.25.010 Purpose and Intent

Those uses which include the manufacture, processing, storage or treatment of goods from raw materials are permitted in the M-3 industrial district. The district is intended to include manufacturing and nuisance industries. General retail and office is specifically excluded from this district.

19.25.020 Permitted uses

Within the M-3 district, no building, structure or premises shall be used and no building or structure heretofore erected, structurally altered, replaced, or enlarged except for one or more of the following uses:

<table>
<thead>
<tr>
<th>Use</th>
<th>Notes and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylene gas manufacture or bulk storage</td>
<td></td>
</tr>
<tr>
<td>Acid manufacture</td>
<td></td>
</tr>
<tr>
<td>Alcohol manufacture</td>
<td></td>
</tr>
<tr>
<td>Ammonia, bleaching powder or chlorine manufacture</td>
<td></td>
</tr>
<tr>
<td>Uses</td>
<td>Notes and exceptions</td>
</tr>
<tr>
<td>------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
| A. Energy systems, small-scale; | *
| B. Fences, walls, patios, decks, and other landscape features; | *
| C. Garages, porte-cochere, mail boxes, ground signs, and trash enclosures; | *
| D. Subordinate uses and structures which are determined by the director of planning to be clearly incidental and customary to the permitted uses listed herein; | *
| E. Office, retail, or indoor product display area | Limited to 20% of gross floor area not to exceed 1,000 sq. ft. |
| F. Security/watchman or custodian outbuildings | *

19.25.030 Accessory uses and buildings. The following uses and structures, located on the same lot, are deemed accessory, customary, incidental, usual, and necessary to the above permitted uses in the district:

- Slaughter of animals
- Soap manufacture
- Stock yard or feeding pens
- Sugar mills and refineries
- Tellemic or the curing or storage of raw hides
- Communication towers, antenna and equipment
- Wood treatment plants

In general the uses which may be obnoxious or offensive by reason of emission of odor, dust, smoke, gas, noise, vibration and the like and not allowed in any other district, provided, however, that any use not specified in this section shall be approved by the director as conforming to the intent of this title.

19.25.040 Special uses.

Reserved

19.25.050 Development Standards

<table>
<thead>
<tr>
<th>M-3</th>
<th>Notes and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Lot Area (Square feet)</td>
<td>10,000</td>
</tr>
<tr>
<td>Minimum Lot Width (in feet)</td>
<td>75</td>
</tr>
<tr>
<td>Maximum Building Height</td>
<td>90</td>
</tr>
</tbody>
</table>

Except that vent pipes, fans,
<table>
<thead>
<tr>
<th>Minimum Yard Setback (in feet)</th>
<th>chimneys, antennas, and equipment on roofs shall not exceed 199 feet.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>none</td>
</tr>
<tr>
<td>Side and Rear</td>
<td>0 or the same as the adjoining zoning category which ever is greater</td>
</tr>
<tr>
<td>Side and Rear above 16 feet</td>
<td>0 or the same as the adjoining zoning category which ever is greater</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Free standing antenna or wind turbine structures height and setback</th>
<th>Maximum height of 199 feet and shall be set back 1 foot for every foot in height from all property lines</th>
</tr>
</thead>
</table>

| Accessory structures within Setback Area                          | Mail boxes, trash enclosures, boundary walls, and ground signs                                      |

19.25.060: Rule making authority. The planning director may adopt rules to clarify and implement this chapter.
ORDINANCE NO. ________________________
DRAFT April 6, 2011
BILL NO. ______ (2011)

A BILL FOR AN ORDINANCE ESTABLISHING TITLE 19.26, MAUI COUNTY CODE,
RELATING TO M-2 HEAVY INDUSTRIAL DISTRICT
BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. Chapter 19.26, Maui County Code, is amended to read as follows:

"Chapter 19.26
M-2 LIGHT INDUSTRIAL DISTRICT

19.26.010 General Purpose and Intent
19.26.020 Use regulations Permitted uses,
19.26.030 Height-regulations Accessory uses and structures
19.26.040 Area-regulations Special Uses
19.26.050 Yard Development Standards
19.26.050 Rule making authority

19.26.010 Generally Purpose and Intent
Those uses which include the manufacture or treatment of goods from raw materials are
permitted in the M-2 heavy industrial district. Those uses which are listed under
subsection 28 of Section 19.26.020 cannot be automatically included in the heavy
industrial district because of their hazardous or offensive nature. Provision is made
whereby the location and conduct of these uses is subject to review and approval of the
commission and council of the county of Maui as conforming to the intent of this title.
(Prior code § 8-1 13(a))

19.26.020 Use regulations Permitted uses,

Within the M-2 district, no building, structure or premises shall be used and no building
or structure hereafter erected, structurally altered, replaced, or enlarged except for one
or more of the following uses:

<table>
<thead>
<tr>
<th>Use</th>
<th>Notes and Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Any use permitted in the B-1, B-2 and B-3</td>
<td></td>
</tr>
<tr>
<td>business districts and M-1 district; provided,</td>
<td></td>
</tr>
<tr>
<td>however, that no building, structure or portion</td>
<td></td>
</tr>
<tr>
<td>thereof shall be hereafter erected, converted</td>
<td></td>
</tr>
<tr>
<td>or moved onto any lot in an M-2 district for</td>
<td></td>
</tr>
<tr>
<td>dwelling purposes, including hotels and motels,</td>
<td></td>
</tr>
<tr>
<td>except living quarters used by watchmen or</td>
<td></td>
</tr>
<tr>
<td>2. Alcohol manufacture;</td>
<td></td>
</tr>
<tr>
<td>3. Automobile wrecking, if conducted within a</td>
<td></td>
</tr>
<tr>
<td>building;</td>
<td></td>
</tr>
<tr>
<td>4. Brick, tile or terra cotta manufacture;</td>
<td></td>
</tr>
<tr>
<td>5. Boiler and steel works;</td>
<td></td>
</tr>
<tr>
<td>6. Canneries, except fish canneries;</td>
<td></td>
</tr>
<tr>
<td>7. Chemical manufacture;</td>
<td></td>
</tr>
<tr>
<td>8. Concrete or cement products manufacture;</td>
<td></td>
</tr>
<tr>
<td>9. Factories;</td>
<td></td>
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<tr>
<td>10. Foundries;</td>
<td></td>
</tr>
<tr>
<td>11. Freight classification yard (railroad);</td>
<td></td>
</tr>
<tr>
<td>12. Junk establishment used for storing,</td>
<td></td>
</tr>
<tr>
<td>depositing, or keeping junk or similar goods for</td>
<td></td>
</tr>
<tr>
<td>business purposes; such establishment shall not</td>
<td></td>
</tr>
<tr>
<td>be nearer than eight feet from any other property</td>
<td></td>
</tr>
<tr>
<td>line for the storage of the junk or similar</td>
<td></td>
</tr>
<tr>
<td>goods except in buildings entirely enclosed with</td>
<td></td>
</tr>
<tr>
<td>walls;</td>
<td></td>
</tr>
<tr>
<td>13. Lime kilns which do not emit noxious and</td>
<td></td>
</tr>
<tr>
<td>offensive fumes;</td>
<td></td>
</tr>
<tr>
<td>14. Lumber yard;</td>
<td></td>
</tr>
<tr>
<td>15. Machine shops;</td>
<td></td>
</tr>
<tr>
<td>16. Oil storage plants;</td>
<td></td>
</tr>
<tr>
<td>17. Oilcloth or linoleum manufacture;</td>
<td></td>
</tr>
<tr>
<td>18. Paint, oil (including linseed), shellac,</td>
<td></td>
</tr>
<tr>
<td>turgentine, lacquer, or varnish manufacture;</td>
<td></td>
</tr>
<tr>
<td>19. Petroleum products manufacture or wholesale</td>
<td></td>
</tr>
<tr>
<td>storage of petroleum;</td>
<td></td>
</tr>
<tr>
<td>20. Planing mill;</td>
<td></td>
</tr>
<tr>
<td>21. Plastic manufacture;</td>
<td></td>
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<tr>
<td>22. Railroad repair shops;</td>
<td></td>
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<tr>
<td>23. Rolling mills;</td>
<td></td>
</tr>
<tr>
<td>24. Ship works;</td>
<td></td>
</tr>
<tr>
<td>25. Soap manufacture;</td>
<td></td>
</tr>
<tr>
<td>26. Sugar mills and refineries;</td>
<td></td>
</tr>
<tr>
<td>27. In general those uses which may be</td>
<td></td>
</tr>
<tr>
<td>obnoxious or offensive by reason of emission</td>
<td></td>
</tr>
<tr>
<td>of odor, dust, smoke, gas, noise, vibration and</td>
<td></td>
</tr>
<tr>
<td>the like and not allowed in any other district;</td>
<td></td>
</tr>
<tr>
<td>provided, however, that any use not specified</td>
<td></td>
</tr>
<tr>
<td>in this section shall be approved by the director</td>
<td></td>
</tr>
<tr>
<td>as conforming to the intent of this title;</td>
<td></td>
</tr>
</tbody>
</table>

1  Any use permitted in the B-1, B-2 and B-3 business districts and M-1 district, provided,
   however, that no building, structure or portion thereof shall be hereafter erected,
   converted, or moved onto any lot in an M-2 district for dwelling purposes, including
   hotels and motels, except living quarters used by watchmen or custodians of industrially
   used property.
<table>
<thead>
<tr>
<th>Uses</th>
<th>Notes and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Energy systems, small-scale;</td>
<td></td>
</tr>
<tr>
<td>B. Fences, walls, patios, decks, and other landscape features;</td>
<td></td>
</tr>
<tr>
<td>C. Garages, porte-cochere, mail boxes, ground signs, and trash enclosures;</td>
<td></td>
</tr>
<tr>
<td>D. Subordinate uses and structures which are determined by the director of planning to be clearly incidental and customary to the permitted uses listed herein;</td>
<td></td>
</tr>
<tr>
<td>E. Security watchman or custodian outbuildings;</td>
<td></td>
</tr>
</tbody>
</table>

Every lot within an M-3 district shall have a minimum lot area of not less than ten thousand square feet with a minimum lot width of seventy-five feet.

<table>
<thead>
<tr>
<th>Special Uses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Acrylne gas manufacture or bulk storage;</td>
<td></td>
</tr>
<tr>
<td>B. Acid manufacture;</td>
<td></td>
</tr>
<tr>
<td>C. Ammonia, bleaching powder, or chlorine manufacture;</td>
<td></td>
</tr>
<tr>
<td>D. Asphalt manufacture of refueling and asphaltic concrete plant;</td>
<td></td>
</tr>
<tr>
<td>E. Blast furnace or coke oven;</td>
<td></td>
</tr>
<tr>
<td>F. Cement, lime, gypsum, or plaster of Paris manufacture;</td>
<td></td>
</tr>
<tr>
<td>G. Cemneteries;</td>
<td></td>
</tr>
<tr>
<td>H. Creosote treatment plants;</td>
<td></td>
</tr>
<tr>
<td>I. Explosives manufacture or storage;</td>
<td></td>
</tr>
<tr>
<td>J. Fertilizer manufacture;</td>
<td></td>
</tr>
<tr>
<td>K. Fish canneries;</td>
<td></td>
</tr>
<tr>
<td>L. Garbage-off or dead-animals-reception-or-dumping;</td>
<td></td>
</tr>
<tr>
<td>m. Gas manufacture;</td>
<td></td>
</tr>
<tr>
<td>n. Glass manufacture;</td>
<td></td>
</tr>
<tr>
<td>o. Quarry or stone mill;</td>
<td></td>
</tr>
<tr>
<td>p. Rock, sand or gravel—excavation, crushing or distribution;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M-2</th>
<th>Notes and exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Lot Area (Square feet)</td>
<td>10,000</td>
</tr>
<tr>
<td>Minimum Lot Width (in feet)</td>
<td>75</td>
</tr>
<tr>
<td>Maximum Building Height (in feet)</td>
<td>90</td>
</tr>
<tr>
<td>Minimum Yard Setback (in feet)</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>0 or the same as the adjoining zoning category which ever is greater</td>
</tr>
<tr>
<td>Where the set back of the adjoining non-industrial zoned parcel less than 15 feet, a minimum set back of 15 feet shall be applied.</td>
<td></td>
</tr>
<tr>
<td>Side and Rear</td>
<td>0 or the same as the adjoining zoning category which ever is greater</td>
</tr>
<tr>
<td>Side and Rear above 15 feet</td>
<td>0 or the same as the adjoining zoning category which ever is greater</td>
</tr>
<tr>
<td>Free standing antennas or weld turbine structures height and setback</td>
<td>Maximum height of 90 feet and shall be set back 1 foot for every foot in height from the property line.</td>
</tr>
</tbody>
</table>

C—Rear-Yard.

No rear-yard spacing shall be required except where the M-2 district abuts upon an agricultural, farming, residential, duplex, apartment or hotel district, in which case there shall be a rear-yard of not less than fifteen feet. (Prior code § 5-1.12(c))

19.26.060 Rule-making authority. The planning director may adopt rules to clarify and implement this chapter. (Prior code § 5-1.12(c))

19.26.070 Permits issued prior to the enactment of this ordinance.

Any dwelling structure that was constructed with a building permit that was approved prior to the enactment of said ordinance need not acquire a County special use permit, conditional permit or variance and may be reconstructed as permitted by the original building permits. (Prior code § 5-1.12(c))

S:\ALL\AP\19.26 M-2\19.26\redraft.doc
DEFINITIONS

The purpose of this Glossary is to assist the reader in understanding specific terminology used in this report.

**Appraised**

(noun) the act or process of developing an opinion of value, an opinion of value (adjective) of or pertaining to appraising and related functions such as appraisal practice or appraisal services.

**Cash Equivalent**

A price expressed in terms of cash, as distinguished from a price expressed totally or partly in terms of the face amounts of notes or other securities that cannot be sold at their face amounts.

**Counseling**

Providing competent, disinterested, and unbiased advice and guidance on diverse problems in the broad field of real estate—may involve any or all aspects of the business such as merchandising, leasing, management, acquisition/disposition planning, financing, development, cost-benefit studies, feasibility analysis, and similar services. Counseling services are often associated with evaluation, but they are beyond the scope of appraisal.

**Discounting**

A procedure used to convert periodic incomes, cash flows, and reversions into present values based on the assumption that benefits received in the future are worth less than the same benefits received now.

**Extraordinary Assumption**

An assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser’s opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property such as market conditions or trends; or about the integrity of data used in an analysis. An extraordinary assumption may be used in an assignment only if:

- It is required to properly develop credible opinions and conclusions;
- The appraiser has a reasonable basis for the extraordinary assumption;
- Use of the extraordinary assumption results in a credible analysis; and
- The appraiser complies with the disclosure requirements set forth in USPAP for extraordinary assumptions.

**Fair Value**

The cash price that might reasonably be anticipated in a current sale under all conditions requisite to a fair sale. A fair sale means that buyer and seller are each acting prudently, knowledgeably, and under no necessity to buy or sell, i.e., other than in a forced or liquidation sale. The appraiser should estimate the cash price that might be received upon exposure to the open market for a reasonable time, considering the property type and local market conditions. When a current sale is unknown—i.e., when it is unlikely that the sale can be completed within 12 months—the appraiser must discount all cash flows generated by the property to obtain the estimate of fair value. These cash flows include, but are not limited to, those arising from ownership, development, operating, and sale of the property. The discount applied shall reflect the appraiser’s judgment of what a prudent, knowledgeable purchase under a necessity to buy would be willing to pay to purchase the property in a current sale.

ADDENDA


**Fee Simple Estate**

Absolute ownership encumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.

**Hawaiian Terms**

The Hawaiian words "mau" and "moa" are commonly used in the islands as indicators of direction. The word "mau" means toward the mountain, and "moa" means toward the sea.

**Highest and Best Use**

The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum availability.

**Highest and Best Use**

The use that should be made of a property as it exists. Any existing improvement should be reevaluated or retained as long as it continues to contribute to the total market value of the property, or until the return from a new improvement more than offsets the cost of demolishing the existing building and constructing a new one.

**Hypothetical Condition**

That which is contrary to what exists, but is supposed for the purpose of analysis. Hypothetical conditions assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property, or about conditions external to the property, such as market conditions or trends, or about the integrity of data used in an analysis. A hypothetical condition may be used in an appraisal only if:

- Use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparisons.
- Use of the hypothetical condition results in a credible analysis.
- The appraiser complies with the disclosure requirements set forth in USPAP for hypothetical conditions.

**Leased Fee Interest**

An ownership interest held by a landlord with the rights of use and occupancy conveyed by lease to others. The rights of the lessor (the leased fee owner) and the lessee are specified by contract terms contained within the lease.

**Leasedhold Interest**

The interest held by the lessee (the tenant or renter) through a lease transferring the rights of use and occupancy for a stated term under certain conditions.

**Market Rent**

The most probable rent that a property should bring in a competitive and open market reflecting all conditions and restrictions of the specified lease agreement including term, rental adjustment and recalculation, permitted uses, use restrictions, and expense obligations; the lessee and lessor each acting prudently and knowledgeably, and assuming consummation of a lease contract as of a specified date and the passing of the leasedhold from lessor to lessee under conditions whereby:

- Lessee and lessor are typically motivated.
- Both parties were well informed or well advised, and acting in what they considered their best interests.
- A reasonable time is allowed for exposure in the open market.
- The rent payment is made in terms of cash in United States dollars, and is expressed as an amount per time period consistent with the payment schedule of the lease contract.
- The rental amount represents the normal consideration for the property leased unaffected by special taxes or concessions granted by anyone associated with the transaction.

**Market Value**

The major factor of real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continued refinement is essential to the growth of the appraisal profession.

The most widely accepted components of market value are incorporated in the following definitions:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell under reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."

Market value is defined in the Uniform Standards of Professional Appraisal Practice (USPAP) as follows:

"A type of value, stated in an opinion, that presumes the transfer of a property (i.e., a right of ownership or a bundle of such rights), as of a certain date, under specific conditions set forth in the definition of the term identified by the appraiser, as applicable in an appraisal."

The following definition of market value is used by agencies that regulate federally insured financial institutions in the United States:

"The most probable price which a property should bring in a competitive market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- Buyer and seller are typically motivated.
- Both parties were well informed or well advised, and acting in what they consider their best interests.
- A reasonable time is allowed for exposure in the open market.
- Payment is made in terms of cash in U.S. dollars or terms of financial arrangements comparable thereto; and..."
LIMITING AND CONTINGENT CONDITIONS
ACM Consultants, Inc.

1. This is a Cessation Report which is intended to comply with the reporting requirements set forth under Standards of Professional Standards of the Uniform Standards of Professional Appraisal Practice. The information contained in this report is specific to the results of the evaluation and for the intended use stated in this report. The Consultant is not responsible for unqualified use of this report.

This report has not been prepared for federally-related mortgage financing purposes, and has not been prepared in compliance with the requirements of Title 11, Federal Reserve Banks, and Enforcement Act of 1989.

2. The responsibility is assumed for legal or this consideration. This to the property is completely good and market value unless otherwise stated in this report.

3. The property is not appraised for any legal or commercial reasons other than those stated in this report.

4. The property is appraised for any legal, commercial, or personal reasons other than those stated in this report.

5. The information furnished by others is believed to be reliable. However, no warranty is given for its accuracy.

6. All engineering is believed to be correct. Any plans and illustrations contained in this report are included only as to the reader in visualizing the property.

7. It is assumed that there are no hidden or answerable conditions of the property, whether, or with which the reader is aware or not unknown. The responsibility is assumed for such conditions or for arranging for engineering studies that may be required by the evaluator.

8. It is assumed that there is a full compliance with all applicable federal, state, and local environmental regulations and rules unless otherwise stated in this report.

9. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a non-compliance has been stated, if necessary, and considered in this engineering report.

10. It is assumed that all required leases, certificates of occupancy or other legislative or administrative authority from any local, state, or national governmental or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contains in this report are based.

11. Any data in this report may show approximate dimensions and is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. Any guarantees as to accuracy is expressed in this report.

12. Any data in this report are included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only.

13. The Consultant is not qualified to detect hazardous waste and/or soil. The Consultant is suggested to notify the person for the property that the property is not in compliance with the requirements of the Hazardous Waste Management Act.

14. The Consultant is not qualified to detect hazardous waste and/or soil. The Consultant is suggested to notify the person for the property that the property is not in compliance with the requirements of the Hazardous Waste Management Act.

15. Any proposed improvements are assumed to be completed in a good workmanship manner in accordance with the submitted plans and specifications.

16. The distribution of, or any of the work involved in this report between land and improvements applies only under the terms of the agreement, and the Agreement for the work involved in this report is completed. Any deviation from this agreement is unauthorized.

17. The information in this report is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. Any guarantees as to accuracy is expressed in this report.

18. No condition, other than the one stated in this report, is included to assist the reader in visualizing the property. Maps and exhibits found in this report are provided for reader reference purposes only. Any guarantees as to accuracy is expressed in this report.

19. Any proposed improvements are assumed to be completed in a good workmanship manner in accordance with the submitted plans and specifications.
PROFESSIONAL QUALIFICATIONS

Glenn K. Kunihisa, MAI, CRE

STATE LICENSING
State Certified General Appraiser,
State of Hawaii, License No. CGA 39, July 17, 1991
Expiration December 31, 2011

PROFESSIONAL AFFILIATIONS
Member, Appraisal Institute, MAI Designation, Hawaii Chapter No. 67
Member, The Counselors of Real Estate, CRE Designation, Hawaii Chapter
Member, International Right of Way Association
Member, National Association of Realtors, Nokai Board of Realtors

PROFESSIONAL INVOLVEMENT
Past President – Hawaii Chapter of the Appraisal Institute – 2009
Vice Chairperson – Hawaii Chapter of The Counselors of Real Estate - 2010
Eduador Chairperson – Hawaii Chapter of the Appraisal Institute – 2004 and 2005
Former Multiple Listing Service (MLS) Committee Member – Realtors Association of Nokai

COMMUNITY AFFILIATIONS
St. Anthony Parish School Board
Board Member 1995 to 2008
Board President 1997 and 1998
ATTI Community Care, Inc. – A non-profit health care corporation
Board Member 2004 to 2006

EMPLOYMENT
President
ACM Consultants, Inc.
May, 1997 to present

Previously associated with the following:
ACM, Real Estate Appraisers, Inc. – 1986 to 1997
A & R Commercial Company, a division of Alexander & Baldwin, Inc. – 1979 to 1983
Bank of Hawaii – 1976 to 1979

GENERAL EDUCATION
University of Hawaii at Manoa
Master of Business Administration (MBA) - Executive MBA Program V, 1988
Bachelor of Business Administration (BBA), 1976
Iwaki School, 1971

LEGAL & CONSULTING
Qualifed as an expert witness in the Second Circuit Court of the State of Hawaii
Qualifed as an expert to testify to the State Land Use Commission
Experienced in real estate arbitration assignments in the State of Hawaii

APPRAISAL EDUCATION
Seminar: Appraisal Curriculum Overview (2-day general)
Honolulu, Hawaii – July 2010

Professional Qualifications

Seminar: Online Valuation of Green Residential Properties
Chicago, Illinois – July 2010

Seminar: Hotel Valuation
Honolulu, Hawaii – March 2010

Seminar: Online 4-Hour Hotel/Motel Valuation
Chicago, Illinois – November 2009

Seminar: Business Practices and Ethics
Honolulu, Hawaii – September 2009

Seminar: Hawaii Lands, Historical Review
Honolulu, Hawaii – August 2009

Seminar: Appraisal Challenges: Uncovering Market and Appraisal Concerns
Colorado, Colorado – October 2008

Course: 7-Hour National USPAP Update Course
Honolulu, Hawaii – September 2008

Course: Online 7-Hour National USPAP Equivalent Course
Chicago, Illinois – October 2007

Course: Valuation of Conservation Easements
Denver, Colorado – October 2007

Seminar: Uniform Standards for Federal Land Acquisitions (“Yellow Book”)
Practical Applications for Fee Appraisers
Honolulu, Hawaii – December 2006

Seminar: California Conservation Easements
Sacramento, California – November 2005

Course: 7-Hour National USPAP Update Course
Honolulu, Hawaii – October 2005

Seminar: Real Estate Finance, Values and Investment Performance
Honolulu, Hawaii – February 2005

Seminar: Forensic Real Estate Valuation
Honolulu, Hawaii – July 2004

Seminar: Subdivision Analysis
Chicago, Illinois – August 2003

Seminar: Supporting Capitalization Rates
Chicago, Illinois – August 2003

Seminar: The Technology Assisted Appraiser
Chicago, Illinois – August 2003

Seminar: Sense of Work: Preserving Your Work as an Appraiser
Chicago, Illinois – August 2003

Course: 400 National Uniform Definition of Professional Practice
Honolulu, Hawaii – May 2003

Course: 420 Business Practices and Ethics
Honolulu, Hawaii – May 2003

Seminar: The Private Conservation Market
Honolulu, Hawaii – July 2002

Seminar: Finance Reporting Valuations Part I and II
Honolulu, Hawaii – July 2002

Seminar: Future of Appraisal Profession: a Global Perspective
Honolulu, Hawaii – July 2002

Honolulu, Hawaii – July 2002
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<td>Understanding Limited Appraisals and Reporting Options</td>
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<td>Honolulu, Hawaii, August, 1994</td>
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<td>Valuation Considerations: Approving Non-Profits</td>
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<td>Boston, Massachusetts - July, 1992</td>
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<td>Arbitration Principles, Procedures and Pitfalls</td>
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*The American Society of Farm Managers and Rural Appraisers, Inc.*

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**Society of Real Estate Appraisers**

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**Seminar**

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**National Business Institute, Inc.**

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**American Arbitration Association**

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<td>Kahului, Maui, Hawaii - October, 1990</td>
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PROFESSIONAL QUALIFICATIONS
Shane M. Fukuda

STATE LICENSING
State Certified General Appraiser
State of Hawaii, License No. CGA-810, July 1, 2007
Expiration: December 31, 2011

PROFESSIONAL AFFILIATIONS
Shane Fukuda is a general Associate Member of the Appraisal Institute

EMPLOYMENT
AGM Consultants, Inc.
November 2009 to Present
Vice President – Commercial Division
July 2007 to October 2009
Staff Appraiser
October 2004 to June 2007
Appraiser Assistant; Appraiser Trainee

Previously associated with the following:
Dollar Thrifty Automotive Group, Inc.
1994 to 2004
Rental Agent; Lead Rental Agent; Station Manager; Senior Station Manager

GENERAL EDUCATION
Maui Community College, 1989-1990
Hanae Perrine Baldwin High School, 1989

APPRAISAL EDUCATION
Appraisal Institute

Course 301 GD Advanced Income Capitalization
San Diego, California – June 2011

Seminar Hotel Valuation
Honolulu, Hawaii – February 2010

Seminar Online Subdivision Valuation
Chicago, Illinois – December 2009

Course Online Business Processes and Ethics
Chicago, Illinois – December 2009

Seminar Online Small Hotel/Motel Valuation
Chicago, Illinois – December 2009

Professional Qualifications
Page 2

Course Online 7 hour National USPAP Equivalent
Chicago, Illinois – December 2009

Seminar Hawaii Lands, Historical Review
Kahului, Hawaii – September 2009

Course 320 General Applications
San Diego, California – July 2006

Course 310 Basic Income Capitalization
San Diego, California – July 2006

Course 101 Basic Appraisal Procedures
Denver, Colorado – April 2005

Course 100 Basic Appraisal Principles
Denver, Colorado – April 2005

Lincoln Graduate Center

Course 405 Residential Sales Comparison & Income Approaches
Honolulu, Hawaii – November 2006

Course 404 Residential Appraiser Site Valuation & Cost Approach
Honolulu, Hawaii – November 2006

Course 403 Residential Market Analysis &Highest & Best Use
Honolulu, Hawaii – November 2006

Course 772 National USPAP Course
Honolulu, Hawaii – October 2006

Course 772 National USPAP Course
Honolulu, Hawaii – January 2005

MISCELLANEOUS EDUCATION
REALM Business Solutions

Course Argus 12C
Honolulu, Hawaii – July 2005
APPENDIX N
Agricultural Impact Assessment
October 6, 2011

CMBY 2011 Investment, LLC
C/O Ms. Blanca Lafollette, Project Coordinator
Pacific Rim Land, Inc.
1300 North Holopono Street, Suite 201
P.O. Box 220
Kihei, Hawaii 96753

Re: Agricultural Impact Assessment for the proposed Paunene Heavy industrial Subdivision in
Wailuku, Island and County of Maui; TAK [2] 3-8-008.019

Dear Ms. Lafollette:

In accordance with your request, we have inspected the above-referenced property in order to
provide an agricultural impact assessment for the proposed Paunene Heavy Industrial Subdivision (the
"Proposed Project") in Wailuku, Island and County of Maui. This counseling report, and the conclusions
herein, is based on the on-site inspection of the property, a study of current political and economic
conditions, and a historical review of the agricultural real estate market in the County of Maui and
State of Hawaii in general. The effective date of this report is July 1, 2011.

The subject parcel, which consists of approximately 86.030 acres of land, has a State Land Use
designation of Agricultural and is zoned for Agricultural District uses by the County of Maui. Although
situated within the District of Wailuku, the subject parcel is classified for Agriculture (AG) by the
Kula-Makana Community Plan. As presently envisioned, the Proposed Project, which is still in its
preliminary planning stage, will consist of 26 heavy industrial lots east of Maluole Roadway. An area
that currently contains primarily agricultural uses, specifically sugar cane production.

The Maui Raceway Park is located to the west of the subject parcel, within Project District 10. The
park provides a wide variety of recreational uses including drag racing, auto cross racing, go kart
racing, dirt oval track racing, radio controlled model aircraft flying and dirt bike racing. Additional
nearby uses include a quarry for Hawaiian Cement and the Maui Consolidated Facility for the
Hawaii Army National Guard.

The assignment included the determination of general and specific effects arising from the
development of the proposed subdivision. The following report presents a narrative review of the
study and our analysis of data along with other pertinent materials on which this report is predicated.
It contains data and exhibits gathered in our investigations, and will include a description of the
analytical process and our conclusions, as of July 1, 2011.
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EXHIBITS
Exhibit A  Photographs of the Subject
Exhibit B  Selected Maps of the Subject

ADDENDA
Definitions
Utilizing and Contingent Conditions
Qualifications of the Consultant
PART I - INTRODUCTION

A. EXECUTIVE SUMMARY

Background

The proposed Paunene Heavy Industrial Subdivision (the "Proposed Project") is envisioned as a 28-lot heavy industrial subdivision to be developed on approximately 86.030 acres east of Nokulele Highway, District of Waikiki, Island and County of Maui. As shown on the State of Hawaii Tax Maps, the subject parcel is within the District of Waikiki, Island and County of Maui. As of the effective date, the subject site is designated for agricultural uses by State Land Use Law, County of Maui zoning and the Kīhei-Makāika Community Plan. The subject parcel also lies within the proposed Urban Growth Boundary set forth by the (draft) Maui Island Plan (December 2010).

The heavy industrial zoning district provides for a minimum lot size of 10,000 square feet. The sizes of lots in the proposed heavy industrial subdivision shall be determined by the types of uses proposed and the market demand projected approximately six months before the application for subdivision approval is filed with the Development Services Administration, County of Maui. Currently, the plan is to provide ten (10) lots ranging in size from one-half (0.5) acre to one (1) acre; five (5) lots ranging from over one (1) acre to two (2) acres; and the balance ranging from over two (2) acres to twenty (20) acres for a total of twenty eight (28) lots. The Proposed Project will feature interior roads as well as drainage facilities consistent with County requirements.

Study Objectives

ACM Consultants, Inc. has been retained by CABY 2011 Investment, LLC to analyze the agricultural real estate market in an effort to determine general and specific effects arising from the development of the proposed project. In particular, we studied agricultural trends and demographics, and supply and demand factors. In the process, we have gathered as much pertinent information as possible with respect to agricultural property in the County of Maui, as well as the State of Hawaii in general.

Conclusion

Development of the Proposed Project was deemed to have negligible impact to agriculture. Based on the consultant's research, removal of the subject parcel's 8.6 acres is expected to have an insignificant impact to the supply of agricultural land, both for the State of Hawaii and County of Maui.

Furthermore, no agricultural activities were in operation on the subject parcel as of the effective date. As such, the removal of the subject parcel from agricultural use would have no immediate impact upon agricultural revenues or jobs. There was also little, if any, foreseeable long term agricultural impacts, primarily due to the subject's poor soil quality.

According to maps from three (3) soil studies commonly utilized in the State of Hawaii, the subject parcel has very rocky soil that was considered to have little agricultural potential. In this light, it is reasonable to assume that consolidation with adjacent sugarcane crops or acquisition by an agricultural operation is highly unlikely.

Adjacent uses include planting, irrigation, fertilization and harvesting of sugarcane by HC&G; drag racing, auto cross racing, go-kart racing, dirt oval track racing, radio controlled model aircraft flying and dirt bike racing at Maul Raceway Park; and the ongoing quarry operation of Hawaiian Cement. The odor, dust, smoke, gas, noise, vibration, etc. produced by these activities is allowable in heavy industrial areas. This being the case, additional concerns caused by the Proposed Project's heavy industrial uses is assumed to be acceptable.

The Proposed Project lies within the proposed Urban Growth Boundary established by the (draft) Maui Island Plan. Meanwhile, the current Kīhei-Makāika Community Plan classifies the area adjacent to the subject parcel (approximately 561 acres), as Project District 10 "Old Paunene Airport area". The project district suggests "Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use."

State and County classifications for the subject parcel currently suggest an agricultural use, provided that the land has productive soil characteristics. In the case of the subject parcel, its inferior soil quality likely precludes feasible agricultural use.

Based on the aforementioned factors, which include sufficient agricultural supply and demand, current agricultural trends of poor subject soil quality; and complementary surrounding uses, the agricultural impacts attributed to the development of the Proposed Project are expected to be negligible. Furthermore, creation of the proposed project would be consistent with the County of Maui's long-range planning goals for the area.

B. PURPOSE OF THE REPORT

The purpose of this report, as of July 1, 2011, is to generate an agricultural impact assessment in support of land use entitlement requests for the Proposed Project.
C. INTENDED USE OF THE REPORT

The intended use or function of this report is to provide real property information and real estate market data in support of an Environmental Assessment, a State Land Use District Boundary Amendment (Agricultural to Urban), Community Plan Amendment (Agricultural to Heavy Industrial), and a Change in Zoning (Agricultural District to M-2 or M-3 Heavy Industrial District).

D. INTENDED USER OF THE REPORT

The intended users of this report are CMBy 2011 Investment, LLC and the appropriate State and County agencies involved in the proposed land use changes.

E. SCOPE OF THE REPORT

The Consultant has provided an agricultural impact assessment estimating general and specific effects arising from the development of the proposed subdivision. The assessment was developed and prepared in conformity with, and subject to, the requirements of the Code of Professional Ethics and the Standards of Appraisal Practice of the Appraisal Institute, and the Uniform Standards of Professional Appraisal Practice.

F. STATEMENT OF COMPETENCY

ACM Consultants, Inc. has been actively involved in the real estate appraisal research and consulting business since 1982. Our business emphasis has focused mainly on the counseling and valuation of residential and commercial properties located within the State of Hawaii. The company considers itself competent to conduct an agricultural impact assessment with respect to a proposed Industrial project in Wailuku, Island of Maui.

G. EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS

1. As of July 1, 2011, the subject was still in the preliminary stages of planning. A Proposed Land Development Plan, prepared by Osano Engineering, Inc., was provided by the client and offered a visual indication of the proposed layout of the development. The consultant is not liable for any changes in the project plan past this date, nor for information that has not been developed, released or communicated to the Consultant.

H. CONFIDENTIALITY PROVISION

The contents of agricultural impact assessment are confidential. Release of this counseling report by ACM Consultants, Inc. is limited to you for the intended uses stated above. Any further release of this report, or portions hereof, is strictly prohibited and you shall accept the risk and liability for any such release without the previous written consent of ACM Consultants, Inc. Further, you shall indemnify and defend ACM Consultants, Inc., and its individual consultants/appraisers, from any claims arising out of any such unauthorized disclosure.
I. CERTIFICATION

The undersigned does hereby certify that except as otherwise noted in this consulting report:

1. The Consultant’s compensation is not contingent upon the reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

2. The Consultant has no present or prospective interest in the property that is the subject of this report, and no personal interest or bias with respect to the parties involved. Any “Estimate(s) of Market Value” in the consulting report is not based in whole or in part upon the race, color, or national origin of the prospective owners or occupants of the properties in the vicinity of the property appraised.

3. The Consultant has personally inspected the property, and is a signatory of this Certification.

4. To the best of the Consultant’s knowledge and belief, all statements of fact and information in this report are true and correct, and the Consultant(s) have not knowingly withheld any significant information.

5. No one provided significant professional assistance to the person(s) signing this report.

6. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and the Consultant’s personal unbiased professional analyses, opinions and conclusions.

7. All analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the Uniform Standards of Appraisal Practice.

8. This consulting report is subject to and in conformance with the Code of Professional Ethics and Standards of Professional Conduct of the Appraisal Institute. The analyses, opinions and conclusions of this consulting report have been made in conformity with, and are subject to, the requirements of the Uniform Standards of Professional Appraisal Practice (USPAP).

9. This consulting report is to be used only in its entirety and no part is to be used without the whole report. All conclusions and opinions concerning the real estate are set forth in the consulting report, were prepared by the Consultant(s) whose signature(s) appears on the consulting report. No change of any item in the consulting report shall be made by anyone other than the Consultant, and the Consultant shall have no responsibility for any such unauthorized change.

10. The Appraisal Institute, of which this Consultant is a member, has a legal right to review this report.

11. The qualifications of this Consultant, including completed educational requirements of his/her candidacy are located in the Addendum to this report. Any member signing the report has completed the requirements of the Appraisal Institute’s continuing education program.

12. The Consultant has performed a previous appraisal of the subject property within the three years prior to this assignment.

ACM Consultants, Inc.

[Signature]

[Name]

Certified General Appraiser, State of Hawaii, CGA-039
Expiration: December 31, 2011

[Signature]

[Name]

Certified General Appraiser, State of Hawaii, CGA-810
Expiration: December 31, 2011
PART II - FACTUAL DATA

A. AGRICULTURAL OVERVIEW

According to the State of Hawaii Land Use Commission, there are approximately 4,112,388 acres of land in the State of Hawaii. Of this total, approximately 1,930,224 acres have been designated as Agricultural District. The following table describes the breakdown of Agricultural District land by island and county:

<table>
<thead>
<tr>
<th>State of Hawaii</th>
<th>County</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maui</td>
<td>403,354</td>
</tr>
<tr>
<td></td>
<td>Molokai</td>
<td>111,657</td>
</tr>
<tr>
<td></td>
<td>Lanai</td>
<td>48,029</td>
</tr>
<tr>
<td></td>
<td>Honolulu City &amp; County</td>
<td>128,810</td>
</tr>
<tr>
<td></td>
<td>Oahu</td>
<td>1,214,040</td>
</tr>
<tr>
<td></td>
<td>Hawaii</td>
<td>1,214,040</td>
</tr>
<tr>
<td></td>
<td>Kauai</td>
<td>185,020</td>
</tr>
<tr>
<td></td>
<td>Molokai</td>
<td>43,700</td>
</tr>
</tbody>
</table>

| Source: 2009 State of Hawaii Data Book |

The majority of the agricultural land in Hawaii is owned by government entities and large private landowners. Much of the private agricultural lands are held by companies with historical ties to commercial plantations, ranches, and land trusts.

In its prime, commercial agriculture in Hawaii was dominated by field crops, such as sugarcane, pineapple, and coffee. Increased global competition, higher operational and shipping costs, as well as the long-term rise in fuel prices contributed to decreases in profitability for these industries. The subsequent closure of commercial plantations across the state led to a paradigm shift toward urban development, leading to an increased self-sufficiency of agricultural land.

Due to its relatively low cost, coupled with the lack of entitled land, tracts of agricultural land were purchased, rezoned and developed. The creation of land condominiums or “gentleman estates” also gained popularity, as these types of rural residential projects did not require rezoning. More recently, however, concerns over urban sprawl and the availability of water have caused government officials to be more cautious regarding the development of agricultural land.

In lieu of urbanization, selling and leasing land to diversified commercial agricultural businesses continues to be an option for large landowners. In addition to small-scale commercial farmers and ranchers, a number of agribusiness companies, such as Monfort, Syngenta, and Pioneer, have increased their land holdings in Hawaii. Alternative energy companies, primarily wind farms, have also begun purchasing tracts of land. The following section describes some of the various types of agricultural goods being produced in each County.

B. AGRICULTURAL REGIONS AND PRODUCTS

County of Maui

The State of Hawaii Land Use Commission has classified approximately 402,354 acres of land as Agricultural District in the County of Maui. The primary agricultural regions in this market area are shown on the following table:

<table>
<thead>
<tr>
<th>Region</th>
<th>Agricultural Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kahului</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Wailea</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Pukalani</td>
<td>Bananas, Cattle, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Kaumakani</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Malaekahiki</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
</tbody>
</table>


City and County of Honolulu

The State of Hawaii Land Use Commission has classified approximately 128,810 acres of land as Agricultural District in the City and County of Honolulu. The primary agricultural regions in this market area are shown on the following table:

<table>
<thead>
<tr>
<th>Region</th>
<th>Agricultural Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kahului</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Waikiki</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Kailua</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Tantalus</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
</tbody>
</table>


County of Hawaii

The State of Hawaii Land Use Commission has classified approximately 1,214,040 acres of land as Agricultural District in the County of Hawaii. The primary agricultural regions in this market area are shown on the following table:

<table>
<thead>
<tr>
<th>Region</th>
<th>Agricultural Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kahului</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Oahu</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Molokai</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Lanai</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Honolulu City</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
<tr>
<td>Oahu</td>
<td>Bananas, Cattle, Coffee, Flowers, Herbs, Fruits, Tropical Products, Vegetables</td>
</tr>
</tbody>
</table>


Page 1
County of Kauai

The State of Hawaii Land Use Commission has classified approximately 185,020 acres of land as Agricultural District in the County of Kauai. The primary agricultural regions in this market area are shown on the following table:

<table>
<thead>
<tr>
<th>Region</th>
<th>Agricultural Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hanalei Valley</td>
<td>Bananas, Citrus, Coffee, Flowers, Macadamia Nuts, Nursery Products, Tropical Specialty Fruits, Vegetables</td>
</tr>
<tr>
<td>Waimea Valley</td>
<td>Bananas, Coffee, Flowers, Macadamia Nuts, Nursery Products, Tropical Specialty Fruits, Vegetables</td>
</tr>
<tr>
<td>Lihu'e Valley</td>
<td>Bananas, Coffee, Flowers, Macadamia Nuts, Nursery Products, Tropical Specialty Fruits, Vegetables</td>
</tr>
</tbody>
</table>

Source: Services at Island Agriculture, 2009. State of Hawaii Department of Agriculture

D. AGRICULTURAL LAND OWNERSHIP

As previously mentioned, the majority of the agricultural land in the State of Hawaii is owned by government entities and large private landowners. Much of the private agricultural lands are held by companies with historical ties to commercial plantations and ranches. While in operation, there was no reason for these businesses to sell off their land holdings; however, as more and more closed their doors, many of these landowners began selling their title agricultural land.

Research of agricultural zoned vacant land revealed that over 70 percent of the agricultural zoned vacant land in each County is owned by "large landowners" (those who control over 1,000 acres). The following sections summarize this relationship, as well as some of the "large landowners" within each market area. (Source: Hawaii Information Service)

County of Maui, Agricultural Zoned Vacant Land

| Number of Parcels: | 5,653 parcels |
| Total Acreage: | 198,864 acres |
| Acreage of "Large Landowners" (1,000+ Acres): | 151,147 acres |
| Acreage of "Large Landowners" to Total Acreage: | 76 percent |

Notable "Large Landowners" (in alphabetical order):


City and County of Honolulu, Agricultural Zoned Vacant Land

| Number of Parcels: | 1,879 parcels |
| Total Acreage: | 63,120 acres |
| Acreage of "Large Landowners" (1,000+ Acres): | 49,444 acres |
| Acreage of "Large Landowners" to Total Acreage: | 78 percent |

Notable "Large Landowners" (in alphabetical order):

- Berrie Paushi Bishop Estate Trust, Castle & Cooke, City & County of Honolulu, Dillingham Ranch Alaka LLC, Dole Food Company, George Giffith Trust, Hawaiian Home Lands, James Campbell Company, James Campbell Trust, Kula Ranch, Pioneer Hi-Bred International, Robinson Kaua'i Land LLC, State of Hawaii, Syngenta Hawaii LLC, and United States of America

County of Hawaii, Agricultural Zoned Vacant Land

| Number of Parcels: | 61,233 parcels |
| Total Acreage: | 801,904 acres |
| Acreage of "Large Landowners" (1,000+ Acres): | 607,547 acres |
| Acreage of "Large Landowners" to Total Acreage: | 70 percent |

Notable "Large Landowners" (in alphabetical order):

- Thomas Atwood, Berrie Paushi Bishop Estate Trust, Bridge Alaka LLC, Bridge Paushi LLC, Camblian Pahala, County of Hawaii, EWM Enterprises LP, David Greenwell Trust, Tobi Hudson Trust, Hawaiian Home Lands, Hokulana Ranch, HPAC LLC, Kapua Orchards Estates LLC, Piliakawa, Kaliarea Trust I, Kauai Preserve Conservation Trust, Kauai Ranch LLC, Landmark Properties LLC, Mauna Loa Macadamia Orchards LP, Manuia Muller, Peter Matsuura Trust, Maukau Investments LLC, NC Landco: land & Castle, The Nature Conservancy, New Moon Foundation, Edmund Olson Trust, Parker Land Trust, Parker Ranch, Teresa Prekasak, P reist (Mark) of Sang San Ho Temple, The Queen Emma Foundation, Roman Catholic Church, Sands of South Kaua'i LLC, Shew Family Hawaii LLC, Linda Shum, South Kauai LLC, SBAC LLC, Elizabeth Stack, State of Hawaii, Tokyu Corporation, United States of America, W H Shipment, Waikiki Ranch, Waikoloa
Maku LLC, Waikalua Village Association, Wall Ranch, WWK
Hawaii, Yee Hop

County of Kauai, Agricultural Zoned Vacant Land

Number of Parcels: 2,528 parcels
Total Acreage: 94,117 acres
Acreage of "Large Landowners" (1,000+ Acres): 67,183 acres
Percentage of "Large Landowners" to Total Acreage: 71 percent

Notable "Large Landowners" (in alphabetical order):

It should be noted that the Acreage of "Large Landowners" and Acreage "Large Landowners" to Total Acreage figures listed on the previous pages are likely higher. In many cases, the parcel owners listed in public databases were actually lessor/tenants, with the lessee/tenant held by one of the "Large Landowners".

Based on this research, it would appear that out of 1,218,005 acres of agricultural zoned vacant land at least 875,352 acres are owned by only 91 government entities and private owners. Many of these "Large Landowners" choose to hold or lease their land, rather than make it available for sale or market. In this light, although there are approximately 71,000 agricultural zoned vacant land parcels across the State of Hawaii, the potential available supply in each market area is much less. However, the current supply appears to be sufficient to satisfy demand, evidenced by the annual contraction of farm land discussed in the following section.

E. FARMING TRENDS

The following information was gleaned from the most recent Census of Agriculture (2007) by the USDA National Agricultural Statistics Service:

Land In Farms

There were 1,121,359 acres of land in farms in the State of Hawaii as of 2007, which was down 43.6 percent from the 1,988,282 acres reported in the 1978 Ag Census. This translated into a straight line average decline of 1.5 percent over the 29 year period. As shown in the table to follow, land in farms has decreased from 1.6 to 13.8 percent between Censuses.

Number of Farms

There were 7,221 farms in the State of Hawaii as of 2007, which was an increase of 74.5 percent from the 4,310 farms reported in the 1978 Ag Census. This translated into a straight line average increase of 2.6 percent over the 29 year period. As shown in the table to follow, the number of farms increased from 2.6 to 9.6 percent between Censuses, with the exception of one year, where a 1.4 percent decrease was reported.

Average Farm Size

The average farm size in the State of Hawaii, as of 2007, was 149 acres, a decrease of 67.7 percent from the 461-acre average reported in the 1978 Ag Census. This translated into a straight line average decrease of 2.3 percent over the 29 year period. As shown in the table to follow, the average farm size has decreased from 7.6 to 38.2 percent between Censuses.

Product Market Value

Average per Farm

The product market value average per farm in the State of Hawaii, as of 2007, was $68,292, a decrease of 29.8 percent from the $97,274 reported in the 1978 Ag Census. This translated into a straight line average decrease of 1.0 percent over the 29 year period. As shown in the table to follow, the product market value average per farm has
varied from a decrease of 30.9 percent to an increase of 23.0 percent between Censuses.

<table>
<thead>
<tr>
<th>Census Year</th>
<th>Yield/Value Per Acre</th>
<th>Change from Previous</th>
<th>Change from Previous (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978</td>
<td>1277.9</td>
<td>-1160</td>
<td>-29.6%</td>
</tr>
<tr>
<td>1982</td>
<td>1200.0</td>
<td>-77.9</td>
<td>-6.5%</td>
</tr>
<tr>
<td>1987</td>
<td>1235.0</td>
<td>35.0</td>
<td>2.9%</td>
</tr>
<tr>
<td>1992</td>
<td>1290.0</td>
<td>55.0</td>
<td>4.5%</td>
</tr>
<tr>
<td>1997</td>
<td>1340.0</td>
<td>50.0</td>
<td>3.9%</td>
</tr>
<tr>
<td>2002</td>
<td>1400.0</td>
<td>60.0</td>
<td>4.5%</td>
</tr>
<tr>
<td>2007</td>
<td>1460.0</td>
<td>60.0</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

According to the Statistics of Hawaii Agriculture 2009, seed crops had the highest production value in the State of Hawaii. Seed crop production value was $222,560,000 in 2009, up 25.7 percent over the $176,990,000 reported in 2008. As shown in the table below, soybean production value in 2009 was greater than the rest of the top 10 commodities combined.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Commodity</th>
<th>Production Value</th>
<th>Change from Previous</th>
<th>Change from Previous (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Soybeans</td>
<td>$222,560,000</td>
<td>$45,200,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>2</td>
<td>Sweet corn</td>
<td>$185,000,000</td>
<td>$35,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>3</td>
<td>Coffee</td>
<td>$150,000,000</td>
<td>$25,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>4</td>
<td>Macadamia nuts</td>
<td>$100,000,000</td>
<td>$20,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>5</td>
<td>Grouse</td>
<td>$75,000,000</td>
<td>$15,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>6</td>
<td>Koa</td>
<td>$50,000,000</td>
<td>$10,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>7</td>
<td>Passion</td>
<td>$25,000,000</td>
<td>$5,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>8</td>
<td>Bananas</td>
<td>$20,000,000</td>
<td>$4,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>9</td>
<td>Taro</td>
<td>$15,000,000</td>
<td>$3,000,000</td>
<td>25.7%</td>
</tr>
<tr>
<td>10</td>
<td>Ube</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>25.7%</td>
</tr>
</tbody>
</table>

Rounding out the top 20 commodities for 2009 were basil, sweet potatoes, pearl onions, aubergines, eggplant, and tomatoes. As such, in addition to a greater number of smaller farms, it appears that more diverse commodities are being produced in the State of Hawaii.

Conclusion

In light of the aforementioned Census information, it appears that over the last 30 years, there has been a significant shift in the farming industry. Whereas the industry was previously dominated by larger commercial operations, namely sugarcane and pineapple, the trend has moved toward smaller farms producing more diverse commodities. Although the most recent Census of Agriculture was conducted in 2007, based on what is currently being observed in the market, it is reasonable to assume that this trend has continued.

F. REGIONAL CHARACTERISTICS

Agriculture on Maui has traditionally been dominated by larger operations, including sugarcane and pineapple. In 2007, Maui Land & Pineapple Company shut down its cane mill, which had been operating since 1912, in response to declining sugar prices. This action resulted in a reduction of over 2,000 employees. In December 2009, Maui Land & Pineapple Company announced that it would be shutting down its remaining operations, and the conclusion of operations was met with mixed reactions.

However, a new company, Halmsteen Pineapple Company, was formed in the wake of these events, and it has continued to operate in the region. HC&S survives as Hawaii's only remaining sugar operation due in part to its economies of scale, its location within the greater Hawaiian Islands, and its commitment and ability to invest in new technologies and processes. As a result, it continues to produce sugarcane and to diversify its operations, including the production of high-quality, specialty sugarcane varieties.

Another of Maui's sugar operations, Pioneer Mill in West Maui, is also experiencing similar challenges. According to the Mill's sustainability plan, the company is exploring alternative uses for its land, including the cultivation of other crops and the development of renewable energy projects. This approach is intended to ensure the long-term viability of the Mill and to provide economic benefits to the local community.

Anyone who doubts that logic now has only to drive the West Maui coast from Lahaina to Kaanapali and look seaward, at an entire mountain side of dry brush and unused fields. As with many cases where sugar plantations have shut down, most diversified agriculture crops are left not only the intensive but also the small vacated land. Coffee and seed corn operations are possibilities, but they make only a small dent.
In addition to sugar and pineapple cultivation, Maui also offers rich opportunities for agricultural diversification by small farmers and large agribusinesses. Top among new agricultural products are: papaya, cut flowers, coffee, Kula onions and strawberries, and Chinese cabbage from Kula. Molokai offers its sweet potatoes, lettuce and artichokes, as well as taro.

G. SUBJECT CHARACTERISTICS

**Enviorns**

The Puunene Heavy Industrial Subdivision (the "Proposed Project") is a proposed 28-lot, heavy industrial subdivision situated east of Mokulele Highway, District of Wailuku, Island and County of Maui.

Mokulele Highway is the primary roadway connecting Kahului to Kihei and runs in a generally north-south direction. It is an asphalt-paved four-lane thoroughfare with two lanes in each direction, divided by a median. Mokulele Highway has street lights, as well as overhead and underground utilities. A dedicated bicycle and pedestrian path is situated along the eastern side of the roadway.

Puunene is primarily an agricultural area between the Central Maui and South Maui regions. The majority of the surrounding land is being utilized for commercial sugar cane production. Maui Raceway Park, the Hawaiian Cenotaph, the Maui Army National Guard Armory, and the Maui Humane Society are located nearby. Central Maui Raceway, a light/heavy industrial yard storage development, is situated approximately one mile to the north. Although the immediate area is unpaved, the Proposed Project will be conveniently located with respect to its many supporting facilities, such as shopping, schools, employment, residential and recreational areas in both Central Maui and South Maui.

**Physical Description**

**Size, Shape and Topography:** The Proposed Project has a land area of 86.030 acres and has a Highly Irregular shape. A physical inspection of the property confirmed that topography is generally level to gently sloping.

The Consultant has not been provided with soil, subsall or other engineering studies to determine the load-bearing capacity of the subject; however, based on typical construction in the neighborhood and our knowledge of other properties in the immediate vicinity, the site is presumed to have stable soil conditions and any drainage problems are assumed to be correctable.

**Access:** As shown on an August 10, 2011 map by R.T. Tanaka Engineers, Inc., "Land of Puunene Exhibit Map Showing Proposed Easements B-1, B-2, B-3, B-4, B-5 and B-6", vehicular access to the Proposed Project from Mokulele Highway will be via proposed easements over adjacent parcels. The proposed access easements will consist of portions of Kamaolea Road, South Firebreak Road and Lower Kehel Road, which are private roadways situated on land owned by the State of Hawaii and Alexander & Baldwin, Inc. ("A&B").

Encompassing portions of Kamaolea Road, South Firebreak Road and Lower Kehel Road, proposed Easements B-1, B-2, B-3 and B-5 would need to be granted by the State of Hawaii. Should this access not be obtained within the next five (5) years, the Developer has secured an alternate means of access with A&B, via an easement around the northern and eastern sides of Reserve Lot D.

**Easements and Restrictions:** According to a copy of a "Limited Warranty Deed with Reservation of Easements, Covenants, Reservations and Restrictions", recorded with the Bureau of Conveyances on March 17, 2011, the subject parcel is encumbered by a 20-foot wide road easement along its western boundary. The document further describes a utility easement in favor of Maui Electric Company Limited and Hawaiian Telcom granting perpetual right and easement over Easement 3 for utility purposes.

**Flood Status:** Flood Hazard Districts are delineated on Flood Boundary and Floodway Maps and the Federal Insurance Rate Maps prepared by the Federal Insurance Administration and Federal Emergency Management Agency. The subject parcel is situated on Map Number 1500030580E, by the Federal Emergency Management Agency; revised September 25, 2009, and lies in Flood Zone X. Zone X within Maui County indicates areas determined to be outside of the 0.2 percent annual chance flood plain. Flood Insurance is not required for properties within this flood zone.

**Utilities:** Potable water and sewer service are currently unavailable, while electricity and telephone service are available from overhead lines in the area.

**Agricultural Characteristics**

**Soil Type:** As derived from an USDA Natural Resources Conservation Service online web soil survey, the subject parcel appears to have primarily Waiakoa extremely stony silty clay loam, 3 to 5 percent slopes, eroded (WD2), with some parts of Alae cobbly sandy loam, 3 to 7 percent slopes (Act).**

**Soil Ratings:** The USDA National Conservation Service Land Capability Grouping (non-irrigated) for the subject parcel indicated soil consisting primarily of Subclass VIs with some parts designated Subclass VIa. Subclass VIa soils have very severe soil limitations because of unfavorable texture, or because they are extremely rocky or stony. Also included are land types that are steep, rocky or stony. Subclass VIa soils have severe limitations because of stoniness or
unfavorable texture. The soils are very stony, very rocky, extremely stony, or extremely rock and have slopes of 0 to 35 percent.

As shown on the Agricultural Lands of Importance in the State of Hawai‘i (ALISH) map, the Proposed Project appears to be designated as being “residual”. The residual classification is given to land that is not placed in one of the study’s three (3) important agricultural land categories: Prime, Unique and Other Important Ag.

A University of Hawai‘i Land Study Bureau (LSB) map indicated the Proposed Project has an Overall Productivity Rating of "E", which indicates land that is very poor/not suitable for agricultural production.

Elevation: U.S. Geological survey maps indicated the Proposed Project ranges in elevation from approximately 120 feet on its western side, rising to approximately 140 on its eastern side.

Soil Drainage: Solar Maps from the State Department of Business, Economic Development and Tourism indicated that the Proposed Project receives an average of between 450 and 500 calories per square centimeter per day. This translates into an average of 5.2 to 5.5 peak sun hours daily.

Rainfall: Recording stations closest to the Proposed Project are located in Kohalū and Kihei. According to precipitation data gleaned from the USDC National Oceanographic and Atmospheric Administration, between 1997 and 2009 the annual rainfall recorded at the Kohalū recording station averaged approximately 14.5 inches. The Kihei recording station reported an annual average of about 11.3 inches during the same period.

Temperature: Recording stations closest to the Proposed Project are located in Kohalū and Makena. USDC National Oceanographic and Atmospheric Administration temperature data showed that between 1997 and 2009 the annual temperature recorded at the Kohalū and Makena recording stations averaged approximately 75 degrees Fahrenheit.

Wind Speed: Wind direction for the area typically flows from north to south. As shown on a wind speed map by Hawaiian Electric Company, the Proposed Project has a ‘mean speed at 50 meters’ of about 14 miles per hour.

Land Use Controls: As depicted on State of Hawai‘i Land Use Commission Maps and confirmed with the County of Maui Planning Department Zoning Administration and Enforcement Division, the Proposed Project is located within the State Agricultural Districts.

Hawaii Administrative Rules Title 15, Department of Business Economic Development, and Tourism: Subtitle 3, State Land Use Commission, Chapter 15, Land Commission Rules, Subchapter 2 states that Agricultural Districts: 1) shall include lands with a high capacity for agricultural production; 2) may include lands with significant potential for grazing or for other agricultural uses; and 3) may include lands surrounded by or contiguous lands or which are not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics.

A district boundary amendment from Agricultural to Urban would be needed for the Proposed Project.

County of Maui: As confirmed with the County of Maui Planning Department Zoning Administration and Enforcement Division, the subject parcel is zoned for agricultural uses.

Maui County Code, Title 19, Article II, Chapter 19.30A, Section 19.30A.010 states that the purpose of the Agricultural District is to: 1. Implement chapter 205, Hawai‘i Revised Statutes, and the goals and policies of the Maui County general plan and community plans; 2. promote agricultural development; 3. preserve and protect agricultural resources; and 4. support the agricultural character and components of the County’s economy and lifestyle.

A change in zoning from the Agricultural District to the AI-2 or M-3 Heavy Industrial District would be needed for the Proposed Project.

Kīhei-Makena Community Plan: As shown on Kīhei-Makena Community Plan Maps and confirmed with the County of Maui Planning Department Zoning Administration and Enforcement Division, the subject parcel is classified for agricultural uses. The Agriculture land use category indicates areas for agricultural activity which would be in keeping with the economic base of the County and the requirements and procedures of Chapter 205 HRS, as amended.

A revision from Agriculture to Heavy Industrial would be needed for the Proposed Project. An alternative would be to have the subject parcel zoned with Project District 10, if feasible.

The current Kīhei-Makena Community Plan (1998) describes the area adjacent to the subject Parcel as Project District 10 (Old Pu‘unēnē Airport area). The objective of this project district is to establish a master planned recreational and industrial expansion area to meet future recreational needs and to provide areas for industrial activities, including government facilities, whose locations are better suited away from urban areas.
Land Use

Historic Use: According to the property owner, the property was used as a pig farm since the 1960s and was additionally used for unpermitted solid waste management activities since approximately 1995. Prior to the pig farm use, the property was partly used for cultivation of sugarcane and also as a plantation camp. Prior to that use, the property was part of the Puunene Naval Air Station.

Current Use: On the day of inspection, it was noted the subject parcel been cleared of previously abandoned solid waste material and the on-site dilapidated structures had been razed. A broadcast antenna was observed on the northern side of the property.

Proposed Use: The Proposed Project is envisioned as a 28-lot heavy industrial subdivision to be developed on approximately 86.030 acres east of Molokai Highway, District of Wailuku, Island and County of Maui. As shown on the State of Hawaii Tax Maps, the subject parcel is within the District of Wailuku, Island and County of Maui. As of the effective date, the subject site is designated for agricultural uses by State Land Use law, County of Maui zoning and the Kula-Makena Community Plan. The subject parcel also lies within the proposed Urban Growth Boundary set forth by the (draft) Maui Island Plan (December 2010).

The heavy industrial zoning district provides for a minimum lot size of 10,000 square feet. The sizes of lots in the proposed heavy industrial subdivision shall be determined by the types of uses proposed and the market demand projected approximately six months before the application for subdivision approval is filed with the Development Services Administration, County of Maui. Currently, the plan is to provide ten (10) lots ranging in size from one-half (0.5) acre to one (1) acre; five (5) lots ranging from one (1) acre to two (2) acres; and the balance ranging from over two (2) acres to twenty (20) acres for a total of twenty eight (28) lots. The Proposed Project will feature interior roads as well as drainage facilities consistent with County requirements.

Most Appropriate Use: The subject parcel is recognized by the December 2010 Draft Maui Island Plan and has been included in the Urban Growth Boundary. As stated in the Maui Island Plan draft, "The proposed industrial land uses are compatible with adjacent land uses and represent a logical expansion of industrial land use in the area. The Puunene Industrial Planned Growth Area’s location midway between Kihei and Kahului makes it an ideal site to serve the island’s industrial land use needs.” In light of the site’s potential for favorable agricultural production, coupled with its inclusion in the Maui Island Plan, it is the Consultant’s opinion that the most appropriate use for the subject parcel would be for a heavy industrial development.

PART III - AGRICULTURAL IMPACTS AND CONCLUSION

A. REGIONAL AGRICULTURAL SUPPLY

As of 2009, the USDA National Agricultural Statistics Service reported that there was approximately 230,000 acres of land in farms in the County of Maui. Supply of land in farms has been decreasing over the years. When compared to the 355,766 acres reported in 1992 Ag Census, the 2009 figure represents a decrease of over 125,000 acres, or approximately 35 percent of the total Maui County farmland. This translated into a straight line decrease of almost 7,000 acres per year, or 2 percent per annum.

The subject parcel, at about 86 acres, represents approximately four-hundreds of 1 percent (0.04%) of the County’s land in farms, as of 2009. In addition, the 86 acres would amount to only 1.2 percent of the average annual contraction for Maui County. In this light, removing the subject parcel’s 86 acres from agricultural use will have negligible impact on the County of Maui’s overall farm land supply.

B. NEIGHBORING OPERATIONS

The neighboring properties consist primarily of sugarcane crops grown by Hawaiian Commercial & Sugar Company (HC&S). HC&S is the only commercial sugar producer on the island and the last plantation in operation in the State of Hawaii.

As of 2009, the USDA National Agricultural Statistics Service reported that HC&S had 34,400 acres in sugar cropland. Although removing the subject parcel’s 86 acres from agricultural use would deny the HC&S the opportunity to expand their operation, consultation by HC&S would only result in an increase of gross acreage of less than three-tenths of 1 percent (0.3%).

The subject parcel was sold to the current landowners by Alexander & Baldwin, Inc., the parent company of HC&S. Therefore, it is reasonable to assume that HC&S did not have future plans for the subject parcel. Furthermore, HC&S has actively lessened its active crop acreage over the years. According to annual figures by the Hawaii Agricultural Statistics Service, HC&S had 36,700 crop acres in 2003, but their crop acreage had dropped to 34,400 acres as of 2009. Based on these factors, it is the Consultant’s opinion that the assimilation by HC&S scenario is highly unlikely.

Part of the reason for the crop acreage reduction by HC&S is due to their sale of land to agriculturists. These companies have been increasing their land holdings for seed crop production in Maui County, as well as across the State. However, according to an HC&S
representative, the agribusiness industry is very selective when it comes to land acquisition. Soil condition was said to be one of their primary considerations, along with solar radiation and wind conditions. Given its poor soil conditions, the subject parcel may not meet the seed crop companies’ acquisition criteria.

Development of the Proposed Project will likely produce additional odor, dust, smoke, gas, noise, vibration, etc. which are commonly associated with heavy industrial uses. However, these potential irritations are expected to have negligible impact on the surrounding properties, especially since the existing operations are already mutually subjected to these types of by-products. Examples of this include planting, irrigation, fertilization and harvesting of sugarcane by HC&S; drag racing, auto cross racing, go kart racing, dirt oval track racing, radio controlled model aircraft flying and dirt bike racing at Maui Raceway Park; and the ongoing quarry activities of Hawaiian Cement.

C. ON-SITE OPERATIONS

The subject parcel was not being actively farmed, as of the effective date. Historical agricultural uses were said to include commercial sugarcane cultivation and pig farming. In the Consultant’s opinion, a return to agricultural use is highly unlikely, primarily because of the subject parcel’s poor soil conditions.

As discussed previously in the Agricultural Characteristics section, the USDA National Conservation Research Service Land Capability Grouping (non-irrigated) for the subject parcel indicated that it consists primarily of Class VI with some parts designated Class V. The Land Capability Grouping has eight classes, Class I to Class VIII, with Class I having the fewest limitations and Class VIII having limitations that preclude use for agricultural purposes. It is generally recognized that the effective cutoff for agricultural use is Class IV, since soils in this class already exhibit very severe limitations that restrict choice of crops, require very careful management practices, or both. The subject parcel’s “s” subclass further indicates soils that have unfavorable texture, that are extremely rocky or stony, and that may exhibit steep slopes.

D. AGRICULTURAL ECONOMIC IMPACTS

There would be no immediate impact to agricultural revenues or jobs due to the development of the proposed project, since there were no on-site agricultural activities taking place, as of the effective date. It is difficult to accurately assess long-term agricultural economic impacts, as these figures would vary, depending on the type of agricultural use. As previously indicated, although the removal of the subject parcel’s 86 acres from agriculture would result in the inability to expand agricultural operations in the vicinity, the subject parcel’s poor soil conditions may inhibit financially feasible crop production. This being said, the long-term agricultural economic impact from the development of the proposed project is estimated to be very little to none.

E. GOVERNMENTAL POLICY

Development of the subject parcel would require a State Land Use District boundary amendment from the State Agricultural District to the State Urban District, a change in zoning from the Agricultural District to M-2 or M-3 Heavy Industrial District, and a revision to the Kula-Makena Community Plan from Agriculture to Heavy Industrial. In general, the purpose of agricultural classifications is to preserve agricultural land, as well as to foster the growth and diversification of agriculture. As such, the removal of the subject parcel’s 86 acres from agricultural use would initially appear inconsistent with the intent of these governmental policies.

It must be noted, however, that the policies commonly describe the agricultural land to be considered for safeguarding as “suitable”, “important”, “prime” or “productive”. As determined in the previous Agricultural Characteristics section, the subject parcel’s soil was poorly rated by the three (3) agricultural soil rating systems generally recognized in the State of Hawaii.

Given the subject parcel’s unlikelihood of feasible agricultural production in the future; a change in allowable land use may be in order. A review of the December 2010 Draft Maui Island Plan revealed that the subject parcel has been recognized and included in the plan’s Urban Growth Boundary.

Furthermore, the current Kula-Makena Community Plan has classified approximately 561 acres adjacent to the subject parcel, as Project District 10 “Old Puyemae Airport area”. The project district suggests “Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use.”

F. OFFSETTING BENEFITS

The Proposed Project would remove approximately 86 acres of land from agricultural use. However, development of the Proposed Project is expected to generate significant expenditures by the project developer, as well as by the secondary owners (future purchasers) of the saleable lots within the proposed project. The operation of the heavy industrial businesses locating to the Proposed Project is expected to generate significant ongoing revenue.
This would favorably impact the County and State economies by means of job creation, additional direct and indirect sales, expenditures, and increased tax revenues and fees to government coffers.

G. CONCLUSION

It has been determined that the agricultural impacts from the development of the Proposed Project are anticipated to be minimal. The State of Hawaii and County of Maui appear to have sufficient supply of agricultural land to meet the current demand. In any case, the subject parcel's 86 acres represents only a small fraction of the overall agricultural land in the State and County.

The current trend for farms has shifted from large-scale commercial operations to smaller, more diverse crop production. Seed crops were shown to be the most valuable product in the State, with 2009 dollars reported to be in excess of the next nine most valuable commodities combined.

From a production perspective, development of the Proposed Project would have no immediate impacts to agricultural revenue or jobs, since there was no active farming taking place, as of the effective date. Long-term impacts were also foreseen to be negligible, primarily because of the subject parcel's poor soil condition.

In the Consultant's opinion, consolidation with the larger surrounding parcels for sugarcane production is highly doubtful. Aside from the aforementioned inferior soil, HC&S was the entity that sold the subject to the current property owner. In this light, it is reasonable to assume HC&S had no future plans involving the subject. Furthermore, the plantation has continued to decrease its land holdings over the years; therefore, expansion would seem unlikely.

A potential development alternative for the subject parcel would be acquisition by a seed crop operation. However, these agribusinesses are very selective in the land they obtain, with one of the primary criteria said to be soil condition. Given the subject parcel's poor soil quality, this scenario would also seem unlikely.

The Proposed Project is recognized by the December 2010 Draft Maui Island Plan and has been included in its Urban Growth Boundary. Meanwhile, the current Kilah-Maekena Community Plan has classified approximately 561 acres adjacent to the subject parcel as Project District 10 "Old Pu'umu Airport area". The project district suggests "Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use."
Photograph No. 1
View of proposed entrance to subdivision. The camera is facing north.

Photograph No. 2
View of Kamanaio Road, a portion of which will become an access easement in favor of the subject. The camera is facing east.

Photograph No. 6
View of Lower Kileaua Road and South side of Hoomaluhia Road, portion of which will become access easement in favor of the subject. The camera is facing north-northeast.

Photograph No. 8
View of intersection of Kamanaio Road and Hoomaluhia Highway. The camera is facing west-southwest.
EXHIBIT B
Selected Maps of the Subject
DEFINITIONS

The purpose of this Glossary is to assist the reader in understanding specific terminology used in this report.

**Appraisal**

(noun) the act or process of developing an opinion of value; an opinion of value (collective) or pertaining to appraising and related functions such as appraisal practice or appraisal services.

**Cash Equivalent**

A price expressed in terms of cash, as distinguished from a price expressed totally or partly in terms of the face amount of notes or other securities that cannot be sold at their face amount.

**Counseling**

Providing competent, disinterested, and unbiased advice and guidance on diverse problems in the broad field of real estate, may involve any or all aspects of the business such as merchandising, leasing, management, acquisition/disposition planning, financing, development, cost-benefit studies, feasibility analysis, and similar services. Counseling services are often associated with evaluation, but they are beyond the scope of appraisal.

**Discounting**

A procedure used to convert periodic incomes, cash flows, and reversions into present values; based on the assumption that benefits received in the future are worth less than the same benefits received now.

**Extraordinary Assumption**

An assumption, directly related to a specific assignment, which, if found to be false, could alter the appraiser's opinions or conclusions. Extraordinary assumptions presume as fact otherwise uncertain information about physical, legal, or economic characteristics of the subject property; or about conditions external to the property such as market conditions or trends; or about the integrity of data used in an analysis. An extraordinary assumption may be used in an assignment only if:

- It is required to properly develop credible opinions and conclusions;
- The appraiser has a reasonable basis for the extraordinary assumption;
- Use of the extraordinary assumption results in a credible analysis; and
- The appraiser complies with the disclosure requirements set forth in USPAP for extraordinary assumptions.

**Fair Value**

The cash price that might reasonably be anticipated in a current sale under all conditions requisite to a fair sale. A fair sale means that buyer and seller are each acting prudently, knowledgeably, and under no necessity to buy or sell, i.e., other than in a forced or liquidation sale. The appraiser should estimate the cash price that might be received upon exposure to the open market for a reasonable time, considering the property type and local market conditions. When a current sale is unlikely, i.e., when it is unlikely that the sale can be completed within 12 months, the appraiser must discount all cash flows generated by the property to obtain the estimate of fair value. These cash flows include, but are not limited to, these arising from ownership, development, operating, and sale of the property. The discount applied shall reflect the appraiser's judgment of what a prudent, knowledgeable purchaser under a necessity to buy would be willing to pay to purchase the property in a current sale.

ADDENDA
Fee Simple Estate
Absolute ownership enbarqued by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.

Hawaiian Terms
The Hawaiian words “moku” and “makai” are commonly used in the Islands as indicators of direction. The word “moku” means toward the mountain, and “makai” means toward the ocean.

Highest and Best Use
The reasonably probable and legal use of vacant land or an improved property, which is physically possible, appropriately supported, financially feasible, and that result in the highest value. The four criteria the highest and best use must meet are legal permittibility, physical possibility, financial feasibility, and maximum profitability.

Highest and Best Use of Land or a Site as though Vacant
Among all reasonable, alternative uses, the use that yields the highest present land value, after payments are made for labor, capital, and coordination. The use of a property based on the assumption that the parcel of land is vacant or can be made vacant by demolishing any improvements.

Highest and Best Use of Property as Improved
The use that should be made of a property as it exists. An existing improvement should be renovated or retained as is so long as it continues to contribute to the total market value of the property, or until the return from a new improvement would more than offset the cost of demolishing the existing building and constructing a new one.

Hypothetical Condition
That which is contrary to what exists, but is supposed for the purpose of analysis. Hypothetical condition assume conditions contrary to known facts about physical, legal, or economic characteristics of the subject property, or about conditions external to the property, such as market conditions or trends, or about the integrity of data used in an analysis. A hypothetical condition may be used in an assignment only if:

- Use of the hypothetical condition is clearly required for legal purposes, for purposes of reasonable analysis, or for purposes of comparison;
- Use of the hypothetical condition results in a credible analysis and the appraiser complies with the disclosure requirements set forth in USPAP for hypothetical conditions.

Leased Fee Interest
An ownership interest held by a landlord with the rights of use and occupancy conveyed by lease to others. The rights of the lessee (the leased fee owner) and the lessee are specified by contract terms contained within the lease.

Leasehold Interest
The interest held by the lessee (the tenant or renter) through a lease transferring the rights of use and occupancy for a stated term under certain conditions.

Market Rent
The most probable rent that a property should bring in a competitive and open market reflecting all conditions and restrictions of the specified lease agreement including term, rental adjustment and renegotiation, permitted uses, use restrictions, and expense obligations; the lessee and lessor each acting prudently and knowledgeably, and assuming consummation of a lease contract as of a specified date and the passing of the leasehold from lessor to lessee under conditions whereby:

- Lessee and lessor are typically motivated;
- Both parties are well informed or well advised, and acting in what they consider their best interests;
- A reasonable time is allowed for exposure in the open market;
- The rent payment is made in terms of cash in United States dollars, and is expressed on an amount per time period consistent with the payment schedule of the lease contract;
- The rental amount represents the normal consideration for the property leased unaffected by special terms or concessions granted by anyone associated with the transaction.

Market Value
The major focus of most real property appraisal assignments. Both economic and legal definition of market value have been developed and refined. Continued refinement is essential to the growth of the appraisal profession.

The widely accepted components of market value are incorporated in the following definition:

"The most probable price, as of a specified date, in cash, or in terms equivalent to cash, or in other legally recognized terms, for which the specified property rights should sell after reasonable exposure in a competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress."

Market value is defined in the Uniform Standards of Professional Appraisal Practice (USPAP) as follows:

"A type of value, stated as an opinion, that presumes the transfer of a property (i.e., a right of ownership or a bundle of such rights), as of a certain date, under specific conditions set forth in the definition of the term identified by the appraiser as applicable in an appraisal.""
The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

Prospective Market Value
Upon Completion of Construction

The prospective future value of a property on the date that construction is completed, based upon market conditions forecast to exist as of the completion date.

Prospective Value Opinion

A forecast of the value expected at a specified future date. A prospective value opinion is most frequently sought in connection with real estate projects that are proposed, under construction, or under conversion to a new use, or those that have not achieved sellout or a stabilized level of long-term occupancy at the time the appraisal report is written.

Report

Any communication, written or oral, of an appraisal, appraisal review, or appraisal consulting service that is transmitted to the client upon completion of an assignment. The types of written reports listed below apply to real property appraisals:

Self-Contained Appraisal Report: A written appraisal report prepared under Standards Rule 2-20(a) of the Uniform Standards of Professional Appraisal Practice. A self-contained appraisal report sets forth the data considered, the appraisal procedures followed, and the reasoning employed in the appraisal, addressing each item in the depth and detail required by its significance to the appraised and providing sufficient information so that the client and users of the report will understand the appraisal and not be misled or confused.

Summary Appraisal Report: A written report prepared under Standards Rule 2-20(b) or 6-20(b). A summary appraisal report contains a summary of all information significant to the solution of the appraisal problem. The essential difference between a self-contained appraisal report and a summary appraisal report is the level of detail of presentation.

Restricted Appraisal Report: A written report prepared under Standards Rule 2-20(c) or 6-20(c). A restricted use appraisal report is for client use only. The restricted use appraisal report should contain a brief statement of information significant to the solution of the appraisal problem.

Uniform Standards of Professional Appraisal Practice

Current standards of the appraisal profession, developed for appraisers and the users of appraisal services by the Appraisal Standards Board of The Appraisal Foundation. The Uniform Standards set forth the procedures to be followed in developing an appraisal, analysis, or opinion and the manner in which an appraisal, analysis, or opinion is communicated. They are endorsed by the Appraisal Institute and by other professional appraisal organizations.

LIMITING AND CONTINGENT CONDITIONS

ACM Consultants, Inc.

1. This is a Counseling Report which is intended to comply with the reporting requirements as set forth under Standards Rule 2-20a of the Uniform Standards of Professional Appraisal Practice for Counseling Reports. The information contained herein is specific to the needs of the client and for the intended use stated in this report. The Consultant is not responsible for unforeseen use of this report.

2. This report has not been prepared for federally-related mortgage financing purposes, and has not been prepared in accordance with the requirements of Title II of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

3. No responsibility is assumed for legal considerations. The title to the property is assumed to be good and marketable unless otherwise noted in this report.

4. The property analyzed in this report is not owned by the client, but the client is the owner or has the right to purchase.

5. Responsibility and competent property management are assumed unless otherwise noted in this report.

6. No engineering is assumed to be correct. Any plans and illustrations in this report are included only to assist the reader in visualizing the property.

7. It is assumed that there are no hidden or incompetent conditions of the property, unless, or structures that render it unsafe or less valuable. The responsibility is assumed for such conditions or for arranging for engineering studies that may be required to discover them.

8. It is assumed that there is full compliance with all applicable federal, state, and local environmental regulations and laws unless otherwise noted in this report.

9. It is assumed that all applicable taxes and user assessments have been complied with, unless a new ownership has been noted, defined, and considered in this counseling report.

10. It is assumed that all applicable taxes, fees, or assessments do not affect the property or that the property owner is responsible for the payment of any such taxes, fees, or assessments.

11. Any data in this report are opinions of the appraiser and are subjective. The accuracy, reliability, or validity of this report are not guaranteed.

12. Any data or information in this report are the opinions of the appraiser and are subjective. The accuracy, reliability, or validity of this report are not guaranteed.

13. The Consultant is not qualified to determine hazardous waste or land use matters. Any comment by the Consultant must be based on the professional knowledge and experience of the appraiser. The Consultant agrees that the appraiser is responsible for determining the existence and extent of any hazardous waste or land use matters.

14. Any data or information in this report are the opinions of the appraiser and are subjective. The accuracy, reliability, or validity of this report are not guaranteed.

15. Any data or information in this report are the opinions of the appraiser and are subjective. The accuracy, reliability, or validity of this report are not guaranteed.

16. The data herein, if of any use to the client in this report, may not be used for any purpose or in any manner other than for the purpose for which it was intended or as otherwise agreed upon with the client.

17. The information contained herein is intended to provide a basis for the report and may not be used for any purpose other than the purpose for which it was intended or as otherwise agreed upon with the client.

18. Any data or information in this report are the opinions of the appraiser and are subjective. The accuracy, reliability, or validity of this report are not guaranteed.
PROFESSIONAL QUALIFICATIONS
Glenn K. Kunihisa, MAI, CRE

STATE LICENSING
State Certified General Appraiser,
State of Hawaii, License No. CGA 39, July 17, 1991
Expiration: December 31, 2011

PROFESSIONAL AFFILIATIONS
Member, Appraisal Institute, MAI Designation, Hawaii Chapter No. 67
Member, The Counselors of Real Estate, CRE Designation, Hawaii Chapter
Member, National Association of Realtors, Maui Board of Realtors

PROFESSIONAL INVOLVEMENT
Past President – Hawaii Chapter of the Appraisal Institute – 2009
Vice Chairperson – Hawaii Chapter of The Counselors of Real Estate - 2010
Education Chairperson – Hawaii Chapter of the Appraisal Institute – 2004 and 2005
Former Multiple Listing Service (MLS) Committee Member – Realtors Association of Maui

COMMUNITY AFFILIATIONS
St. Anthony Parish School Board
Board Member: 1995 to 2008
Board President: 1997 and 1998
AHI Community Care, Inc. – a non-profit health care corporation
Board Member: 2004 to 2006

EMPLOYMENT
President
ACM Consultants, Inc.
May, 1997 to present

Previously associated with the following:
ACAL Real Estate Appraisers, Inc. - 1985 to 1997
A&I Commercial Company, a division of Alexander & Baldwin, Inc. - 1979 to 1985
Bank of Hawaii - 1972 to 1979

GENERAL EDUCATION
University of Hawaii at Manoa
Master of Business Administration (MBA) - Executive MBA Program V, 1988
Bachelor of Business Administration (BBA), 1976
Island School, 1971

LEGAL & CONSULTING
Qualified as an expert witness in the Second Circuit Court of the State of Hawaii
Qualified as an expert in testimony to the State Land Use Commission
Experienced in real estate arbitration assignments in the State of Hawaii

APPRAISAL EDUCATION
Appraisal Institute
Seminar: Appraisal Curriculum Overview (2-day general)
Honolulu, Hawaii – July 2010

Seminar: Professional Qualifications
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Professional Qualifications

Professional Qualifications

Seminar  
Appraisal Office Management  
Honolulu, Hawaii - July 2002
Course 540  
Report Writing  
Denver, Colorado - December 2000
Seminar  
Partial Interests: Theory and Case Law  
Las Vegas, Nevada - July 2000
Seminar  
Foundation Valuation  
Las Vegas, Nevada - July 2000
Seminar  
Bridging the Gap: Marketability Discounts for Real Estate Interests  
Las Vegas, Nevada - July 2000
Course 430  
Standards of Professional Practice, Part C  
Honolulu, Hawaii - September 1999
Seminar  
Litigation Skills for the Appraiser: An Overview  
Honolulu, Hawaii - May 1998
Seminar  
Special Purpose Properties  
Honolulu, Hawaii - September 1997
Seminar  
Higher and Best Use Applications  
Honolulu, Hawaii - September 1997
Seminar  
Debtor's Conditions  
Honolulu, Hawaii - July 1997
Seminar  
The Appraiser As Expert Witness  
Honolulu, Hawaii - August, 1995
Seminar  
How to Appraise FHA-Insured Property  
Los Angeles, California - January, 1995
Seminar  
Understanding Limited Appraisals and Reporting Options  
Honolulu, Hawaii - August, 1994
Seminar  
Valuation of Leasehold Interests  
Honolulu, Hawaii - May, 1993
Seminar  
Valuation of Lease Fee Interests  
Honolulu, Hawaii - May, 1993
Seminar  
Valuation Considerations: Appraising Non-Profits  
Boston, Massachusetts - July, 1992
Seminar  
Americans With Disabilities Act  
Boston, Massachusetts - July, 1992
Seminar  
Valuation in Today's Capital and Financing Markets  
Honolulu, Hawaii - June 1992
Seminar  
Arbitration Principles, Procedures and Pitfalls  
Honolulu, Hawaii - June, 1992
Seminar  
Institutional Real Estate in the 1990's  
Honolulu, Hawaii - June, 1992
Seminar  
FIRREA and its Impact on Appraisers  
Honolulu, Hawaii - June, 1992
Course 410/420  
Standards of Professional Practice, Parts A & B  
Honolulu, Hawaii - April, 1991

The American Society of Farm Managers and Rural Appraisers, Inc.
Seminar  
Agricultural Lease Valuation  
Honolulu, Hawaii - March 2006

Most Coastal Land Trust
Seminar  
Understanding the New Tax Incentives: Conservation Easements & Other Charitable Contributions  
Honolulu, Hawaii - June 2007

Society of Real Estate Appraisers
Course 101  
Introduction to Appraising Real Property  
Dallas, Texas - 1987
Course 102  
Applied Residential Property Valuation  
Honolulu, Hawaii - July, 1990
Course 201  
Principles of Income Property Appraising  
Chicago, Illinois - 1987
Course 202  
Applied Income Property Valuation  
San Diego, California - 1988
Seminar  
Professional Practice and the Society of Real Estate Appraisers  
Honolulu, Hawaii - 1988
Seminar  
Appraisal Standards Seminar - Federal Home Loan Bank Board Guidelines, Regulations and Policies  
Honolulu, Hawaii - April, 1988
Seminar  
Appraisal Standards Seminar - Federal Home Loan Bank Board Guidelines, Regulations and Policies  
Honolulu, Hawaii - April, 1988

American Institute of Real Estate Appraisers
Seminar  
Rates, Roles and Responsibilities  
Honolulu, Hawaii - 1989
Seminar  
Discounted Cash Flow Analysis  
Honolulu, Hawaii - 1989
Seminar  
Highest and Best Use  
Honolulu, Hawaii - 1989
Seminar  
Capitalization Overview - Part A  
Honolulu, Hawaii - 1993
Seminar  
Capitalization Overview - Part B  
Honolulu, Hawaii - 1993
Seminar  
Armed Depreciation  
Honolulu, Hawaii - 1990

International Right of Way Association
Course 101  
Appraisal  
Las Vegas, Nevada - October, 1998
Course 101  
Negotiation  
Las Vegas, Nevada - October, 1998

National Business Institute, Inc.
Seminar  
Commercial Real Estate Leasing in Hawaii  
Honolulu, Hawaii - 1989

American Arbitration Association
Seminar  
Real Estate Dispute Resolution - Mediation and Arbitration  
Kahului, Maui, Hawaii - October, 1990
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Seminar Online Subdivision Valuation
Chicago, Illinois – December 2009
Course Online Business Practices and Ethics
Chicago, Illinois – December 2009
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Chicago, Illinois – December 2009

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San Diego, California – July 2006
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Course 103, Basic Appraisal Principles
Denver, Colorado – April 2005

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Course 405, Residential Sales Comparison & Income Approaches
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Honolulu, Hawaii – November 2006
Course 403, Residential Market Analysis & Highest & Best Use
Honolulu, Hawaii – November 2006
Course 772, National USPAP Course
Honolulu, Hawaii – October 2006
Course 772, National USPAP Course
Honolulu, Hawaii – January 2005

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REALM Business Solutions
Course Argus 12.0
Honolulu, Hawaii – July 2005
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September 2011

Prepared for:
CMBY 2011 Investment, LLC
P. O. Box 220
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Introduction

CMBY 2011 Investment, LLC proposes to develop the Puunene Heavy Industrial Subdivision on TMK 3-5-00:19, an 86-acre parcel in Kahului, Maui. Figure 1 shows the project's location. The subdivision would consist of 28 lots on approximately 66 acres, nine (9) acres of drainage retention, and about 11 acres of roads (refer to Figure 2). Water supply from the County Department of Water Supply (DWS) is not available for the project. The intent is to develop onsite groundwater, using this water directly for non-potable requirements and providing reverse osmosis (RO) treatment to supply potable uses.

This report provides estimates of the project's potable and non-potable supply requirements, identifies the water system infrastructure necessary to meet these requirements, and analyzes the project's probable impacts on groundwater resources.

Projected Potable and Non-Potable Supply Requirements

DWS' design standard for industrial use of 6000 gallons per day per acre (GPD/acre) is adopted herein. In addition, it is assumed that the drainage retention area will be landscaped and irrigated at an average of 2500 GPD/acre and that 20 percent of the gross roadway ROW would also be irrigated at 2500 GPD/acre. The latter is equivalent to 500 GPD per gross acre of roadway ROW. The Honolulu Board of Water Supply's (BWS) draft water system guidelines recommend a 30/70, potable/non-potable split for industrial land uses, a reasonable criterion adopted herein. Based on the foregoing, the project's average potable and non-potable water use would be as stated below.

Projected Average Demand for the Puunene Heavy Industrial Subdivision

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (Acres)</th>
<th>Use Rate (GPD/Unit)</th>
<th>Amount (GPD)</th>
<th>Use Rate (GPD/Unit)</th>
<th>Amount (GPD)</th>
<th>Use Rate (GPD/Unit)</th>
<th>Amount (GPD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Lots</td>
<td>96</td>
<td>6000</td>
<td>360,000</td>
<td>1500</td>
<td>11,800</td>
<td>800</td>
<td>6,600</td>
</tr>
<tr>
<td>Drainage Retention</td>
<td>0</td>
<td>2500</td>
<td>22,500</td>
<td>0</td>
<td>0</td>
<td>2500</td>
<td>22,500</td>
</tr>
<tr>
<td>Roadway</td>
<td>11</td>
<td>500</td>
<td>5,500</td>
<td>0</td>
<td>0</td>
<td>500</td>
<td>5,500</td>
</tr>
<tr>
<td>Totals</td>
<td>88</td>
<td>434,000</td>
<td>118,800</td>
<td>118,800</td>
<td>22,500</td>
<td>500</td>
<td>5,500</td>
</tr>
</tbody>
</table>

Other water system design sizing criteria used herein draw primarily (but not exclusively) from the standards of Maui DWS and Honolulu BWS:

* For both the potable and non-potable systems, maximum day demand is defined as 1.5 times the average use amounts given above. Peak flowrate is defined as 3.3 times the average amounts.
The much larger non-potable system will provide fire protection. Its reservoir sizing will be the larger of the average day demand or DWS fire flow rate sizing criteria.

Reservoir storage for the potable system will be the maximum day amount.

Source capacities of both systems will provide the maximum day supply in a 24-hour pumping day with the largest individual source out of service. DWS standard is a 16-hour pumping day. However, for the wells within the project area which will draw water from a relatively thin basin, a 24-hour pumping day is a more appropriate criterion.

To account for uncertainty in the 20/70 assumed split between potable and non-potable use, flow rates used for sizing of all potable system components—source of supply, reservoir storage, and pipeline—will be increased by a factor of 10 percent.

Based on the salinity of onsite well 4827-01 (discussed subsequently), it is assumed that the RO treatment will convert 80 percent of the brackish well water for potable use. The 40 percent remainder, referred to as concentrate, will be too saline for non-potable use.

Potable and non-potable pipeline sizing criteria are identical to DWS standards for peak and fire flow rate conditions.

Sizes of the Water System Infrastructure:

**Onsite Wells.** The non-potable system's maximum day design use is 457,600 GPD (365,200 GPD x 1.2). The potable system's maximum day use, including the 1.2 sizing factor, is 213,840 GPD (118,800 GPD x 1.5 x 1.2). At the 80 percent rate of RO product recovery, the potable supply capacity will need to be 358,400 GPD. Together with the non-potable supply requirement, a "sals" well pumping capacity of 814,200 GPD or 585 GPM for a 24-hour pumping day will be required. Three 300 GPM wells, one providing standby capacity, would be installed.

**RO Treatment.** The maximum day potable supply requirement (with the 1.2 factor) of 213,840 GPD is equivalent to a capacity of about 150 GPM. Three 75 GPM RO treatment trains are proposed, one providing standby capacity.

**Potable Reservoir Storage.** The maximum day amount (with the 1.2 factor) is 213,840 GPD. A 0.25 million gallon (MG) storage reservoir is proposed.

**Non-Potable Storage Reservoir.** The average demand sizing criterion would require reservoir storage of 0.30 MG. The fire flow rate sizing criterion is based on:

- DWS' 2500 GPM fire flow rate for two hours.
- Coincident maximum day non-potable demand of 318 GPM for the two-hour period;
- Coincident firewater draw for two RO treatment trains of 250 GPM (150 GPM + 0.6) for the two-hour period;
- Input of two of the three 300 GPM supply pumps for the two-hour period; and
- The reservoir 3/4 full at the start of the fire.

The foregoing translates to a storage requirement of 394,840 gallons, the governing storage criterion. Non-potable reservoir storage of 3.4 MG is proposed.

**Pumped Distribution.** The potable and non-potable storage reservoirs would be unlined and would not provide sufficient gravity pressure for customer use or fire protection. Two automated, multiple pump stations would be provided with standby control to maintain system pressure. The potable pump station would be sized to meet peak the flowrate requirement (with the 1.2 factor) of 248 GPM. A capacity of 363 GPM is proposed. A 3930 GPM non-potable pump station would provide the 2500 GPM fire flowrate with the 318 GPM coincident maximum day demand. Backup generator power for the non-potable pump station would be provided to ensure fire protection during a MECO power outage.

**System Layout.** Figure 3 is a preliminary layout of the water system's major elements described above. These would be located near the north end of the project site. Department of Health (DOH) regulations require a minimum of 1500 feet spacing between the supply and RO concentrate disposal wells. DOH will also require wastewater disposal systems to be 1000 feet or more from the supply wells. For lots within this 1000-foot setback, onsite enhanced septic systems with disposal in a common leach field beyond the 1000-foot setback will be required.

**Impact on Water Resources**

As there are no natural drainageways across the site and the ground is very permeable, stormwater runoff onto the site from upgradient or from the site to downgradient areas is not known to occur. The subdivision's development concept is to retain and dispose of surface runoff in the 0-acre portion of the site designated for that purpose. Disposal will occur by evaporation and seepage from this area. As such, the project will not impact surface water resources. Its impact will be limited to the underlying groundwater. These impacts, each of which is quantified in sections following, will consist of the following:

- Withdrawal of groundwater for non-potable use and as feedwater to RO treatment to produce the required potable supply;
• Disposal of the RO concentrate in onsite disposal wells;
• Disposal of treated domestic wastewater in lagoons;
• Percolation of excess landscape irrigation and industrial wash water; and
• Change in the quality of onsite rainfall percolating to groundwater.

**Groundwater Occurrence.** Knowledge of groundwater occurrence in the Kahului area comes primarily from wells, some of which are listed in Table 1. A number of these have been used by HCAS for sugarcane irrigation for more than 70 years. Groundwater in the Kahului Island occurs as a relatively thin basal lens (water levels typically on the order of three to four feet above sea level) floating on saline groundwater at depth and in hydraulic contact with seawater along the Malaekahana and Kahului Bay shorelines. The following factors significantly influence the quality and quantity of water this groundwater body can provide:

• Although rainfall-recharge directly on the 27-square mile Kahului Island is only on the order of five (5) MGD, pumping by the HCAS plantation was on the order of 45 MGD for decades and still is about 25 MGD.

• Rainfall-recharge may actually be the smallest of the aquifer’s sources of recharge. Others include: underflow from Haleakala; underflow from the West Maui Mountain; leakage of water imported in the East Maui Irrigation system; leakage from the Wailea Ditch system of West Maui; and irrigation return from HCAS fields and other agricultural areas.

• Both shorelines, Malaekahana and Kahului, have alluvial deposits which function as a caprock, retarding seawater intrusion.

As a result of the aquifer’s various sources of recharge, the Kahului Aquifer has potable quality water in some locations and only slightly brackish water over most of the rest of its area. Its sustainable yield, as designated by the State Commission on Water Resource Management (CWRM), is 1.0 MGD. This is based exclusively on rainfall recharge and does not account for the other sources of recharge listed above. Its actual sustainable yield is far greater, even if HCAS were to cease all activities, including the importation of ditch water. The underflow from outside of the aquifer, particularly from Haleakala, would sustain an order of magnitude greater yield than the CWRM’s 1.0 MGD sustainable yield amount.
Groundwater Flowrate Beneath the Project Site. With sources of recharge to the aquifer coming from various directions and significant drainage occurring at the active HCAS well bores, the direction and rate of groundwater flow are not known precisely. Approximations used for this assessment are as follows:

- The direction of flow is from northeast to southwest beneath the project site and, perpendicular to this direction, the width of the project is 0.63 miles;
- The groundwater level is 3.6 feet above sea level;
- The groundwater gradient is on the order of 0.5 feet per mile, equivalent to 0.00112 ft/ft; and
- The permeability coefficient is 10,000 feet per day.

For these approximations, the groundwater flowrate beneath the project's 0.63-mile width is 4.0 million gallons per day (MGD). Estimated changes to groundwater flowrate presented herein will be as increases or decreases of this 4.0 MGD flowrate.

Groundwater Quality. A short-term pump test and water quality sampling of onsite Well 9227-01 was done in July 2010. Laboratory-detected regulated drinking water constituents are presented in Table 2. The relatively high level of nitrate-nitrogen, a result of ongoing agricultural activities, is notable. However, none of the detected constituents exceed levels allowed by EPA and DOI for drinking water use. During the well's short-term pump test, the salinity of the pumped water was stable and only slightly bracketed: salinity was 0.60 parts per thousand (ppt); specific conductance was 1600 $\mu$S/cm; and chlorides were 250 mg/L.

Table 3 is a compilation of salinity and nutrient levels from wells in the Kahului Aquifer. Salinities were consistently low, except nearshore at the north end of Malaekahana where the caprock is absent. High nutrient levels, particularly as nitrate-nitrogen, are present throughout the aquifer. For the project's potential impacts to groundwater presented subsequently, the present quality of the underlying groundwater is taken to be: salinity of 0.60 ppt, nitrogen concentration of 330 micro-mole (umol); and phosphorus concentration of 3.4 $\mu$M.

Project's Estimated Changes to the Groundwater Flowrate. The project's onsite wells will draw from the underlying groundwater, but some of this water will be returned in the form of RO concentrate, wastewater from septic systems, excess landscape irrigation, and percolating wash water from the non-potable system. These quantities, expressed as year-round averages at full build-out, are estimated as follows:

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Result</th>
<th>Federal MCL</th>
<th>Value</th>
<th>MCL</th>
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<tbody>
<tr>
<td>Alkalinity</td>
<td>200</td>
<td>mg/L</td>
<td>2</td>
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<tr>
<td>Arsenic Total ICAPMS</td>
<td>1.7</td>
<td>ug/L</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Barium Total ICAPMS</td>
<td>3.9</td>
<td>ug/L</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bile, Grease</td>
<td>3.1</td>
<td>ug/L</td>
<td>3</td>
<td></td>
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<tr>
<td>Cadmium Total ICAPMS</td>
<td>2.3</td>
<td>mg/L</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Copper Total ICAPMS</td>
<td>6.3</td>
<td>ug/L</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Field pH</td>
<td>7.5</td>
<td>mg/L</td>
<td>7.5</td>
<td></td>
</tr>
<tr>
<td>Field Conductance</td>
<td>1597</td>
<td></td>
<td>1597</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>0.09</td>
<td>mg/L</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Iron</td>
<td>1.5</td>
<td>ug/L</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Lead Total ICAPMS</td>
<td>0.5</td>
<td>mg/L</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Nitrate as Nitrogen by IC</td>
<td>4.5</td>
<td>ug/L</td>
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<td></td>
</tr>
<tr>
<td>Nitrate as NO3 (ppm)</td>
<td>0.5</td>
<td>mg/L</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Nitrate as NO3 (mg/L)</td>
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<td>mg/L</td>
<td>20</td>
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<tr>
<td>Specific Conductance, 23 C</td>
<td>1600</td>
<td></td>
<td>1600</td>
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</tr>
<tr>
<td>Turbidity</td>
<td>1.2</td>
<td>NTU</td>
<td>1.2</td>
<td>NTU</td>
</tr>
</tbody>
</table>

Table 2

SUMMARY OF POSITIVE DATA ONLY
### Table 3

<table>
<thead>
<tr>
<th>Date Sampled</th>
<th>NO₃ (mg/L)</th>
<th>NH₄ (mg/L)</th>
<th>TN (mg/L)</th>
<th>TP (mg/L)</th>
<th>DCP (mg/L)</th>
<th>PO₄ (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-24-01</td>
<td>5.8</td>
<td>0.30</td>
<td>11.8</td>
<td>0.13</td>
<td>1.00</td>
<td>0.02</td>
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<tr>
<td>6-30-01</td>
<td>6.3</td>
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<td>13.4</td>
<td>0.20</td>
<td>1.20</td>
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<tr>
<td>7-04-01</td>
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<tr>
<td>7-10-01</td>
<td>7.2</td>
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<tr>
<td>7-15-01</td>
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<td>19.0</td>
<td>0.50</td>
<td>2.10</td>
<td>0.25</td>
</tr>
</tbody>
</table>

- **Pumps by Wells**: Average potable use would be 0.119 MGD. With a 60% percent recovery through the RO treatment, draft for the feedwater supply would be 0.189 MGD. The non-potable use would average 0.303 MGD, bringing the total groundwater pumping to 0.593 MGD.

- **Return as RO Concentrate**: The RO concentrate, containing dissolved constituents removed from the potable product water, would be returned to groundwater in disposal wells located 1500 feet downgradient of the supply wells. The quantity of concentrate would be a 0.073 MGD.

- **Return to Groundwater as Treated Domestic Wastewater**: Of the estimated 0.119 MGD for within-building potable use, it is assumed that 60 percent or 0.107 MGD would become wastewater that would be treated in septic tanks and disposed of in leach fields.

- **Return to Groundwater as Excess Landscape Irrigation**: Landscape irrigation by the non-potable system is estimated as:
  - 20% of the 68 acres of industrial lots at 4000 GPD/acre;
  - 20% of the 11 acres of roadway at 2500 GPD/acre; and
  - 100% of the 9 acres of drainage retention at 2500 GPD/acre.

For these approximations, the estimated total for landscape irrigation would be 0.581 MGD. Of this amount, it is assumed that 15 percent or 0.092 MGD percolates below the root zone and returns to groundwater. The balance would be lost to plant evapotranspiration or direct evaporation.

- **Return to Groundwater by Other Non-Potable Uses**: The remaining 0.224 MGD of non-potable water use would be external to buildings. Some of it would be lost to evaporation or otherwise consumed and the remainder would return to groundwater via percolation from individual, on-site drainage systems or in the retention area. As an order of magnitude approximation, it is assumed that one-third or 0.075 MGD returns to groundwater.

- **Onsite Rainfall Recharges to Groundwater**: Rainfall of about 15 inches per year over the 88-acre project site amounts to a year-round average of 0.096 MGD. As a first order approximation, about 40 percent of this or 0.039 MGD percolates to groundwater with the remainder being lost to direct evaporation or plant evapo-transpiration. It is assumed that this quantity will remain essentially the same after the project is developed.

With the uses and returns to groundwater as estimated above, the net use of groundwater would be 0.23 MGD. This would be 5.8 percent reduction of the estimated 4.0 MGD flow of groundwater directly beneath the site.
Project's Estimated Changes to Groundwater Salinity and Nutrient Levels. Based on data from on-site Well 4427-01 and others nearby, it is assumed that the underlying groundwater has a salinity of 0.8 PPT, a nitrogen content of 330 micro-molar (μM), and a phosphorus content of 3.4 μM. This would also be the quality of water extracted by the supply wells. Salinity and nutrient levels of the project's various water uses and wastewaters are estimated as follows:

- **RO Product for Potable Use.** It is assumed that the RO supply for potable use will have a salinity of 0.15 PPT and similar reduction of nitrogen and phosphorus. As such, nitrogen and phosphorus concentrations of the product water would be 55 and 0.45 μM, respectively.

- **RO Concentrate Returned to Groundwater.** Salts and nutrients removed by the RO process would be in the concentrate. Its salinity would therefore be 2.0 PPT. Nitrogen and phosphorus concentrations would be 750 and 6.1 μM, respectively. The concentrate would be discharged into disposal wells designed to deliver the water into strata of similar or greater salinity. This would be in the transition zone below the basal lens.

- **Domestic Wastewater.** Treatment of domestic wastewater would be in septic systems with disposal in leach fields. The treated effluent would have increases in salinity and nutrient levels. Using typical concentrations for secondary treated effluent, it is assumed that the salinity would be doubled (to 0.30 PPT) and that nitrogen and phosphorus concentrations discharged in the leach fields would be 1760 and 200 μM, respectively.

- **Excess Landscape Irrigation.** Excess water applied to landscaping and percolating to groundwater will carry with it dissolved fertilizer. To approximate this, the following assumptions are made: (1) nitrogen in fertilizer would be applied as an average of four pounds/year/1000 ft² and phosphorus would be applied at 0.5 pounds/year/1000 ft²; and (2) 10 percent of the applied nitrogen and two percent of the applied phosphorus would be carried below the root zone. For these assumptions and the estimated 0.013 MGD of excess landscape water, its nitrogen and phosphorus concentrations would be 780 and 8.9 μM, respectively. It is also assumed that due to evaporative losses, the salinity of the percolating water would have doubled.

- **Other Non-Potable Water Uses.** Uses of this supply will be varied, meaning that there is no single basis to predict changes to the quality of the portion percolating to groundwater. In view of this, it is simply assumed that for the portion percolating to groundwater, its salinity and nutrient levels will have doubled.

- **Rainfall-Recharge.** Data of the quality of rainfall-recharge are essentially nonexistent. Data for rainfall-runoff quality are scarce, but in almost every case, the salinity is very low and nutrient levels are far less than the receiving groundwater. In other words, the rainfall recharge actually dilutes the receiving groundwater. For the estimates herein, it is simply assumed that the post-development rainfall-recharge is increased by 20 and 2 μM for nitrogen and phosphorus in comparison to pre-development conditions.

Except for the RO concentrate which will be delivered directly to groundwater, all of the other returns to groundwater described above will travel vertically through the sandy soil layer, aluminum, and unweathered lavas to the groundwater below. These various strata will function as a trickling filter to naturally remove nitrogen and phosphorus. Expectable removal rates are greater than 80 percent for nitrogen and more than 85 percent of phosphorus. In the summary of estimated changes listed in Table 4, more conservative natural removal rates of 50 percent of nitrogen and 90 percent of phosphorus are used. The net impacts to the 4.0 MGD of groundwater flowing directly beneath the project site are listed below. All of the changes are modest and, on an aquifer-wide perspective, insignificant. At present, the only current use of groundwater downgradient of the project site are three wells in the Kaiulani National Wildlife Refuge. These are pumped seasonally when surface water is insufficient to maintain the pond and wetlands areas. The projected changes due to the development of the Puuanea Heavy Industrial Subdivision should be of no consequence to this ongoing use:

- a 6.7 percent decrease in flowrate;
- a 3.8 percent increase in salinity;
- a 1.3 percent increase in nitrogen; and
- a 7.1 percent increase in phosphorus.
<table>
<thead>
<tr>
<th>7.7% Increase</th>
<th>3.3% Increase</th>
<th>1.1% Increase</th>
<th>0.2% Increase</th>
<th>1.4% Decrease</th>
<th>5.7% Decrease</th>
<th>9.9% Decrease</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6%</td>
<td>0.04</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>2.0%</td>
<td>0.05</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Legend:
- Red: New hires
- Blue: No change
- Green: Decrease
- Yellow: Increase
- Black: No data

Changes in the number of employees

Summary of estimated changes at the end of the quarter.

- New hires
- No change
- Decrease
- Increase
- No data

Legend:
- Red: New hires
- Blue: No change
- Green: Decrease
- Yellow: Increase
- Black: No data
APPENDIX O-1
CWRM Letter of Assurance for Well Nos. 4927-02 and 4927-03
July 2, 2012

Ms. Blanca Lafollette
CMBY 2011 Investment, LLC
P.O. Box 220
Kihei, HI 96753

Dear Ms. Lafollette:

Letter of Assurance for Well No. 4927-02 & 03

We have completed the review process for your well Construction/Pump Installation Permit application(s) and the permit(s) are ready to be issued. However, in accordance with the State Water Code, §174C-84(a), the permit can only be issued to a licensed contractor and, to date, one has not been identified for your well(s).

Once you have selected a licensed contractor, please have the contractor sign and return to the Commission a copy of the original application, upon which a permit will be immediately issued provided that the following conditions are met:

1. The contractor has no outstanding issues with the Commission.
2. There are no significant changes to the application.
3. There have been no significant changes to applicable laws, rules or regulations since the application date.
4. There have been no significant changes to hydrogeologic conditions since the application date.

Also, attached for your information are copies of comments from reviewing agencies.

If you have any questions, please contact Charley Ito of the Commission staff at 587-0218 or toll-free at 808-2400 (Main), extension 70218.

Sincerely,

WILLIAM M. TAM
Deputy Director

Cl: as
Enclosure
CWRM Application Source:  CMBY Wells 1 & 2 (4927-02-03)
TMK: (2) 3-8-008:019

Safe Drinking Water Branch (SDWB) - Engineering Section

- This well qualifies as a source that serves a regulated public water system. Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, Rules Relating to Potable Water Systems.

- All new public water systems are required to demonstrate and meet minimum capacity requirements prior to their establishment. This requirement involves demonstrating that the system will have satisfactory technical, managerial, and financial capacity to enable the system to comply with safe drinking water standards and requirements.

- Projects that propose development of new sources of potable water serving or proposed to serve a public water system must comply with the terms of HAR 11-20-29. This section requires that all new public water system sources be approved by the Director of Health prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

- The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the state of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

- All public water system sources must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the drinking water source.

- Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director of Health prior to construction of the proposed system or modification. These projects include treatment, storage, and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.

- All public water systems must be operated by certified distribution system and water treatment plant operators as defined by Hawaii Administrative Rules, Title 11, Chapter 11-25 titled: Rules Pertaining to Certification of Public Water System Operators.

- All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to an existing potable water system to meet irrigation or other needs must be carefully designed and operate these systems to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable system to the potable system. These systems must be clearly labeled.
and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the potable water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption on non-potable water. Compliance with Hawaii Administrative Rules, Title 11, Chapter 11-21 titled, Cross-Connection and Backflow Control, is also required.

- All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawaii Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other regulated public water system programs, please contact the Safe Drinking Water Branch Engineering Section at 586-4258.

**SDWR Underground Injection Control (UIC) Section**

Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting under Hawaii Administrative Rules, Title 11, Chapter 11-23, titled Underground Injection Control (UIC). 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 operation limitations, monitoring and reporting requirements, and other facility management and operational conditions. A complete 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 existing permit valid for another term. For further information about the UIC permit and the Underground Injection Control Program, please contact the UIC staff of the Safe Drinking Water Branch at 586-4258.

The UIC Program has the following comments specific to this Application:

1. In general, a shallow well, or a well that recharges quickly from local rainfall, should not be used as a potable water source because such a well increases the risk of having unsatisfactory groundwater quality that when consumed may compromise health. Factors that directly influence a well's groundwater quality include

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CWRM Well Application Standard Comments (SDWR)
Vers. 9/30/09
wastewater disposal systems (cesspools, septic systems, drainage wells),
lawn/garden/crop-growing activities, and even the proximity to the ocean where
salt water intrusion may occur.

2. The siting of a drinking water source below the UFD line may restrict new and
existing injection well construction. New injection wells will be prohibited within
setback areas defined in Chapter 11-23. If this drinking water source will serve a
regulated public water system, the applicant will be required to inform landowners
located within the setback surrounding the well of this proposed action because it
will affect the injection well development potential of their properties.

3. Well water quality should be initially and periodically tested for its acceptable and
intended use, especially if for human consumption. Water quality should not be
presumed acceptable and unchanging. Land-based activities around the well and
within the well’s recharge area may, over time, have an unacceptable effect on the
well’s water quality. Well construction materials and related equipment could also
affect water quality.

**WARNING!** As the owner of a privately-owned well, you should NOT assume that
water from your well is safe for consumption. It is your responsibility to make sure that your well
water is safe to drink. The only way to do this is to have your well regularly tested for
bacteriological and chemical contaminants.

There are no regulations controlling water quality in private wells serving individual residences
as there are for public water systems (public or privately owned utilities supplying water to 25 or
more people or 15 service connections). In other words, there are no enforceable limits for
contaminants and no requirements for regular testing. Private wells are often found in rural
areas, where many activities such as onsite wastewater disposal can contaminate the ground
water.

**U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) RECOMMENDATIONS**

The EPA recommends that private well owners test their well water each year for such
contaminants as Total Coliform Bacteria, Nitrates, as well as any other contaminants that may
be of concern in your area. More frequent testing may be appropriate if you suspect a problem.
EPA also suggests that you consider testing for pesticides, organic chemicals, and heavy
metals before using it for the first time. Please refer to the EPA website on Private Drinking
Water Wells at [http://www.epa.gov/safewater/privatewells/pag.html](http://www.epa.gov/safewater/privatewells/pag.html)

**OTHER CONTAMINANTS**

Water testing can be very expensive. It is important that you spend time to identify what other
potential contaminants may be of concern. Please refer to the EPA website on Private Drinking
Water Wells at [http://www.epa.gov/safewater/privatewells/pag.html](http://www.epa.gov/safewater/privatewells/pag.html)
for more helpful information. Be aware of what and how you use and dispose of household and
garden chemicals. Also determine the location of nearby septic tanks or cesspools, and
agricultural or industrial activities in the area. General information on known chemical
contamination of ground water in Hawaii can also be found at the DOH website
[www.hawaii.gov/health/environmental/hsew/commass/cdf/commass05.pdf](http://www.hawaii.gov/health/environmental/hsew/commass/cdf/commass05.pdf)

**LABORATORIES**

Local commercial laboratories can be found in the yellow pages of the telephone book under
"Labs/Thes/Laboratories, Analytical." Whenever possible, utilize a laboratory that is certified or approved
for the specific drinking water tests and carefully follow their instructions for collecting, storing,
and transporting the samples. Just be sure to ask the lab to use EPA approved methods for
drinking water analysis. A list of labs certified or approved by the Department of Health can be
lab certification status changes constantly, confirm their status when you contact the lab.
Please note that the list is limited to currently regulated contaminants in public water systems.

**RESULTS**

Once the lab provides you with the test results, you will be in a better position to determine if
your well water is safe to drink or what contaminant you need to treat for. Generally, you should
compare the results with Federal (www.epa.gov/safewater/mcl.html) and State
standards. Where your test results are greater than the State or Federal maximum contaminant
levels, your well water should be considered unsafe for consumption.
STATE OF HAWAIL
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 461
HILO, HAWAII 96720

May 21, 2012

TO: Honorable Louie J. Padday, A.C.S.W., M.P.H., Director
Department of Health
Attention: Acting Chief, Wastewater Branch
Jocelyn L. Sato, Chief, Safe Drinking Water Branch
Alex Wong, Chief, Clean Water Branch
Dr. Keith Kawana, Office of Health Evaluation and Emergency Response

FROM: William J. Alls, Jr., Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
CMBY Wells 1 & 2 (Well No. 4927-02 & 03) TMK 2 (21-3-135-19)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application for any conflicts or inconveniences with the programs, plans, and objectives specific to your department. Please response by returning this cover memo form by May 21, 2012. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Iue of the Commission staff at 587-0218.

Clas: Attachment(s)

RESPONSE:

This well qualifies as a resource well and serves as a source of potential water in a public water system defined as serving 25 or more people in which the water is untreated prior to public consumption or distribution. The purpose of the local jurisdiction is to prevent pollution or contamination of the water supply. The Commission may approve the permitting of the proposed public water system addition on the condition that it is approved by the local jurisdiction. This well is proposed to serve as a source of water supply for the public water system. The proposed public water system will be subject to local jurisdiction approval.

If the well is used in a public water system, the permittee shall ensure that the water is treated prior to public consumption or distribution. The permittee shall ensure that the water is treated in accordance with the local jurisdiction's standards.

It does not appear that this well will be used for consumption purposes and is not subject to Safe Drinking Water Regulations.

For the applicant information, a source of possible water contamination [p. 11] is not known near the proposed well and no contamination is apparent.

An NPDES permit is required.

Other relevant DOI submittal submissions, information, or recommendations are attached.

No records are available.

Contact Person: Roland Tajano, Eng. on Maui
Phone: 808-4232

Signed: [Signature]
Date: 5-28-2012

STATE OF HAWAIL
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 461
HILO, HAWAII 96720

May 21, 2012

TO: Honorable Louie J. Padday, A.C.S.W., M.P.H., Director
Department of Health
Attention: Acting Chief, Wastewater Branch
Jocelyn L. Sato, Chief, Safe Drinking Water Branch
Alex Wong, Chief, Clean Water Branch
Dr. Keith Kawana, Office of Health Evaluation and Emergency Response

FROM: William J. Alls, Jr., Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
CMBY Wells 1 & 2 (Well No. 4927-02 & 03) TMK 2 (21-3-135-19)

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We would appreciate your comments on the captioned application for any conflicts or inconveniences with the programs, plans, and objectives specific to your department. Please response by returning this cover memo form by May 21, 2012. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Iue of the Commission staff at 587-0218.

Clas: Attachment(s)

RESPONSE:

This well qualifies as a resource well and serves as a source of potential water in a public water system defined as serving 25 or more people in which the water is untreated prior to public consumption or distribution. The purpose of the local jurisdiction is to prevent pollution or contamination of the water supply. The Commission may approve the permitting of the proposed public water system addition on the condition that it is approved by the local jurisdiction. This well is proposed to serve as a source of water supply for the public water system. The proposed public water system will be subject to local jurisdiction approval.

If the well is used in a public water system, the permittee shall ensure that the water is treated prior to public consumption or distribution. The permittee shall ensure that the water is treated in accordance with the local jurisdiction's standards.

It does not appear that this well will be used for consumption purposes and is not subject to Safe Drinking Water Regulations.

For the applicant information, a source of possible water contamination [p. 11] is not known near the proposed well and no contamination is apparent.

An NPDES permit is required.

Other relevant DOI submittal submissions, information, or recommendations are attached.

No records are available.

Contact Person: Barry I. Linn
Phone: 586-4309

Signed: [Signature]
Date: 5-28-12
DEPT. OF PLANNING
COUNTY OF MAUI
MAY 23 2012
RECEIVED

Mr. William Spence, Director
Planning Department
County of Maui
250 South High Street
Wailuku, HI 96793

Dear Mr. Spence:

Special Management Area Use Permit Requirements for
Well Construction/Pump Installation Permit Application
CMBY Wells 1 & 2 (Well No. 4927-02 & 03)

Transmitted to you for review and comment is a copy of the expanded Well Construction/Pump
Installation permit application.

We would appreciate your comments on the expanded application with regard to the SMA permitting
requirements specific to your division. Please respond by returning this cover memo by June 21,
2012. If we do not receive comments or a request for additional review time by this date, we will assume
you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit
application, require additional information, or request additional review time, please contact Charity Ice of
the Commission staff at 587-0218.

Sincerely,

[Signature]

WILLIAM J. AHA JR.
Chairperson

RESPONSE:

This well project [ ] requires [ ] does not require a SMA. If a SMA is required it [ ] has [ ] has not been approved
and [ ] is not currently active.

I I Other relevant site/crations, information, or recommendations are attached.

No objections

bd Other comments: Regulations of all applicable governmental
agencies should be followed.

Contact Person: [Name]
Phone: [Number]

Signed: [Signature] Date: [Date]
May 21, 2012

TO: Russell Tanji, Administrator
    Land Division

FROM: William M. Tam, Deputy Director
    Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application

CMBY Wells 1 & 2 (Well No. 4927-02 & 03) TMK (7) 3-B-008-018

Transmission for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the program, plans, and objectives specific to your division. Please respond by returning this cover memo form by June 21, 2012. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Lee of the Commission staff at 587-0218.

Cites
Attachment(s)

RESPONSE:

] A water lease/permit is required of this applicant and an application for such will be requested by our division.

] A water lease/permit is not required of this applicant.

] A water lease/permit has been obtained by the applicant through lease no. ______.

] Other relevant Land Division rules/regulations, information, or recommendations are attached.

] No objections

] Other comments: The property's original source of private title is Land Commission Award 5230 issued between 1845 and 1855.

Contact Person: Gary Martin

Phone: 587-0421

Signed: ___________________ Date: May 29, 2012
PRELIMINARY ENGINEERING REPORT
FOR
PUUNENE HEAVY INDUSTRIAL SUBDIVISION
Puunene, Maui, Hawaii
T.M.K.: (2) 3-8-008: 019

Prepared for:
CMBY 2011 Investment, LLC
1300 N. Holopono Street, Suite 201
Kahului, Maui, Hawaii 96763

Prepared by:
OTOMO ENGINEERING INC.
CONSTRUCTION CIVIL ENGINEERS
350 S. KEONEPUNU ST., SUITE 200
WAILuku, Maui, Hawaii 96793
PH: (808) 983-3030
FX: (808) 545-5779

February 2012

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REFERENCES
2.0 EXISTING INFRASTRUCTURE

2.1 ROADWAYS

All traffic will access and egress from the project site at the Mokulele Highway-Kamaaina Road-Mehameha Loop intersection. Mokulele Highway runs in the north-south direction with Kamaaina Road at the east approach and Mehameha Loop at the west approach. Kamaaina Road intersects with South Firebreak Road which provides access to the Hawaiian Cement Quarry and the project site. Mehameha Loop provides access to the Maui Humane Society to the west.

Mokulele Highway is a four-lane undivided State Highway which runs in the north-south direction which connects Kahului and Kihei. The speed limit is 45 miles per hour (mph) in the vicinity of Kamaaina Road. There is a separate bike path along the east side of Mokulele Highway.

The intersection of Mokulele Highway at Kamaaina Road is a four-legged, signalized intersection. The northbound and southbound approaches of Mokulele Highway have separate left turn and right turn deceleration and storage lanes. The eastbound (Mehameha Loop) and westbound (Kamaaina Road) approaches are one lane.

Kamaaina Road has a 24-feet wide concrete pavement for approximately 1,500 feet from Mokulele Highway and transitions to an asphalt pavement up to South Firebreak Road. South Firebreak Road has a 24-feet wide asphalt pavement up to the project site.

2.2 DRAINAGE

The parcel slopes down in the east to west direction ranging in elevation from approximately 140 feet to 120 feet above mean sea level, with an average slope of approximately 1.8%. It is estimated that the existing 50-year storm runoff from the project site is 75.2 cfs and 135,400 cf of runoff volume. Presently, onsite runoff sheet flows across the project site in a east to west direction into the downstream parcels and towards Mokulele Highway.

According to the "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August, 1972)," prepared by the United States Department of Agriculture Soil Conservation Service, a majority of the soil within the project site is classified as V alealka extremely rocky silty clay loam (WID2).
Walskoe extremely stony silty clay loam is characterized as having medium runoff, and a severe erosion hazard. A portion of the soils within the southern end of the property is classified as Alae Sandy Loam Alae sandy loam (AaB). Alae Sandy Loam is characterized as having slow runoff with a slight erosion hazard (See Exhibit 3).

According to Panel Number 1500030580E of the Flood Insurance Rate Map, dated September 25, 2008, prepared by the United States Federal Emergency Management Agency, the project site is situated in Flood Zone X. Flood Zone X represents areas outside of the 0.2% annual chance flood plain (See Exhibit 4).

2.3 SEWER

There are no County sewer facilities within or adjacent to the project site. The nearest County sewerline is approximately 10,000 feet to the south of the project site in Khei.

2.4 WATER

There is no County water system currently servicing the project site. However, there is an 8" water line from the County water system extending up Kamaaina Road to service some of the surrounding properties. The source for this water system is the Mokuahwai wells located in Happy Valley. The 36-inch Central Maui transmission line runs along Mokulele Highway from Waikiki to service the Khei area. This system is at or near capacity therefore may be inadequate to provide source and storage for this project.

2.5 ELECTRIC AND TELEPHONE

There is an existing electrical transmission system traversing along Kaimana Road and South Firebreak Road to the north end of the project site providing service to the surrounding area. This system is located within an easement granted to Maui Electric Company, Ltd.

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS

3.1 ROADWAYS

Access to the proposed subdivision will be from Kamaaina Road, South Firebreak Road, and Lower Khei Road. From Mokulele Highway, there will be access to Khei to the south and Kahului to the north. Easements from Alexander & Baldwin and/or the State of Hawaii will provide for access to the project area from Mokulele Highway (see Exhibit 5).

The interior subdivision streets will have 55 foot right-of-ways and will be improved with two 18 foot wide travel lanes and 10 foot wide shoulders on each side. The larger traffic lanes are to accommodate the larger fire trucks in the Central and South Maui districts. Flexible design standards will be utilized in the design of the subdivision's internal and external roadway system as provided for by Section 18.32.030 of the Maui County Code pertaining to General Criteriafor Flexible Design Standards. Appropriate striping and signage will be installed in accordance with the Department of Public Works.

A Traffic Impact Analysis Report (TIAR), dated January 24, 2012 was prepared by Phillip Rowell and Associates, which provided the following summary for recommended mitigation for 2015 background conditions:

"Intersection of Mokulele Highway at Kamaaina Road and Meamaha Loop - No mitigation required."

The following summary was recommended to mitigate the background plus the project deficiencies:

1. Modify westbound approach to provide a separate right turn lane.
2. Provide acceleration lane for westbound to northbound right turns.
3. Lengthen southbound left turn deceleration lane from 60 feet to 350 feet."

In addition, the TIAR recommended the following:
1. The areas adjacent to Kamaaina Road, South Firebreak Road and Lower Kihei Road should be monitored often to ensure that the sugarcane growth impedes sight distances and visibility of traffic control devices are maintained.

2. Because of the increased traffic volumes along Kamaaina Road, South Firebreak Road and Lower Kihei Road as a result of the project, these roadways should be striped and signed per County of Maui Standards. The high proportion of traffic that will be heavy vehicles should be considered in the design and installation of traffic control devices, especially the longer stopping sight distances required for the heavy vehicles.

3.2 DRAINAGE

The project's drainage system will be designed to accommodate the increase in runoff generated by the development of the entire project site. Subdivision improvements will include a master drainage system within the roadways, including catch basins, manholes, drainlines and a drainout to each lot. As each lot is developed, it will be required to install an outsite drainage system to collect runoff from the site and provide a drainline connection to the drainout to the master drainage system. The roadside runoff will be captured by the catch basins within the right-of-way, and conveyed to a series of retention basins constructed as part of the subdivision improvements. It is estimated that the post development runoff will be approximately 328.5 cfs and generate 413,900 cfs of surface runoff volume. This would be an increase of approximately 253.3 cfs of runoff and 278,500 cfs of runoff volume. The proposed retention basins to be constructed along the western portion of the property will have a capacity to accommodate at least the increase in surface runoff from a fully developed project site.

There will be no increase in runoff sheet flowing from the project site after completion of the development and the drainage design will also be to minimize any alterations to the natural pattern of the existing onsite surface runoff. This is in accordance with Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui.

3.3 SEWER

The nearest County sewer system is located approximately 10,000 feet from the project site, therefore a master private sewer system will be installed within the subdivision roadways and a sewer lateral will be provided to each lot. The master sewer system will outlet into a community leach field within the project site, which will require review and approval from the State Department of Health (SDOH).

Individual wastewater systems (IWS) will be installed by individual lot owners and used for the treatment of wastewater for each lot. Each lot will be required to connect the outlet line of the IWS to the sewer lateral provided. Wastewater will be conveyed from each lot into the community leach field which is required to be at least 1,000 feet away from the wells providing water to the subdivision. Each IWS will adhere strictly to the requirements set forth by the SDOH.

As the project progresses and building permits are applied for, the building permit applicants will be required to submit the design of an IWS. It is the responsibility of the SDOH to review and approve the IWS. Some of the restrictions of an IWS are that it has to be at least 5 feet away from the wall line of any structure, 8 feet from a property line, 50 feet from a stream, 10 feet from a large tree, and 1,000 feet from a potable drinking water well (if cesspools are used). The IWS to be used for the subdivision will be aerobic units which will allow installation in close proximity to the subdivision wells.

3.4 WATER

The development plan will involve the construction of a dual water system to provide the required potable and non-potable water, as well as adequate fire flow. Groundwater supplied by onsite wells will provide the source for non-potable water use and as well as reverse osmosis (RO) treatment for potable water use.

As determined by the Domestic Consumption Guidelines set forth by the Department of Water Supply and dual water system guidelines that recommend a 30/70, potable/non-potable split for industrial lands, the potable water demand for the proposed lots of the subdivision is calculated to be approximately 118,620 gallons per day. The non-potable requirement for the
proposed lots as well as the landscaped and irrigated common areas and roadways is calculated to be approximately 305,030 gallons per day. In accordance with Department of Water Supply standards, the fire flow demand for a heavy industrial development is 2,500 gallons per minute for a 2-hour duration. The maximum spacing for fire hydrants is 250 feet. The project's fire flow demand will be met by the proposed non-potable system.

A Groundwater Resource and Water System Assessment Report, prepared by Tom Nance Water Resource Engineering, provided the following summary of recommended improvements for the proposed dual water system:

1. Three 300 gpm wells, one providing standby capacity.
2. Three 75 gpm reverse osmosis (RO) treatment trains, one providing standby capacity.
3. A 0.25 million gallon (MG) storage reservoir for potable use
4. A 0.30 million gallon (MG) storage reservoir for non-potable use.
5. The potable and non-potable water system will each require a booster pump with a backup generator power for the non-potable pump station to ensure fire protection during a power outage.

3.5 ELECTRIC AND TELEPHONE

The proposed electrical and telephone distribution systems for the subject subdivision will be installed from the existing overhead facilities located along the north side of the project site. Within the project site, the electric and telephone systems will be installed underground in accordance with the utility companies' rules and regulations. Street lights will be installed along the subdivision streets at intervals to be determined by the electrical engineer.

EXHIBITS

1. Location Map
2. Vicinity Map
3. Soil Survey Map
4. Flood Insurance Rate Map
5. Preliminary Site Plan
6. Preliminary Grading & Drainage Plan
Hydrologic Calculations

Purpose: Determine the increase in onsite surface runoff from the undeveloped portion of the project site based on a 50-year, 1-hour storm.

A. Determine the Runoff Coefficient (C):

**EXISTING AREAS:**
- Infiltration (Medium) = 0.07
- Relief (Flat) = 0.00
- Vegetal Cover (Good) = 0.03
- Development Type (Open) = 0.15
  
  C = 0.25

**DEVELOPED AREAS:**
- Infiltration (Negligible) = 0.20
- Relief (Flat) = 0.00
- Vegetal Cover (Poor) = 0.05
- Development Type (Industrial) = 0.56
  
  C = 0.80

B. Determine the 50-year 1-hour rainfall:
   
   \[ i_{50} = 2.5 \text{ inches} \]

Adjust for time of concentration to compute Rainfall Intensity (I):

Existing Condition:
- \( T_c = 30 \text{ minutes} \)
- \( I = 3.50 \text{ inches/hour} \)

Developed Condition:
- \( T_c = 14 \text{ minutes} \)
- \( I = 4.78 \text{ inches/hour} \)

C. Drainage Area \( A = 65 \text{ acres} \)

D. Compute the 50-year storm runoff volume \( Q \):
$Q = CIA$

Existing Condition:
$Q = (0.23)(3.50)(65)$
$= 75.2 \text{ cfs}$

Developed Condition:
$Q = (0.80)(4.76)(65)$
$= 328.5 \text{ cfs}$

The increase in runoff due to the proposed development is $328.5 - 75.2 = 253.3 \text{ cfs}$.
Hydrograph Plot

Hyd. No. 3

POST

Hydrograph type = Rational
Storm frequency = 50 yrs
Drainage area = 86.0 ac
Intensity = 4.78 in
I-D-F Curve = 2-5.0DF

Peak discharge = 328.52 cfs
Time interval = 1 min
Runoff coeff. (Tc) = 0.8
Time of conc. (Tc) = 14 min
Recom. I-D-F factor = 2

Total Volume = 413,039 cu ft

Reservoir Report

Reservoir No. 1 - BASIN 1

Pond Data

Fond storage is based on known contour areas

<table>
<thead>
<tr>
<th>Stage</th>
<th>Elevation ft</th>
<th>Contour area sq ft</th>
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<th>Total storage cu ft</th>
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Culvert/Orifice Structures

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Weir Structures

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Stage/Storage/Discharge Table

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<th>Elevation ft</th>
<th>Clv A cfs</th>
<th>Clv B cfs</th>
<th>Clv C cfs</th>
<th>Clv D cfs</th>
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<th>Wr B cfs</th>
<th>Wr C cfs</th>
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### Reservoir Report

#### Reservoir No. 2 - BASIN 2

**Pond Data**

Pond storage is based on known contour areas

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<th>Incr. Storage cuf</th>
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#### Culvert / Orifice Structures

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<td>No</td>
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#### Weir Structures

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### Reservoir Report

#### Reservoir No. 3 - BASIN 3

**Pond Data**

Pond storage is based on known contour areas

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<th>Elevation ft</th>
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<th>Incr. Storage cuf</th>
<th>Total storage cuf</th>
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#### Culvert / Orifice Structures

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<th>[B]</th>
<th>[C]</th>
<th>[D]</th>
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<td>Span in</td>
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#### Weir Structures

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</thead>
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<td>0.00</td>
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<th>Clv A cfs</th>
<th>Clv B cfs</th>
<th>Clv C cfs</th>
<th>Clv D cfs</th>
<th>Wr A cfs</th>
<th>Wr B cfs</th>
<th>Wr C cfs</th>
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<th>Discharge cfs</th>
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Note: All columns have been analyzed under sink and outlet control.

### Stage / Storage / Discharge Table

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<th>Elevation ft</th>
<th>Clv A cfs</th>
<th>Clv B cfs</th>
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Note: All columns have been analyzed under sink and outlet control.
Reservoir Report

Reservoir No. 4 - BASIN 4

Pond Data

Pond storage is based on known contour areas

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<th>Weir Structures</th>
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<tr>
<td>Span in</td>
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</tr>
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Note: All units have been adjusted under base watered control.

APPENDIX B

WATER DEMAND CALCULATIONS

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<th>Clv B</th>
<th>Clv C</th>
<th>Clv D</th>
<th>Wr A</th>
<th>Wr B</th>
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</table>
WATER DEMAND CALCULATIONS

Proposed subdivision area uses:

Industial lots = 65.9 acres
Common area landscaping = 9.1 acres
Roadways = 11.0 acres

Water demand for Industrial lots (6,000 gallons per acre per day):
Average Daily Demand (ADD) = (6,000)(65.9) = 395,400 gpd

Based on 30/70, potable/non-potable split:
ADD (potable) = 395,400 gpd x 30% = 118,620 gpd
ADD (non-potable) = 395,400 gpd x 70% = 276,780 gpd

Water demand for Common area landscaping (2,500 gallons per acre per day):
ADD (non-potable) = (2,500)(9.1) = 22,750 gpd

Water demand for Roadways (2,500 gallons per acre per day):
Based on 20% of ROVW to be irrigated
ADD (non-potable) = (2,500)(2.2) = 5,500 gpd

Total ADD (non-potable) = 276,780 + 22,750 + 5,500 = 305,030 gpd

REFERENCES


D. Flood Insurance Rate Maps of the County of Maui, Sept. 29, 2009

E. Chapter 4, Rules for the Design of Storm Drainage Facilities in the County of Maui, prepared by the Department of Public Works and Waste Management, County of Maui, 1995.


TABLE OF CONTENTS

1. INTRODUCTION ................................................................. Page 1
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Appendix I Engineer’s Drawing of Proposed Mitigation Improvements at Intersection of Mokuleia Highway at Kam‘a‘ina Road and Mahamela Loop
1. INTRODUCTION

Phillip Rowell and Associates has been retained to prepare a Traffic Impact Analysis Report for the proposed heavy industrial subdivision in Puunene, Maui, Hawaii. This introductory chapter discusses the location of the project, the proposed development, and the study methodology.

Project Location and Description

1. The project is located approximately 1.4 miles east of Mokulele Highway in the vicinity of the Old Puunene Airport. Figure 1 indicates the approximate location on the Island of Maui.

2. The total project area of the subdivision is 86 acres. Approximately 66 acres will be developed as industrial lots, while the remaining area will be a highway right-of-way and a drainage reserve. The current plan is to subdivide the project into 20 lots. A proposed development plan is provided in Appendix A.

3. Access to and egress from the project will be via Kama'ana Road, which intersects Mokulele Highway adjacent to the Maui Humane Society at the intersection of Mokulele Highway at Mahameha Loop, South Piinebail Road and Leuen Kihei Road. A schematic drawing of this access route is referred to as Alternate 1 on Figure 2. The Applicant has submitted a request for an easement between Mokulele Highway and the proposed project's entrance. If the Applicant does not obtain this easement, an alternate easement will be obtained. The alternate alignment, referred to as Alternate 2, is also shown on Figure 2. If the Alternate 2 alignment is used, the project's access will be located southward as shown.

Philip Rowell and Associates
Figure 1
PROJECT LOCATION ON MAUI

Figure 2
SCHEMATIC DRAWING OF ACCESS ROUTES TO PROJECT
4. The project will have no right of access to Maui Raceway Park roads. Additionally, there will be a drainage swale between the project lots and the property line adjacent to the park. This will prevent any traffic connection between the project and the park.

5. Since the current plan is to subdivide the property, there is no estimate as to when development of the lots will be completed. Therefore, 2015 is used as the project completion date.

Study Methodology
The following is a summary list of the tasks performed:

1. A field reconnaissance was performed to identify existing roadway cross-sections, intersection lane configurations, traffic control devices, and surrounding land uses.

2. Existing weekday peak hour traffic volumes were obtained for the intersection of Malului Highway at Kaumana Road. Since existing and proposed traffic using Kaumana Road is industrial related, traffic data included the number of heavy vehicles. Existing levels of service were determined using the methodology described in the 2000 Highway Capacity Manual.

3. A list of related development projects within and adjacent to the study area that will impact traffic conditions at the study intersections was compiled.

4. Future background traffic volumes without traffic generated by the study project were estimated. A level-of-service analysis was performed to determine traffic operating conditions and levels of service as a result of background growth and traffic generated by other known future development projects.

5. Peak hour traffic that the proposed project will generate was estimated using trip generation analysis procedures recommended by the Institute of Transportation Engineers. Project generated traffic was distributed and assigned to the adjacent roadway network.

6. A level-of-service analysis for future traffic conditions with traffic generated by the study project was performed.

7. The impacts of traffic generated by the proposed project were quantified and summarized.

8. Improvements or modifications necessary to mitigate the traffic impacts of the project and to provide adequate access to and egress from the site were identified and analyzed.

9. A report documenting the conclusions of the analyses performed and recommendations was prepared.

Order of Presentation
Chapter 2 describes existing traffic conditions, the Level of Service (LOS) concept and the results of the Level of Service analysis of existing conditions.

Chapter 3 describes the process used to estimate 2015 background traffic volumes and the resulting background traffic projections. Background conditions are defined as future background traffic conditions without traffic generated by the study project.
2. ANALYSIS OF EXISTING CONDITIONS

This chapter presents the existing traffic conditions on the roadways adjacent to the proposed project. The level-of-service (LOS) concept and the results of the LOS analysis for existing conditions are also presented. The purpose of the analysis is to identify existing deficiencies and to establish the base conditions for the determination of the impacts of the project which are described in a subsequent chapter.

Existing Streets and Intersection Controls

All traffic will access and egress the project via the intersection of Mokulele Highway at Kama'aina Road and Mahameha Loop. The north and south approaches are Mokulele Highway. The east approach is Kama'aina Road and the west approach is Mahameha Loop. Kama'aina Road, along with South Freeway Road, connects Mokulele Highway with the Hawaiian Cement Quarry and the west leg connects with the Maui Humane Society facility. A schematic of this intersection is provided as Figure 3.

Mokulele Highway is a four-lane, divided highway with a north-south orientation connecting Kahului to the north with Kihei to the south. The posted speed limit is 45 miles per hour. There is a separate bike path along the east side of the highway.

The intersection of Mokulele Highway at Kama'aina Road is a four-legged, signalized intersection. The northbound and southbound approaches of Mokulele Highway both have separate left turn and right turn signals at the intersection. The northbound and southbound left turn lanes are protected. The eastbound (Mahameha Loop) and westbound (Kama'aina Road) approaches are one lane each.

Figure 3
Schematic Drawing of Intersection of Mokulele Highway at Kama'aina Road and Mahameha Loop
Existing Peak Hour Traffic Volumes

The intersection of Mokulele Highway at Kamehameha Road was counted from 6:30 AM to 9:00 AM on Friday, August 12, 2011, and from 3:00 PM to 6:00 PM on Thursday, August 11, 2011. Since Kamehameha Road provides access to the quarry and is heavily used by heavy trucks, the number of heavy vehicles was also counted. A heavy vehicle is defined by the Highway Capacity Manual as "a vehicle with more than four wheels touching the pavement during normal operation." Heavy vehicles have a significant impact on the capacity of an intersection as a result of the vehicles operating characteristics. The percentage of heavy vehicles is therefore a critical input to the capacity analysis of this intersection.

The results of the traffic counts are summarized as Figure 4. Shown are the peak hour volumes of heavy vehicles, other vehicles and total vehicles. Also shown are the percentages of heavy vehicles of each traffic movement.

The traffic count summary worksheets are provided as Appendix B.

The morning peak hour is from 7:15 AM to 8:15 AM. This is consistent with traffic counts completed in 2010 at the intersection of Mokulele Highway at North Kīhei Road, which is the most signalized intersection south of this intersection. The total morning peak hour volume along Mokulele Highway is approximately 2,200 vehicles per hour. The direction split is 50/50. Left and right turns are minimal. Traffic merging into and out of Kamehameha Road is largely heavy vehicles. The percentages of westbound left and right turns from Kamehameha Road that are heavy vehicles are 89% and 87%, respectively. 46% of the southbound left turns and 17% of the northbound right turns into Kamehameha Road are heavy vehicles.

The afternoon peak hour along Mokulele Highway is from 3:30 PM to 4:30 PM. The total afternoon peak hour traffic volume is approximately 2,390 vehicles per hour. The directional split is also 50/50. 100% of the southbound left turns, 73% of the westbound left turns are heavy vehicles and 84% of the northbound right turns are heavy vehicles.

The peak hour volumes along Mokulehe Loop are approximately 35 vehicles per hour during the morning peak hour and 49 vehicles per hour during the afternoon peak hour. There were no heavy vehicles along Mokulehe Loop during the peak hours.

The peak hour volumes along Kamehameha Road are 57 vehicles per hour during the morning peak hour and 36 during the afternoon peak hour. During the morning peak hour, 23% of the vehicles along Kamehameha Road are heavy vehicles. During the afternoon peak hour, 22% of the heavy vehicles are heavy vehicles.

Existing Public Transportation

The Maui Public Bus system operates the Kīhei Islander bus route (Route 10) along Mokulele Highway at one hour intervals between 5:30 AM and 9:30 PM. This route connects Kīhei and Kula. There are no bus stops along Mokulele Highway. Therefore, there is no bus service available to the project site.

Figure 4
EXISTING PEAK HOUR TRAFFIC VOLUMES
Level-of-Service Concept

Signalized Intersections

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels of service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level of service are summarized in Table 1. In general, LOS A represents free-flow conditions with no congestion, LOS F, on the other hand, represents severe congestion with stop-and-go conditions. Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.

Corresponding to each level of service shown in the table is a volume-capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

Table 1 Level-of-Service Definitions for Signalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Intersection Description</th>
<th>Volume-Capacity Ratio</th>
<th>Delay (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B</td>
<td>Unsignalized operations; all vehicles observe a single cycle.</td>
<td>0.300-0.700</td>
<td>&lt;20.0</td>
</tr>
<tr>
<td>C</td>
<td>Light congestion; occasional backups or critical stoppages.</td>
<td>0.701-0.999</td>
<td>20.1-30.0</td>
</tr>
<tr>
<td>D</td>
<td>Congestion or critical stoppages but intersection functional. Vehicles must wait through more than one cycle during peak periods. No lane changing lanes.</td>
<td>0.501-0.999</td>
<td>31.1-55.5</td>
</tr>
<tr>
<td>E</td>
<td>Service congestion with some standing lines or critical stoppages. Backlog of intersection may occur if signal does not provide protected turning movements.</td>
<td>0.901-1.000</td>
<td>66.1-90.0</td>
</tr>
<tr>
<td>F</td>
<td>Total breakdown with stop-and-go operation.</td>
<td>&gt;1.000</td>
<td>&gt;92.0</td>
</tr>
</tbody>
</table>

Notes:
2. The use of the level-of-service rating is based on Urban Area Capacity Model.

Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors, 1) the distribution of gaps in the major street traffic stream, and 2) driver judgment in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding delay.

Table 2 Level-of-Service Definitions for Unsignalized Intersections

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Expected Delay to Minor Street Traffic</th>
<th>Delay (Seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Little or no delay</td>
<td>&lt;10.0</td>
</tr>
<tr>
<td>B</td>
<td>Short traffic delays</td>
<td>11.1 to 15.0</td>
</tr>
<tr>
<td>C</td>
<td>Average traffic delays</td>
<td>16.1 to 25.0</td>
</tr>
<tr>
<td>D</td>
<td>Long traffic delays</td>
<td>26.1 to 35.0</td>
</tr>
<tr>
<td>E</td>
<td>Very long traffic delays</td>
<td>36.1 to 50.0</td>
</tr>
<tr>
<td>F</td>
<td>See note (2) below</td>
<td>&gt;50.0</td>
</tr>
</tbody>
</table>

Note:
2. When safety factors increase the capacity of the lane, these factors will be communicated with markings which may level severe congestion affecting other traffic movements in the intersection. The condition usually results from improvements in the intersection.

Methodology for Level of Service Analysis

1. Synchro 6 was used to perform the level-of-service analysis. Synchro 6 is based on the Highway Capacity Manual.
2. The percentage of heavy vehicles as shown previously (Figure 4) was input for the appropriate lane group.
Level-of-Service Analysis of Existing Conditions

The existing levels-of-service of the intersection of Molalele Highway at Kam'aina Road and Mahameha Loop are summarized in Table 3. The volume-to-capacity ratios, delays and levels-of-service of the overall intersection and each lane group as reported by Synchro are shown.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>2011 Levels-of-Service - Molalele Highway &amp; Kam'aina Road &amp; Mahameha Loop</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak Hour</td>
<td>PM Peak Hour</td>
</tr>
<tr>
<td>7:00 AM to 9:00 AM</td>
<td>2:30 PM to 4:30 PM</td>
</tr>
<tr>
<td>Intersection and Movement</td>
<td>VIC</td>
</tr>
<tr>
<td>Overall Intersection</td>
<td>0.10</td>
</tr>
<tr>
<td>Eastbound Left, Through &amp; Right</td>
<td>0.10</td>
</tr>
<tr>
<td>Westbound Left, Through &amp; Right</td>
<td>0.25</td>
</tr>
<tr>
<td>Northbound Left</td>
<td>0.48</td>
</tr>
<tr>
<td>Northbound Right</td>
<td>0.64</td>
</tr>
<tr>
<td>Southbound Left</td>
<td>0.50</td>
</tr>
<tr>
<td>Southbound Right</td>
<td>0.61</td>
</tr>
</tbody>
</table>

**Notes:**
1. LOS: Level-of-Service calculated using the operations method described in Highway Capacity Manual. Level-of-service is based on delay.

Existing Deficiencies

We have used the Institute of Transportation Engineers standard that Level-of-Service D is the minimum acceptable Level-of-Service and that the criteria is applicable to the overall intersection rather than each controlled lane group. Minor movements, such as left turns, and minor side street approaches may operate at Level-of-Service E or F for short periods of time during the peak hours so that the overall intersection and major movements along the major highway will operate at Level-of-Service D, or better. All volume-to-capacity ratios must be 1.00 or less.

Using this standard, no deficiencies were identified at the intersections of Molalele Highway at Kam'aina Road and Mahameha Loop. The overall intersection operates at Level-of-Service A during both morning and afternoon peak hours. The eastbound approach, the westbound approach, the northbound left turn lane and the southbound left turn lane are shown as operating at Level-of-Service D. The levels-of-service shown are based on the calculated delay of the lane group. However, the volume-to-capacity ratio is low. This indicates that the long delay is because vehicles must wait for the signal to go through the rest of the traffic signal cycle resulting in a longer delay than desirable. As previously noted, Level-of-Service D is considered an acceptable level-of-service.

3. PROJECTED BACKGROUND TRAFFIC CONDITIONS

The purpose of this chapter is to discuss anticipated 2015 background conditions without project generated traffic. Background traffic conditions are defined as future traffic projections without traffic generated by the proposed project under study.

Future traffic growth consists of two components. The first is ambient background growth that is a result of regional growth and cannot be attributed to a specific project. This growth also considers traffic associated with major, or small, projects for which no traffic data, or traffic study, is available. The second component is estimated traffic that will be generated by other major development projects in the vicinity of the proposed project. Included in this assessment of future background conditions are roadway improvements that are part of the related projects.

A level-of-service of future (2015) background traffic conditions is then performed. Existing deficiencies identified and appropriate mitigation measures identified and assessed where needed. The purpose of this process is to identify roadway improvements required to mitigate unacceptability conditions as a result of background traffic growth and traffic generated by related projects in the area so that improvements can be assessed against the appropriate project.

Design Year for Traffic Forecasts

The design, or horizon, year of a project is the future year for which background traffic conditions are estimated. The design year is typically several years after completion of the study project. The year 2015 is used in this study to be compatible with the traffic studies for other major projects within and adjacent to the study area.

Philip Rowell and Associates
Background Traffic Growth

The Maui Long Range Transportation Plan concluded that traffic on Maui would increase an average of 1.6% per year from 1990 to 2020. This growth rate was used to estimate the background growth between 2011 and 2015, which is the design year for this project. The growth factor was calculated using the following formula:

\[ F = \left(1 + \frac{i}{n}\right)^n \]

where F = Growth Factor
\( i = \) Average annual growth rate, or 0.016
\( n = \) Growth period, or 4 years

It should be noted that some traffic studies for projects in Kihei have used a growth factor of 2.0% rather than 1.6% used in the study. We have checked with the other consultants and verified that this is the result of rounding.

This growth factor was applied to the northbound and southbound through traffic movements along Mokualei Highway.

Related Projects

The second component in estimating background traffic volumes is traffic resulting from other proposed projects in the vicinity. Related projects are defined as those projects that are under construction or have been approved for construction and would significantly impact traffic in the study area. Related projects may be development projects or roadway improvements. The following related projects were identified:

- Kualapuni Village
  - The proposed Kualapuni Subdivision is located at the east end of Kaahumanu Street and will consist of 120 multi-family units. The traffic assignments for the subdivision were obtained from the traffic study for the project.
  - Maui Lu Resort
    - Maui Lu Resort is located in the northeast quadrant of the intersection of South Kihei Road at Kaanapali Street. The existing resort will be demolished and a 400 unit timeshare will be constructed. Each timeshare unit will have one lock of unit which may be used as a separate hotel room. As part of the Maui Lu project, the intersection of South Kihei Road at Kaanapali Street will be signalized and a separate southbound to eastbound left turn lane will be constructed. The traffic assignments for the project were obtained from the traffic study for the project.

Kihei Residential Subdivision

The Kihei Residential Subdivision will be located along the east side of Pilani Highway between Kualapuni Street and North Kihei Road. The project will consist of 600 single family units, 200 multi-family units, 2,000 square feet of commercial floor area and 7,000 square feet of office floor area. The traffic assignments for the project are based on the traffic study for this project.

Primary access to and egress from this project is via the intersection of Pilani Highway at Kualapuni Street. The TIA includes improvements at this intersection to accommodate project generated traffic. These improvements are:

1. Modify the westbound approach of Ulupa Road to provide separate left, through and right turn lanes.
2. Modify the westbound approach of Kualapuni Street to provide two left turn lanes, one through lane and one right turn only lane.
3. Modify the southbound approach of Pilani Highway to provide two separate left turn lanes.

Kihik High School

The proposed Kihik High School will be located along the east side of Pilani Highway across from the Pilani Subdivision. According to the Environmental Impact Statement Preparation Notice (EISP), the school will have a capacity of 1600 students for grades 9 through 12.

As described in the EISP, access and egress will be via the intersection of Pilani Highway at Kula Road, which will be modified with an extension of Kula Road across Pilani Highway. Right turns only will be allowed onto and off of the school site and the intersection will be unsignalized.

The number of trips that the high school will generate was estimated for a 1600-student high school using Institute of Transportation Engineers trip generation data. These trips were assigned based on the traffic circulation patterns described in the EISP.

Kanokulu 6 Affordable Housing Project

The Kanokulu 6 Affordable Housing Project is located between Pilani Highway and Kanokulu Road in the southwest quadrant of the intersection of Kanokulu Street at Pilani Highway. The project is a 124 unit multi-family affordable housing development.

Access to and egress from the project will be via two driveways along the east side of Kanokulu Road.

The traffic assignments for the project were obtained from the traffic study for the project.

---

1 Kau Associates, Maui Long Range Transportation Plan, October 1996
2 Phillip Rowell and Associates, TIA for Kualapuni Village, July 15, 2016
3 Phillip Rowell and Associates, TIA for Maui Lu Resort, March 7, 2007

Phillip Rowell and Associates
Pilani Promenade

The project is located along the mauka (east) side of Pilani Highway opposite Kaunolu Street in the Kula area of Maui. The extension of Kaunolu Street will divide the project into two parcels. The north parcel, referred to as the Juma Industrial Center and will consist of 540,000 square feet of retail and commercial uses. The south parcel is referred to as the Juma Retail Center and will consist of 410,000 square feet of retail space. This includes 38,000 square feet for an outdoor garden area.

The traffic assignments for the project were obtained from the traffic study for the project. As part of the project, the intersection of Pilani Highway at Kaunolu Street will be signalized.

The projects that were identified as related projects and the estimated number of peak hour trips generated by each are summarized in Table 4. The approximate locations of these projects are shown in Figure 5. Traffic assignments at the intersection of Pilani Highway at Kaunolu Street and Mahana Loop for the related projects are shown as Figure 6.

It was assumed that traffic volumes into and out of the Maui Humane Society facility and the Hawaiian Cement quarry would not change.

2016 Background Traffic Projections

2016 background traffic projections were calculated by expanding existing traffic volumes by the appropriate growth rates and then superimposing traffic generated by related projects. The 2016 background peak hour traffic projections at the intersection of Pilani Highway at Kaunolu Street and Mahana Loop are shown in Figure 7.

Table 1

<table>
<thead>
<tr>
<th>Related Project</th>
<th>Description</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Kawasika Village</td>
<td>130 Multi-Family</td>
<td>10</td>
<td>47</td>
</tr>
<tr>
<td>B</td>
<td>Maui Lo Resort</td>
<td>450 Townhouses + 400 Lock Offices (Maximum)</td>
<td>245</td>
<td>140</td>
</tr>
<tr>
<td>C</td>
<td>Kula Residential</td>
<td>450 Single Family</td>
<td>230 Multi-Family</td>
<td>2,000 SF Commercial</td>
</tr>
<tr>
<td>D</td>
<td>Kula High School</td>
<td>160 Students</td>
<td>1,000 SF</td>
<td>1,000 SF</td>
</tr>
<tr>
<td>E</td>
<td>Kihei Affordable Housing Project</td>
<td>124 Multi-Family</td>
<td>20</td>
<td>49</td>
</tr>
<tr>
<td>F</td>
<td>Pilani Promenade</td>
<td>700,000 SF Retail</td>
<td>432</td>
<td>268</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td>1,374</td>
<td>1,106</td>
<td>2,480</td>
</tr>
</tbody>
</table>

Figure 5

LOCATIONS OF RELATED PROJECTS

---

6 Philip Rufe and Associates, TMA for Pilani Promenade, June 7, 2011
2015 Background Levels-of-Service

Table 5 summarizes the results of the level-of-service analysis of the intersection of Mokulele Highway at Kamehameha Road for 2015 background conditions without project-generated traffic. Volume-to-capacity ratios, delays, and levels-of-service of the overall intersection and each lane group as represented by Synchro are shown.

Table 5 2015 Background Levels-of-Service - Mokulele Highway at Kamehameha Road & Mehameha Loop

<table>
<thead>
<tr>
<th>Intersection and Movement</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VIC Delay ^1</td>
<td>LOS ^2</td>
</tr>
<tr>
<td>Overall Intersection</td>
<td>0.59</td>
<td>6.3 A</td>
</tr>
<tr>
<td>Eastbound Left, Thru &amp; Right</td>
<td>0.10</td>
<td>37.1 D</td>
</tr>
<tr>
<td>Westbound Left, Thru &amp; Right</td>
<td>0.24</td>
<td>39.3 D</td>
</tr>
<tr>
<td>Northbound Left</td>
<td>0.41</td>
<td>40.7 D</td>
</tr>
<tr>
<td>Northbound Thru</td>
<td>0.36</td>
<td>5.8 A</td>
</tr>
<tr>
<td>Northbound Right</td>
<td>0.61</td>
<td>2.9 A</td>
</tr>
<tr>
<td>Southbound Left</td>
<td>0.36</td>
<td>47.0 D</td>
</tr>
<tr>
<td>Southbound Thru</td>
<td>0.52</td>
<td>4.3 A</td>
</tr>
<tr>
<td>Southbound Right</td>
<td>0.43</td>
<td>2.2 A</td>
</tr>
</tbody>
</table>

Notes:
1. Delay is in minutes per vehicle.
2. LOS indicates level of service calculated using the procedures described in Highway Capacity Manual. Level of Service is based on delay.

Mitigation Required for 2015 Background Conditions

The results are consistent with the results and conclusions of the level-of-service analysis of existing conditions. The overall intersection operates at Level-of-Service A during both morning and afternoon peak hours. The eastbound approach, the westbound approach, the northbound left turn lane, and the southbound left turn lane are shown as operating at Level-of-Service D. The level-of-service shown is based on the calculated delay of the lane group. However, the volume-to-capacity ratio is low. This indicates that the long delay is because vehicles must wait for the signal to go through the rest of the traffic signal cycle resulting in a longer delay than desirable. As previously noted, Level-of-Service D is considered an acceptable level-of-service.

No mitigation is required for 2015 background conditions.

4. PROJECT-RELATED TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. This chapter presents the generation, distribution, and assignment of project-generated traffic and the background plus project traffic projections. The result of the level-of-service analysis of background plus project conditions is presented in the following chapter.

Methodology

Future traffic volumes generated by the project were estimated using the procedures described in the Trip Generation Handbook and data provided in Trip Generation. This method used trip generation rates or formulas to estimate the number of trips that the project would generate during the peak hours.

Trip Generation of Proposed Development

Trip generation equations for industrial parks (Land Use Code 120) were used to estimate the number of peak hour trips generated by the project. These rates are based on the number of acres to be developed.

The area used to estimate the number of trips the project will generate was the net area to be developed, 65.92 acres. The area is the total project area minus the drainage reserve and roadway right-of-way as shown.

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The results of the trip generation calculations are shown as Table 6. The project will generate 392 inbound and 80 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 99 inbound and 372 outbound trips.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Trip Generation Calculations</th>
<th>Not To Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Trip Distribution and Assignments

The trip-related impacts were distributed along the anticipated approach and departure routes from the project site based on the distribution of population as reported in the Maui Long Range Land Transportation Plan. The distribution of population in 2015 was estimated by interpolating between the 1990 and 2020 population estimates provided in the appendices of the Plan. According to 62% of the project trips were distributed as approaching from and departing to the north. The remaining 38% of the project trips were distributed as approaching from and departing to the south.

The project will have no right of access to Maui Raceway Park roads. Additionally, there will be a drainage swell between the project lots and the property to the adjacent to the park. This will prevent any traffic connection between the project and the park. Accordingly, all traffic was assigned to the intersection of Molokule Highway at Kamaaina Road and Mehameha Loop.

Based on observations at the Central Maui Baseyard that is located north of the study project and the Consolidated Baseyard on Waio Road, it was assumed that 29% of the vehicles generated by the project will be heavy vehicles.

The project morning and afternoon peak hour trip assignments at the intersection of Molokule Highway at Kamaaina Road and Mehameha Loop are shown in Figure 6.

2015 Background Plus Project Projections

Background plus project traffic conditions are defined as 2015 background traffic conditions plus project-related traffic. The 2015 background plus project traffic projections were estimated by superimposing the peak hour traffic generated by the proposed project on the 2015 background peak hour traffic volumes presented in Chapter 3. The 2015 background plus the project traffic projections at the intersection of Molokule Highway at Kamaaina Road and Mehameha Loop are shown on Figure 6.

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5. TRAFFIC IMPACT ANALYSIS

The impact of the project was assessed by analyzing the changes in traffic volumes and levels-of-service at the study intersections. These impacts are discussed in this chapter. Intersection traffic movements that do not meet the standard for acceptable levels-of-service are identified and improvements that will result in acceptable levels-of-service are identified and discussed.

This chapter also describes anticipated traffic operating conditions at the project's driveways along Kama'aina Road.

Changes in Total Intersection Volumes

An analysis of the project's share of 2015 background plus project intersection approach volumes at the intersection of Mokulele Highway and Kama'aina Road is summarized in Table 7. The table summarizes the project's share of total 2015 peak hour approach volumes. Also shown are the percentage of 2015 background plus project traffic that is the result of background growth and traffic generated by related projects. As shown, project generated traffic will represent 14.6% of the morning peak hour traffic and 13.2% of the afternoon peak hour traffic.

An analysis of the project's pro rata share of the increase of traffic volumes between 2010 and 2015 is summarized in Table 8. The table summarizes the growth between 2010 and 2015 and indicates the percentage of growth resulting from background growth and related projects, and the percentage growth resulting from project generated traffic.

Figure 8
2015 BACKGROUND PLUS PROJECT TRAFFIC PROJECTIONS
The findings of the level-of-service analysis are:

1. The northbound left will operate at Level-of-Service D during the morning peak hour. However, the volume-to-capacity ratio is 0.53, which means that the long delay is the result of the signal timing. No mitigation is required.

2. During the afternoon peak hour, the westbound approach will operate at Level-of-Service E, the southbound left will operate at Level-of-Service F, and the overall intersection will operate at Level-of-Service C, but the volume-to-capacity ratio is 1.07. As the volume-to-capacity ratios for these movements are greater than 1.00, mitigation is required.

Mitigation Measures - Mokulele Highway at Kama'aina Road & Mehama'a Loop

An assessment of modifying the westbound approach to provide a separate right turn lane is summarized in Table 10. With this improvement, all controlled movements will operate at Level-of-Service D, or better, the overall intersection will operate at Level-of-Service B, and all volume-to-capacity ratios are less than 1.00.

Because of the large number of heavy trucks entering and exiting the project via the intersection of Mokulele Highway at Kama'aina Road, the need for an acceleration lane for traffic turning from westbound Kama'aina Road to northbound Mokulele Highway was assessed. A review of information provided in A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway and Transportation Officials (AASHTO), concluded that there are general guidelines regarding the need for an acceleration lane, but no warrants. It should be noted that an acceleration lane was not provided at this intersection or the exit from the Central Maui Baseyard, which is north of this intersection along Mokulele Highway, where Mokulele Highway was recently widened.

The projected number of heavy vehicles that would use an acceleration lane at this location is significantly higher than estimated for background without project conditions. The number of heavy vehicles is expected to increase from 10 to 22 vehicles per hour during the morning peak hour and from zero to 21 vehicles during the afternoon peak hour. Given this significant increase and the impacts that heavy vehicles have on the capacity of intersections and roadways, it is recommended that an acceleration lane be provided for vehicles turning right from westbound Kama'aina Road to northbound Mokulele Highway.

Table 7 Analysis of Project's Share of Total Intersection Approach Volumes (1)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Period</th>
<th>Existing</th>
<th>2015 Background</th>
<th>2015 Background Plus Project</th>
<th>Project Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Background Growth</td>
<td>Percentage of Total Traffic</td>
</tr>
<tr>
<td>Mokulele Hwy at Kama'aina Rd</td>
<td>AM</td>
<td>2218</td>
<td>2764</td>
<td>3226</td>
<td>548</td>
</tr>
<tr>
<td>PM</td>
<td>2420</td>
<td>3134</td>
<td>3600</td>
<td>714</td>
<td>19.8%</td>
</tr>
</tbody>
</table>

Notes:
1. Volumes shown are total intersection approach volumes or projections.
2. Percentage of total 2015 background plus project traffic.

Table 8 Analysis of Project's Share of Total Intersection Approach Volumes Growth (2)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Period</th>
<th>Existing</th>
<th>2015 Background</th>
<th>2015 Background Plus Project</th>
<th>Project Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Background Growth</td>
<td>Project Traffic</td>
</tr>
<tr>
<td>Mokulele Hwy at Kama'aina Rd</td>
<td>AM</td>
<td>2218</td>
<td>2764</td>
<td>3226</td>
<td>548</td>
</tr>
<tr>
<td>PM</td>
<td>2420</td>
<td>3134</td>
<td>3600</td>
<td>714</td>
<td>19.8%</td>
</tr>
</tbody>
</table>

Notes:
1. Volumes shown are total intersection approach volumes or projections.
2. Background volume minus existing.
3. Background plus project versus background.
4. Project generated traffic.

2015 Background Plus Project Level-of-Service Analysis

The level-of-service analysis was performed for background and background plus project conditions. The incremental difference between the two conditions quantifies the impact of the project. The results of the Level-of-Service analyses of the intersection of Mokulele Highway at Kama'aina Road and Mehama'a Loop are summarized in Table 9.

Table 9 2015 Background Plus Project Level-of-Service - Mokulele Hwy at Kama'aina Rd

<table>
<thead>
<tr>
<th>Intersection and Movement</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Peak Hour</td>
<td>Project Hour</td>
</tr>
<tr>
<td></td>
<td>Without Project</td>
<td>With Project</td>
</tr>
<tr>
<td></td>
<td>Without Project</td>
<td>With Project</td>
</tr>
<tr>
<td></td>
<td>WC</td>
<td>Delay</td>
</tr>
<tr>
<td>Overall Delay</td>
<td>.69</td>
<td>5.8</td>
</tr>
<tr>
<td>Eastbound Left &amp; Right</td>
<td>.10</td>
<td>37.1</td>
</tr>
<tr>
<td>Westbound Left &amp; Right</td>
<td>.42</td>
<td>39.6</td>
</tr>
<tr>
<td>Northbound Left</td>
<td>.91</td>
<td>47.1</td>
</tr>
<tr>
<td>Northbound Thru</td>
<td>.56</td>
<td>55.9</td>
</tr>
<tr>
<td>Northbound Right</td>
<td>.01</td>
<td>55.5</td>
</tr>
<tr>
<td>Southbound Left</td>
<td>.85</td>
<td>56.3</td>
</tr>
<tr>
<td>Southbound Thru</td>
<td>.42</td>
<td>43.3</td>
</tr>
<tr>
<td>Southbound Right</td>
<td>.02</td>
<td>51.3</td>
</tr>
</tbody>
</table>

Notes:
1. Delay is in seconds per vehicle.
2. LOS moves used in Level-of-Service calculations using the conditions method described in Highway Capacity Manual: Level-of-Service Status on delay.
3. See Appendix E for Level-of-Service Analysis Parameters.

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Traffic Impact Analysis Report for Puna Heuay Industrial Subdivision

Because of the large number of heavy trucks entering and exiting the project via the intersection of Mokulele Highway at Kama'aina Road, the need for an acceleration lane for traffic turning from westbound Kama'aina Road to northbound Mokulele Highway was assessed. A review of information provided in A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway and Transportation Officials (AASHTO), concluded that there are general guidelines regarding the need for an acceleration lane, but no warrants. It should be noted that an acceleration lane was not provided at this intersection or the exit from the Central Maui Baseyard, which is north of this intersection along Mokulele Highway, where Mokulele Highway was recently widened.

The projected number of heavy vehicles that would use an acceleration lane at this location is significantly higher than estimated for background without project conditions. The number of heavy vehicles is expected to increase from 10 to 22 vehicles per hour during the morning peak hour and from zero to 21 vehicles during the afternoon peak hour. Given this significant increase and the impacts that heavy vehicles have on the capacity of intersections and roadways, it is recommended that an acceleration lane be provided for vehicles turning right from westbound Kama'aina Road to northbound Mokulele Highway.

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Levels of Service of Unsignalized Intersections

The results of the level-of-service analyses are summarized in Table 11.

Table 11 2015 Levels of Service of Unsignalized Intersection

<table>
<thead>
<tr>
<th>Intersection and Movement</th>
<th>AM Peak Hour</th>
<th>PM Peak Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>WtP</td>
<td>WtP</td>
</tr>
<tr>
<td></td>
<td>Delay (s)</td>
<td>LOS*</td>
</tr>
<tr>
<td></td>
<td>Delay (s)</td>
<td>LOS*</td>
</tr>
<tr>
<td>5. Firebreak Rd at Quarry Access Rd (Alternative 1)</td>
<td>1.1 A</td>
<td>1.0 A</td>
</tr>
<tr>
<td>Westbound L &amp; Right</td>
<td>9.6 A</td>
<td>11.6 B</td>
</tr>
<tr>
<td>Southbound L &amp; Thru</td>
<td>1.0 A</td>
<td>1.0 A</td>
</tr>
<tr>
<td>7. Firebreak Rd at Project Access Rd (Alternative 2)</td>
<td>7.8 A</td>
<td>7.7 A</td>
</tr>
<tr>
<td>Westbound L &amp; Right</td>
<td>9.0 A</td>
<td>11.4 B</td>
</tr>
<tr>
<td>Southbound L &amp; Thru</td>
<td>8.0 A</td>
<td>7.0 A</td>
</tr>
<tr>
<td>Quarry Access Rd at Project Access Rd (Alternative 2)</td>
<td>12.7 B</td>
<td>11.4 B</td>
</tr>
<tr>
<td>Eastbound L, Thru &amp; Right</td>
<td>9.4 A</td>
<td>8.7 A</td>
</tr>
<tr>
<td>Westbound L, Thru &amp; Right</td>
<td>9.7 A</td>
<td>9.1 A</td>
</tr>
<tr>
<td>Northbound L, Thru &amp; Right</td>
<td>8.7 A</td>
<td>12.7 B</td>
</tr>
<tr>
<td>Southbound L, Thru &amp; Right</td>
<td>13.4 B</td>
<td>5.8 A</td>
</tr>
</tbody>
</table>

Notes:
1. Volume-to-capacity ratios, where calculated, are not calculated for the unsignalized intersections.
2. Date is in years, or 0 for vehicles.
4. See Appendix C for Level of Service Analysis Methodology.

Alternate 1

For Alternate 1, the only unsignalized intersection with controlled lane groups is the intersection of South Firebreak Road at Quarry Access Road. At this intersection, all project-related traffic will continue south to the industrial subdivision while all quarry-related traffic will use the Quarry Access Road. It was assumed that the Quarry Access Road approach is the STOP sign controlled approach. Refer to Figure 10.

All controlled lane groups will operate at Level of Service A or B. This implies good operating conditions and minimal delays.

Alternate 2

For Alternate 2, two intersections have controlled lane groups: South Firebreak Road at the Project Access Road and the Quarry Access Road at the Project Access Road. At the intersection of South Firebreak Road at the Project Access Road, all project-related traffic will turn onto the Project Access Road and all quarry-related traffic will continue to use the south leg of the intersection. It was assumed that the Project Access Road approach is the STOP sign controlled approach. At the intersection of the Quarry Access Road at the Project Access Road, all northbound and southbound traffic is project related while all eastbound and westbound traffic is quarry related. Refer to Figure 11. It was assumed that all approaches are STOP sign controlled and that no turns will be allowed at this intersection.

All controlled lane groups movements will operate at Level of Service A or B. This implies good operating conditions and minimal delays.

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Figure 10 2015 Background Plus Project Traffic Projections at Unsignalized Intersections (Alternate 1)
Required Left Turn Storage Lane Lengths

The left turn storage lengths required to accommodate estimated traffic volumes were calculated using the guidelines in *A Policy on Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials. There are separate policies for signalized and unsignalized intersections, but as the subject intersection is signalized, only the policy relative to signalized intersections is provided. The policy and assumptions used are as follows:

1. For signalized intersections, the length of the left turn storage lane should be 1.5 to 2.0 times the average number of vehicles that would stop per cycle, which is predicted on the design volume.

2. The average length required per vehicle is 25 feet.

3. As a minimum, a left turn storage lane should accommodate two vehicles, one automobile sized vehicle and one truck. A length of 50 feet has been typically used as a minimum.

4. A traffic signal cycle length of 90 seconds was used. This is longer than the cycle length currently in use. Since the length of the left turn storage lane is directly related to the signal cycle length, using a longer cycle length will ensure that queues do not exceed the capacity of the storage lane if the traffic signal timing is modified at a future date.

Using the above criteria, the left turn storage lane requirements were calculated and the results are summarized in Table 12. Also shown are the storage lane length recommendations.

### Table 12: Left Turn Storage Lane Requirements

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Approach &amp; Time Period</th>
<th>Design Volumes</th>
<th>Cycle Length</th>
<th>Cycle Length per Vehicle</th>
<th>Average Veh per Cycle</th>
<th>Recommended Length</th>
<th>Minimum</th>
<th>Desirable</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mokulele Highway at Kamakana Road</td>
<td>AM</td>
<td>5</td>
<td>60</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>7</td>
<td>50</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>AM</td>
<td>274</td>
<td>60</td>
<td>40</td>
<td>7</td>
<td>11</td>
<td>275</td>
<td>14</td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>PM</td>
<td>64</td>
<td>60</td>
<td>40</td>
<td>7</td>
<td>3</td>
<td>75</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

### Note:
- Minimum length is 1.5 times average number of vehicles. Desirable storage length is 2 times maximum number of vehicles.

The existing and recommended turn lanes and storage lane lengths at the intersection of Mokulele Highway at Kamakana Road are summarized as Table 13. The turn lanes consist of three components: the taper, the deceleration length and the storage length. The deceleration length is a function of the design speed of the roadway. It is the length required for a driver to safely decelerate from the travel speed of the roadway to a stop condition at the beginning of the storage area. The storage length calculations are described above.
Traffic Impact Analysis Report for Puunene Heavy Industrial Subdivision

Table 13  Assessment of Deceleration Lane Requirements

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Approach &amp; Movement</th>
<th>Existing 1</th>
<th></th>
<th>Recommended</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Taper (ft)</td>
<td>Deceleration</td>
<td>Storage (ft)</td>
<td>Taper (ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(ft)</td>
<td>Length (ft)</td>
<td>(ft)</td>
<td>(ft)</td>
</tr>
<tr>
<td>Kama'aina Rd</td>
<td>Left</td>
<td>150</td>
<td>510</td>
<td>60</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>150</td>
<td>475</td>
<td>60</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>150</td>
<td>485</td>
<td>60</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>150</td>
<td>430</td>
<td>90</td>
<td>150</td>
</tr>
</tbody>
</table>

Note: Existing lengths were obtained from construction plans of the subject intersection, dated June 2005.

Summary Mitigation Measures and Recommendations

Table 14 is a summary of mitigation required at the intersection of Kama'aina Highway at Kama'aina Road. A drawing of these mitigation improvements prepared by the project's civil engineer is presented in Appendix I.

Table 14  Summary of Recommended Mitigation for 2015 Background Conditions

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Mitigation Required to Mitigate Existing (2011) Deficiencies</th>
<th>Mitigation Required to Mitigate Background Deficiencies</th>
<th>Mitigation Required to Mitigate Background Post Project Deficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kama'aina Rd</td>
<td>No mitigation required</td>
<td>No mitigation required</td>
<td>1. Modifying roadside to provide a secondary right turn lane.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Provide acceleration lane for westbound to northbound right lane.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Lengthen northbound left turn deceleration lane from 40 feet to 150 feet.</td>
</tr>
</tbody>
</table>

In addition to the mitigation measures described above, the following is recommended:

1. The areas adjacent to Kama'aina Road, South Firebreak Road, and Lower Kuei Road should be monitored to ensure that the sugar cane growth does not impede sight distances and that visibility of traffic control devices is maintained.

2. Because of the increased traffic volumes along Kama'aina Road, South Firebreak Road and Lower Kuei Road as a result of the project, some roads should be striped and signed per County of Maui Standards. The high proportion of traffic that will be heavy vehicles should be considered in the design and installation of traffic control devices, especially the longer stopping distances required for the heavy vehicles.

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Early Consultation Letters and Responses

Letters were received from the following agencies in response to requests for early consultation comments:

1. State of Hawaii Department of Transportation
3. County of Maui Police Department
4. County of Maui Department of Planning

The letter from County of Maui Department of Planning did not contain any issues relative to the TIAR and the comments from Office of Planning advised to contact State of Hawaii Department of Transportation, which was done and a comment letter received. The comments from State of Hawaii Department of Transportation and County of Maui Police Department have been responded to. The comments and responses are provided as Appendix H.
Appendix A
Proposed Land Development Plan
(Provided by Otomo Engineering, Inc.)
### TRAFFIC COUNT SUMMARY WORKSHEET

**PROJECT:** PLEHENE HEAVY INDUSTRIAL SUBDIVISION  
**INTERSECTION:** McCullough Highway at Kearsley Road and Metemsha Loop (TOTAL VEHICLES)  
**DAY & DATE:** Friday, August 12, 2011  
**START TIME:** 06:45 am  
**END TIME:** 07:30 am

#### 15-Minute Volumes Beginning at:

<table>
<thead>
<tr>
<th>Interval</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:45 am</td>
<td>6</td>
<td>160</td>
<td>11</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>7:00 am</td>
<td>7</td>
<td>220</td>
<td>12</td>
<td>7</td>
<td>275</td>
</tr>
<tr>
<td>7:15 am</td>
<td>1</td>
<td>251</td>
<td>5</td>
<td>1</td>
<td>281</td>
</tr>
<tr>
<td>7:30 am</td>
<td>4</td>
<td>275</td>
<td>10</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>7:45 am</td>
<td>6</td>
<td>275</td>
<td>7</td>
<td>0</td>
<td>358</td>
</tr>
<tr>
<td>8:00 am</td>
<td>11</td>
<td>241</td>
<td>9</td>
<td>3</td>
<td>305</td>
</tr>
<tr>
<td>8:15 am</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>8:30 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:45 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:15 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 am</td>
<td>11</td>
<td>275</td>
<td>12</td>
<td>6</td>
<td>356</td>
</tr>
<tr>
<td>10:15 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum</td>
<td>11</td>
<td>275</td>
<td>12</td>
<td>6</td>
<td>356</td>
</tr>
</tbody>
</table>

#### Hourly Volumes of Each Movement:

<table>
<thead>
<tr>
<th>Time</th>
<th>North</th>
<th>East</th>
<th>South</th>
<th>West</th>
<th>Totals</th>
</tr>
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<tbody>
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<td>6:45 am</td>
<td>6</td>
<td>160</td>
<td>11</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>7:00 am</td>
<td>7</td>
<td>220</td>
<td>12</td>
<td>7</td>
<td>275</td>
</tr>
<tr>
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<td>1</td>
<td>251</td>
<td>5</td>
<td>1</td>
<td>281</td>
</tr>
<tr>
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<td>4</td>
<td>275</td>
<td>10</td>
<td>2</td>
<td>300</td>
</tr>
<tr>
<td>7:45 am</td>
<td>6</td>
<td>275</td>
<td>7</td>
<td>0</td>
<td>300</td>
</tr>
<tr>
<td>8:00 am</td>
<td>11</td>
<td>241</td>
<td>9</td>
<td>3</td>
<td>305</td>
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<tr>
<td>8:30 am</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>9:00 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:15 am</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10:00 am</td>
<td>11</td>
<td>275</td>
<td>12</td>
<td>6</td>
<td>356</td>
</tr>
<tr>
<td>Peak Hour Volume</td>
<td>22</td>
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#### Peak Hour Factor:

<table>
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<th>0.95</th>
<th>0.55</th>
<th>0.63</th>
<th>0.90</th>
<th>0.42</th>
<th>0.38</th>
<th>0.91</th>
<th>0.66</th>
<th>0.25</th>
<th>0.00</th>
<th>0.38</th>
<th>0.93</th>
</tr>
</thead>
</table>

**Total Arrivals:** 1003  
**Total Departures:** 1104  
**Total:** 2107

---

Appendix B  
Traffic Count Summary Worksheets
### TRAFFIC COUNT SUMMARY WORKSHEET

**PROJECT:** PAUNENE HEAVY INDUSTRIAL SUBDIVISION  
**INTERSECTION:** Main road at Kahuku Road and Mehana Loop (HEAVY VEHICLES)  
**DAY & DATE:** Friday, August 12, 2011  
**START TIME:** 6:45 AM  
**END TIME:** 6:30 PM

#### 15-Minute Volumes Beginning at:

<table>
<thead>
<tr>
<th>Interval</th>
<th>Start Time</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6:45 AM</td>
<td>6</td>
<td>14</td>
<td>0</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>7:00 AM</td>
<td>2</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>7:30 AM</td>
<td>1</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>6</td>
<td>7:45 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>8</td>
<td>8:00 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>8:15 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>8:30 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>8:45 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>16</td>
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<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>9:15 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>20</td>
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<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>22</td>
<td>9:45 AM</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Maximum</td>
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<td>37</td>
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#### Hourly Volume of Each Movement

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<tr>
<th>Time</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:45 AM</td>
<td>42</td>
<td>16</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7:00 AM</td>
<td>40</td>
<td>16</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>7:15 AM</td>
<td>29</td>
<td>18</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>7:30 AM</td>
<td>32</td>
<td>10</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>7:45 AM</td>
<td>42</td>
<td>16</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>8:00 AM</td>
<td>40</td>
<td>16</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>8:15 AM</td>
<td>29</td>
<td>18</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>32</td>
<td>10</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>8:45 AM</td>
<td>42</td>
<td>16</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>9:00 AM</td>
<td>40</td>
<td>16</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>9:15 AM</td>
<td>29</td>
<td>18</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>9:30 AM</td>
<td>32</td>
<td>10</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>9:45 AM</td>
<td>42</td>
<td>16</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>40</td>
<td>16</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Maximum</td>
<td>31</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Peak Hour Volume

- **Peak Hour:** 6:45 AM  
- **Peak Hour Factor:** 0.50

| Total Arrivals | 75   | 14   | 30   | 0    |
| Total Departures | 45   | 17   | 63   | 0    |
| Total           | 120  | 31   | 93   | 0    |

---

### TRAFFIC COUNT SUMMARY WORKSHEET

**PROJECT:** PAUNENE HEAVY INDUSTRIAL SUBDIVISION  
**INTERSECTION:** Main road at Kahuku Road and Mehana Loop (TOTAL VEHICLES)  
**DAY & DATE:** Thursday, August 11, 2011  
**START TIME:** 3:30 PM  
**END TIME:** 5:30 PM

#### 15-Minute Volumes Beginning at:

<table>
<thead>
<tr>
<th>Interval</th>
<th>Start Time</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3:30 PM</td>
<td>2</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>3:45 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>4:15 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>6</td>
<td>4:45 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>5:15 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>5:45 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>6:15 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>14</td>
<td>6:45 PM</td>
<td>0</td>
<td>14</td>
<td>0</td>
<td>2</td>
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<td>14</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
</tbody>
</table>

#### Hourly Volume of Each Movement

<table>
<thead>
<tr>
<th>Time</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 PM</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3:45 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4:00 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4:15 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4:30 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4:45 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5:15 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5:30 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5:45 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6:00 PM</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Maximum</td>
<td>3</td>
<td>1</td>
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</tbody>
</table>

#### Peak Hour Volume

- **Peak Hour:** 3:45 PM  
- **Peak Hour Factor:** 0.58

| Total Arrivals | 1172 | 28   | 1172 | 0    |
| Total Departures | 1218 | 8    | 1183 | 0    |
| Total           | 2330 | 36   | 2373 | 0    |
## TRAFFIC COUNT SUMMARY WORKSHEET

### PROJECT:
GUMMIE HEAVY INDUSTRIAL SUBDIVISION

### INTERSECTION:
Mikeleb Highway at Kamaena Road and Mehana Loop (HEAVY VEHICLES)

### DAY & DATE:
Thursday, August 11, 2011

### START TIME:
5:30 pm

### END TIME:
5:30 pm

### 15-Minute Volumes Beginning at:

<table>
<thead>
<tr>
<th>Hour</th>
<th>Start Time</th>
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<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
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<td>2</td>
<td>9</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
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<tr>
<td>12</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
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### Maximum:
0 4 1 0 0 2 2 12 0 0 0 0 16

### Hourly Volume of Each Movement:

<table>
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<tr>
<th>Hour</th>
<th>Start Time</th>
<th>North Approach</th>
<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 pm</td>
<td>4:30 pm</td>
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<td>12</td>
<td>2</td>
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<td>14</td>
</tr>
<tr>
<td>4:45 pm</td>
<td>5:45 pm</td>
<td>0</td>
<td>13</td>
<td>2</td>
<td>0</td>
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<td>16</td>
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<td>8:30 pm</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

### Peak Hour Volume:
0 12 2 0 0 0 0 0 37 0 0 0 0 54

### Peak Hour Factor:
0.00 0.75 0.55 0.00 0.00 0.67 0.63 0.77 0.00 0.00 0.00 0.00 0.89

### Total Arrivals:
14 5 42 0

### Total Departures:
37 7 20 0

### Total:
51 15 62 0

---

### Appendix C

Level-of-Service Worksheets for Existing Conditions
<table>
<thead>
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<th>EBT</th>
<th>WBT</th>
<th>WBT</th>
<th>NBT</th>
<th>NBT</th>
<th>SBT</th>
<th>SBT</th>
<th>SBT</th>
<th>SBT</th>
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</thead>
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<td>Lane Configurations</td>
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<td>0.06</td>
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</tr>
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<td>0.87</td>
<td>0.87</td>
<td>0.87</td>
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</tr>
<tr>
<td>Satd. Flow (vph)</td>
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<td>1805</td>
<td>3505</td>
<td>1380</td>
<td>1220</td>
<td>3406</td>
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### HCM Signalized Intersection Capacity Analysis

#### 1: KAMA'AINA ROAD & MO'OLINE HIGHWAY

![Image](image.png)

#### Appendix D

Level-of-Service Worksheets for 2015 Background Conditions

---

Puamane Roseyard  
Philip Rowell Associates  
Case2am
### HCM Signalized Intersection Capacity Analysis

#### 1. KAMAAINA ROAD & MOKULELE HIGHWAY

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### Appendix E

**Level-of-Service Worksheets for 2015 Background Plus Project Conditions**

- **HCM Summary:**
  - HCM Average Control Delay: 5.5
  - HCM Volume to Capacity ratio: 0.59
  - Actuated Cycle Length (s): 78.2
  - System delay time (s): 12.0
  - Intersection capacity utilization: 82.5%
  - Analysis Period (min): 15

- **Critical Lane Group:**
  - Critical Lane Group
  - Puunene Baseyard
  - A"
## HCM Signaled Intersection Capacity Analysis

### 1: KAMARAINA ROAD & MOKULELE HIGHWAY

**8/30/2011**

### Lane Configurations

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### Total Lost Time (s)

- Lane Util. Factor: 1.00
- Frt: 1.00
- Fst: 0.95
- Fst Protected: 0.95

### Satd. Flow (prot)

- Total Flow: 1755
- Protected: 1424

### Volume (vph)

- Peak-hour factor, FH: 0.38
- Adj Flow (vph): 8
- RTOR Reduction (vph): 0
- Lane Group Flow (vph): 0
- Heavy Vehicles (%): 0%

### Turn Type

- Perm: 4
- Pmt: 8
- NA: 5
- Prot: 2

### Actuated Green, G (s)

- E0: 5.7
- E1: 5.7

### Actuated g/C Ratio

- 0.07

### Clearance Time (s)

- 4.0

### Vehicle.Foreign (s)

- 4.0

### Lanes Qb Cap (vph)

- 30

### vfl Ratio Prot

- 0.01

### vfl Ratio Perm

- 0.09

### Uniform Delay, d1

- 35.9

### Intersection Delay (s)

- 36.2

### Level of Service

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### Metereg Summary

- HCM Average Control Delay: 36.2
- HCM Level of Service: C
- Intersection Capacity Utilization: 66.4%
- ICU Level of Service: A
- Analysis Period (min): 15
- c Critical Lane Group

---

**Appendix F**

Level-of-Service Worksheets for 2015 Background Plus Project Conditions with Mitigation
### Level-of-Service Worksheets for Project Entrances

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**HCM Signalized Intersection Capacity Analysis**
Philo Rovell & Associates
Punaane Basdevant
Cashflow MITIGATED
### HCM Unsignalized Intersection Capacity Analysis

#### 2: QUARRY ACCESS ROAD & SOUTH FIREBREAK ROAD

#### Movement

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#### Signal Control |

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<tbody>
<tr>
<td>Volume (veh/h)</td>
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<tr>
<td>Peak Hour Factor</td>
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<tr>
<td>Hourly flow rate (veh/h)</td>
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#### Pedestrians

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#### Signal Control |

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HCM Unsignalized Intersection Capacity Analysis

2. INDUSTRIAL PARK ACCESS ROAD & SOUTH FIREBREAK ROAD

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<th>Movement</th>
<th>WEB</th>
<th>WSR</th>
<th>NBX</th>
<th>NBK</th>
<th>SBX</th>
<th>SWT</th>
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</table>

**Intersection Summary**

- Average Delay: 7.9
- Intersection Capacity Utilization: 41.3%
- ICU Level of Service: A
- Analysis Period (min): 15

---

HCM Unsignalized Intersection Capacity Analysis

4. QUARRY ACCESS ROAD & INDUSTRIAL PARK ACCESS ROAD

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<thead>
<tr>
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<th>EBR</th>
<th>VRE</th>
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**Intersection Summary**

- Delay: 12.3
- HCM Level of Service: B
- Intersection Capacity Utilization: 39.6%
- ICU Level of Service: A
- Analysis Period (min): 15

---

HCM Unsignalized Intersection Capacity Analysis

Philip Rowe & Associates

Puunene, HI

CaseHami

---

HCM Unsignalized Intersection Capacity Analysis

Philip Rowe & Associates

Puunene, HI
### 2: INDUSTRIAL PARKACCESS ROAD & SOUTH FIREBREAK ROAD

**Lane Configurations**

<table>
<thead>
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<th>EBL</th>
<th>EBT</th>
<th>WRB</th>
<th>WBT</th>
<th>NBL</th>
<th>NBT</th>
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<td></td>
</tr>
</tbody>
</table>

**Sign Control**

- Stop
- Free

**Grade**

- 0%
- 0%
- 0%

**Volume (vph)**

- 372
- 9
- 0

**Peak Hour Factor**

- 0.22
- 0.03
- 0.08

**Hourly flow rate (vph)**

- 413
- 40
- 111

**Pedestrians**

- Lane Width (ft)
- Walking Speed (ft/s)
- Percent Blockage
- Right turn rate (veh)
- Median type
- Median storage veh
- Upstream signal (ft)
- pX, platoon unblocked
- vC1, conflicting volume
- vC1, stage 1 confl vul
- vC2, stage 2 confl vul
- vC3, unblocked vol
- IC, single (s)
- IC, 2 stage (s)
- I/F (s)
- p0 queue free %
- dM capacity (veh/h)

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<tr>
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<td>0</td>
<td>413</td>
<td></td>
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<tr>
<td>WRB</td>
<td>999</td>
<td>1700</td>
<td>1434</td>
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<tr>
<td>NBL</td>
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<td>SBL</td>
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<td>SBT</td>
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</tbody>
</table>

**Intersection Summary**

- Average Delay: 9.7
- Intersection Capacity Utilization: 42.3%
- ICU Level of Service: A
- Analyse Period (min): 15

---

### 4: QUARRY ACCESS ROAD & INDUSTRIAL PARKACCESS ROAD

**Lane Configurations**

<table>
<thead>
<tr>
<th>Movement</th>
<th>EBL</th>
<th>EBT</th>
<th>WRB</th>
<th>WBT</th>
<th>NBL</th>
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<th>SBL</th>
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</table>

**Sign Control**

- Stop
- Stop
- Stop
- Stop

**Volume (vph)**

- 12
- 40
- 413
- 111

**Peak Hour Factor**

- 0.22
- 0.67
- 0.92
- 0.70
- 0.90
- 0.53
- 0.67
- 0.90
- 0.92

**Hourly flow rate (vph)**

- 0
- 12
- 40
- 413
- 0
- 111

**Pedestrians**

- Volume Total (vph)
- Volume Left (vph)
- Volume Right (vph)
- Head (s)
- Departure Headway (s)
- Degree Utilization
- Capacity (veh/h)
- Control Delay (s)
- Approach Delay (s)
- Approach LOS

<table>
<thead>
<tr>
<th>Movement</th>
<th>EBL</th>
<th>EBT</th>
<th>WRB</th>
<th>WBT</th>
<th>NBL</th>
<th>NBT</th>
<th>SBL</th>
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</tbody>
</table>

**Intersection Summary**

- Delay: 11.6
- ICU Level of Service: A
- Intersection Capacity Utilization: 29.5%
- ICU Level of Service: A
- Analyse Period (min): 15
Responses to Comments from State of Hawaii Department of Transportation  
Comment Letter Dated August 4, 2011

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A traffic assessment must be prepared for our review and approval. The assessment should determine the trips generated by the project, and any other relevant existing and future developments and trip-generators in the area, and the impact of those trips on the intersection of Kamaaina Road and Molokole Highway and propose mitigation measures, as required. It should take into account ambient traffic from other existing uses that use Kamaaina Road.</td>
<td>Acknowledged. The TIAR projections include traffic generated by all known projects in the northern portion of Kalihi in addition to traffic associated with the Hawaiian Cement quarry operations that use Kamaaina Road. The TIAR also contains recommendations to mitigate the project's traffic impacts at the intersection of Molokole Highway at Kamaaina Road.</td>
</tr>
</tbody>
</table>

2. Since there may be a possibility that some project traffic might use the Maui Raceway Park roadways as a short cut to Molokole Highway, the assessment should have a discussion of measures to be taken to minimize that possibility. | The project will have no right of access to Maui Raceway Park roads. Additionally, there will be a drainage swale between the project lots and the property line adjacent to the park. This will prevent any traffic connection between the project and the park. This is noted in the project description (Chapter 1) and the discussion of project trip distribution (Chapter 4). |

Responses to Comments from County of Maui Police Department  
Comment Letter Dated July 23, 2011

<table>
<thead>
<tr>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At the entry/exit points of the property, proper lighting and line of sight will be critical of vehicle and pedestrian safety.</td>
<td>Acknowledged.</td>
</tr>
</tbody>
</table>

2. Vehicles traveling east to west on Kamaaina Road (downhill) are required to stop at a posted stop sign, however the stop sign is very close to the sugar cane and will need to be farther from the cane to be more visible. This section of the roadway is also used by Hawaiian Cement trucks and HD&S vehicles. Some of these vehicles, such as load cement trucks and can hauling trucks are very large, heavy and require greater distances to stop. | The TIAR contains a recommendation regarding maintenance to sight distances and visibility of traffic control devices. The number of heavy vehicles was estimated and included in the analysis of the study intersections. |
Appendix I
Engineer’s Drawing of Proposed Mitigation Improvements at Intersection of Mokulele Highway at Kama’aina Road and Mehameha Loop
APPENDIX R
Early Consultation
Letters
LIST OF CONSULTED PARTIES

The following 34 parties were consulted during the early consultation phase for the preparation of the Draft Environmental Assessment. A typical early consultation letter, as well as comment letters and responses to substantive comments are included in the following sections.

**Federal Agencies (3)**

Mr. George Young, Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5440

Ms. Ranae Ganske-Cerizo, District Conservationist
Natural Resources Conservation Service
U.S. Dept. of Agriculture
77 Ho`okele Street, Suite 2020
Kahului, HI 96732

Mr. Loyal Mehrhoff, Field Supervisor
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, HI 96850

**State Agencies and Branches (16)**

Mr. Russell Kokubun, Chairperson
Office of the Chairperson
Hawai`i Department of Agriculture
1428 S. King Street
Honolulu, HI 96814

Mr. Jesse Souki, Executive Director
Office of Planning
Hawai`i Dept. of Business, Economic Development & Tourism
P. O. Box 2359
Honolulu, HI 96804
Ms. Patti Kitkowski, Chief  
Maui District Health Office  
Hawai‘i Dept. of Health  
54 High Street  
Wailuku, HI 96793

Mr. Morris Atta, Administrator  
Land Division  
Hawai‘i Dept. of Land & Natural Resources  
1151 Punchbowl Street, Room 220  
Honolulu, HI 96809

Mr. Daniel Ornellas, District Land Agent  
Maui Land Division  
Hawai‘i Dept. of Land & Natural Resources  
54 High Street, Room 101  
Wailuku, HI 96793

Mr. Clyde W. Namu‘o, Administrator  
Office of Hawaiian Affairs  
State of Hawai‘i  
711 Kapi‘olani Blvd., Suite 500  
Honolulu, HI 96813

Ms. Pua Ai, Administrator  
State Historic Preservation Division  
Hawai‘i Dept. of Land & Natural Resources  
Kukuihiwai Bldg, Room 555  
601 Kamokila Blvd  
Kapolei, HI 96707

Mr. Edwin Sniffen, Administrator  
Highways Division  
Hawai‘i Dept. of Transportation  
869 Punchbowl Street, Room 513  
Honolulu, HI 96813

Mr. Ferdinand Cajigal, District Engineer  
Maui Highways Division  
Hawai‘i Dept. of Transportation  
650 Papapala Drive  
Kahului, HI 96732
County Agencies

Mr. Kyle Ginoza, Director  
Maui Dept. of Environmental Management  
2200 Main Street, Suite 175  
Wailuku, HI 96793

Mr. Paul Haake, Captain  
Fire Prevention Bureau  
Maui Dept. of Fire & Public Safety  
313 Manea Place  
Wailuku, HI 96793

Mr. Glenn Correa, Director  
Maui Dept. of Parks & Recreation  
700 Halia Nakoa Street  
Wailuku, HI 96793

Mr. William Spence, Director  
Maui Dept. of Planning  
250 S. High Street  
Wailuku, HI 96793

Mr. Gary Yabuta, Chief  
Maui Police Department  
55 Mahalani Street  
Wailuku, HI 96793

Mr. David Goode, Director  
Maui Dept. of Public Works  
200 S. High Street  
Wailuku, HI 96793

Ms. Jo Anne Johnson, Director  
Maui Dept. of Transportation  
2145 Kaohu Street, Suite 102  
Kahului, HI 96732

Mr. David Taylor, Director  
Maui Dept. of Water Supply  
200 S. High Street  
Wailuku, HI 96793
Other Consulted Parties (7)

Mr. Grant Chun, Vice President
A&B Properties, Inc.
P.O. Box 156
Kahului, HI  96732

Mr. David Gomes, General Manager
Hawaiian Cement
P.O. Box 488
Kahului, HI  96733

Mr. Rick Volner, Jr., General Manager
Hawaiian Commercial & Sugar Company
P.O. Box 266
Pu‘unene, HI  96784

Mr. Gordon Yadao, Section Manager
Network Engineering & Planning
Hawaiian Telcom, Inc.
60 S. High Street
Wailuku, HI  96793

Mr. Dan Takahata, Manager
Engineering Division
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, HI  96733-6898

Kihei Community Association
P.O. Box 662
Kihei, HI  96753

LeSea Broadcasting Corp.
61300 South Ironwood
P.O. Box 12
South Bend, IN  46624
Typical Early Consultation Letter
Surrounding Land Uses

The subject parcel is bounded by Kama‘aina Road to the north, sugarcane fields on the east and south, and the Old Pu‘unene Airport to the west. Other land uses in the area include an HCIL irrigation reservoir (north), the Hawaiian Cement quarry (east), and a Hawai‘i National Guard Armory (west).

The Old Pu‘unene Airport area is designated for Project District 10 (FD 10) use by the Kihei-Makaha Community Plan (1996). PD 10 was created by the County of Maui with the objective of establishing a master-planned, expansion area that would meet future recreational needs and provide space for industrial activities, including government facilities, whose locations are best suited away from urban areas. Existing land uses within PD 10 include the National Guard Armory and facilities for drag racing, dirt bike racing, go-kart racing, autocross racing, oval (dirt) track racing, and an area for flying radio-controlled model aircraft.

The lands surrounding the subject parcel lie in the State Agricultural District and are designated for Agricultural uses by the Kihei-Makaha Community Plan and Maui County zoning except for the Old Pu‘unene Airport area which is designated PD 10 by the community plan. PD 10 also falls within the proposed Urban Growth Boundary for the draft Maui Island Plan.

Proposed Action

The Applicant plans to subdivide the subject parcel into 28 lots, each with heavy industrial lots ranging from approximately 0.63 acre to 7.41 acres in size. See Preliminary Site Plan.

Preliminarily, the proposed subdivision would include an internal subdivision road, a private water system (with separate potable and irrigation/fire protection systems), an enhanced individual wastewater (septic) system, an on-site drainage system, landscaping plantings, and connections for electrical and telephone systems. The proposed action is a "lot only" subdivision project and does not include site work or the construction of any buildings or other improvements in the subdivision lots, so the sole responsibility of future lot owners will be the sole responsibility of future lot owners.

In order to legally access the subject parcel from Mokuleia Highway, the Applicant has submitted a Request for Grant of Easement to the State Department of Land and Natural Resources in order to use Kama‘aina Road for access and utility purposes. In addition to the portion of Kama‘aina Road (30 feet wide) that extends from Mokuleia Highway to the subject parcel, the Applicant's request includes a 25-foot wide strip of land across three adjacent State parcels on the south side of Kama‘aina Road. See Easement Map.
Land Use and Environmental Reviews

In order to implement the proposed project, the Applicant will be seeking a District Boundary Amendment (from the State Agricultural to the State Urban District), a Community Plan Amendment (from Agricultural to Heavy Industrial), and a Change in Zoning (from Agricultural to M-2 or M-3, Heavy Industrial).

Since the proposed action will involve a community plan amendment and the use of State lands (Kama‘alua Road and a 75-foot wide strip of land across three adjacent State parcels), an environmental assessment (EA) will be prepared in accordance with Chapter 343, Hawaii Revised Statutes and Title 11, Chapter 210, Hawaii Administrative Rules. The State Land Use Commission will be serving as the accepting authority for the EA and environmental review process.

EA Content

Subjects to be discussed in the Draft EA include:

- Physical Environment:
  - Surrounding Land Uses
  - Topography & Soils
  - Air Quality
  - Noise Characteristics
  - Flora & Fauna
  - Flood Hazard Areas
  - Archeological & Cultural Resources
  - Scenic/Open Space Resources

- Social & Economic Environment:
  - Population & Economy
  - Infrastructure:
    - Water
    - Drainage
    - Wastewater
    - Roadways
    - Electrical and Telephone Systems

- Public Services:
  - Solid Waste Disposal
  - Police and Fire Protection
  - Educational & Recreational Resources
  - Health Services

- Government Laws, Plans & Controls:
  - State Land Use Law
  - Maui County General Plan
  - Kula-Haleakala Community Plan
  - Maui County Zoning

- Hawaii Coastal Zone Management Program

Studies covering the following subjects will be prepared and included in the Draft EA:

- Flora
- Air Quality
- Archaeology
- Parcel History
- Local Economy
- Drainage
- Fauna
- Noise
- Cultural Resources
- Agriculture
- Market Conditions
- Groundwater Encroachments

In conjunction with the early consultation process for the preparation of the Draft EA, we would appreciate receiving your written comments on the proposed action by July 30, 2011.

Thank you for participating in the environmental review process. Please feel free to call me at (808) 343-4353 should you have any questions.

Sincerely,

[Signature]

Glenn Tadaki
Planner

Enclosures
cc: Blanche Lafouette, PRL
Comment and Response Letters
Mr. Glenn Tadaki  
July 5, 2011  
Page 2

sources be approved by the Director of Health prior to its use.  
Such approval is based primarily upon the submission of a  
satisfactory engineering report which addresses the requirements  
set in Section 11-20-29.

5. The engineering report must identify all potential sources of  
contamination and evaluate alternative control measures which  
could be implemented to reduce or eliminate the potential for  
contamination, including treatment of the water source. In  
addition, water quality analyses for all regulated contaminants,  
performed by a laboratory certified by the State Laboratories  
Division of the State of Hawaii, must be submitted as part of the  
report to demonstrate compliance with all drinking water  
standards. Additional parameters may be required by the Director  
for this submission or additional tests required upon his or her  
review of the information submitted.

6. All sources of public water systems must undergo a source water  
assessment which will delineate a source water protection area.  
This process is preliminary to the creation of a source water  
protection plan for that source and activities which will take  
place to protect the source of drinking water.

7. Projects proposing to develop new public water systems or  
proposing substantial modifications to existing public water  
systems must receive approval by the Director of Health prior to  
construction of the proposed system or modification in accordance  
with HAR Title 11, Chapter 20, Section 29, entitled "New and  
modified public water systems." These projects include treatment,  
storage and distribution systems of public water  
systems. The approval authority for projects owned and operated  
by a County Board or Department of Water or Water Supply has been  
delegated to them.

8. All public water systems must be operated by certified  
distribution system and water treatment plant operators as  
defined by HAR Title 11, Chapter 11-25 entitled, "Rules  
Applicable to Certification of Public Water System Operators."

9. All projects which propose the use of dual water systems or the  
use of a non-potable water system in proximity to an existing  
drinking water system to meet irrigation or other needs must be  
carefully designed and operated to prevent the cross-connection  
of these systems and prevent the possibility of backflow of water  
from the non-potable system to the drinking water system. The  
two systems must be clearly labeled and physically separated by
air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the drinking water supply. In addition, backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption of non-potable water. Compliance with WAC Title 21, Chapter 21 entitled "Cross-Connection and Backflow Control" is also required.

10. All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawai‘i Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

11. For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other public water system programs, please contact the Safe Drinking Water Branch at 586-4258.

If there are any questions, please call Jennifer Nishida at (808) 586-4258.

Sincerely,

[Signature]

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

JN:slm
Proposed Pu‘unene Heavy Industrial Subdivision  
TMK (2) 3-8-008.019  
September 1, 2011  
Page 2

5. Pursuant to Section 11-20-29, HAR, the land owner acknowledges that an engineering report must be submitted to the Safe Drinking Water Branch (SDWB) for anyone proposing to use a new, natural water source to supply a public water system. As set forth in Subsection 11-20-29 (b) (5), all potential sources of contamination must be identified and control measures for reducing potential contamination must be evaluated. In addition, the land owner understands that a water quality analysis for all regulated contaminants must be submitted to the SDWB to evidence compliance with all drinking water standards.

6. The land owner acknowledges that all public water system sources are subject to a source water assessment which will delineate a water source protection area.

7. The land owner understands that any new public water system must be approved by the Director of Health before construction can commence pursuant to Section 11-20-30, HAR pertaining to “New and modified public water systems”.

8. The public water system for the proposed project will be operated in accordance with Title 11, Chapter 25, HAR entitled “Rules Pertaining to Certification of Public Water System Operators”.

9. The land owner understands that separate drinking water and non-potable systems need to be carefully designed and operated to prevent any cross-connections and potential backflow and that the dual system must be clearly labeled and physically separated to avoid drinking water contamination. The design and operation of the dual system for the proposed project shall comply with the provisions of Title 11, Chapter 21, entitled “Cross-connection and Backflow Control”.

10. The land owner acknowledges that all projects within a water source protection area that propose a potentially contaminating activity could affect an existing water source for a public water supply and that appropriate measures will need to be undertaken to prevent or reduce the potential for contamination of the drinking water source.

11. Copies of the SDWB’s letter and contact information have been provided to the land owner and the appropriate project consultants.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.
When developing the Environmental Assessment, we recommend you conduct a thorough aquatic resource survey, describing information regarding any potential water bodies, including wetlands, drainage ditches, gullies, streams, etc., on-site, especially those that may be impacted by the proposed project. The survey should include descriptions of aquatic features proposed for impact, flow duration, and the flow path of each feature into navigable waters.

We recommend you contact the Corps to determine if any of the proposed work constitutes a "discharge of fill" and submit an application with associated drawings that meet our drawing recommendations found at http://www.oha.usace.army.mil/GC-WRC-R.htm. Click on "Apply for a Permit" on the right-hand side, and then click on "Reo — Sect 404 Clean Water Act Drawings." Providing photographs of the parcel would also expedite our review. As a reminder, only the Corps has authority to determine if any of these features are or are not waters of the U.S. and, potentially subject to regulations. A request for an approved JD can be submitted prior to, or concurrently with, an application for the proposed work.

Thank you for giving us the opportunity to review this proposal and for your cooperation with our regulatory program. Should you have any questions regarding our Regulatory Program or the permit application process, please contact Ms. Deserie Bala at (808) 438-9258 or via email at Deserie.M.Bala@usace.army.mil.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch
Mr. George Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5445

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pa'unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019; Reference No. POH-2011-01170

Dear Mr. Young,

On behalf of the land owner, CMBY 2013 Investment, LLC, we are responding to your letter dated July 6, 2011.

As noted in your letter, the proposed project may not require a Section 10 Permit since the subject parcel does not contain navigable waters that are subject to Corps jurisdiction.

We understand that it could not be determined if the proposed project would involve any activities that would be subject to Section 404 based on the information that was provided. Please note, however, that a preliminary engineering report (PER) is being prepared and will be included in the Draft EA. The PER should provide the Corps with enough information to determine if the proposed project would be subject to Section 404 requirements.

The subject parcel does not contain any water bodies or aquatic resources. Notwithstanding this, the Draft EA will include a discussion of any nearby water bodies and aquatic resources that could potentially be affected by the proposed project.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

cc: Blanca Lafitte, P.E.
    Stacy Okano, P.E.
    Martin Lum, Esq.
The Department of Health, Clean Water Branch (CWB), has reviewed the document, received June 30, 2011, regarding the subject project and offers these comments. Please note that our review is based solely on the documents for the subject project 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://hawaii.gov/health/environmental/water/cleanwater/forms/02/04/index.html.

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).

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

   a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. This includes areas used for a construction base yard and the storage of any construction related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

   b. Hydrotesting water.

   c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/02/04/index.html.

3. For other types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, an NPDES individual permit will be obtained. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at http://hawaii.gov/health/environmental/water/cleanwater/forms/02/04/index.html.

4. Please call the Army Corps of Engineers at (808) 458-9258 to determine which Department of the Army (DA) permit(s) shall be required for the subject project. Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.

5. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or 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.
If you have any questions, please visit our website at http://hawaii.gov/hc/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 986-4209.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

C: Mr. Roland Asamura, CWB, Maui District Health Office (w/o encs.) [via e-mail only]

(This page intentionally left blank)
Mr. Alec Wong, P.E., Chief
Clean Water Branch
Hawaii Dept. of Health
919 Ala Moana Blvd., Room 301
Honolulu, HI 96815-3378

SUBJECT: Early Consultation Comments for the Preparation of a Draft
Environmental Assessment (EA) for the Proposed Pu'unene Heavy
Industrial Subdivision, TMK (2) 3-6-008.019

Dear Mr. Wong,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your
ter dated July 12, 2011.

1. The land owner understands that the proposed project must comply with the
applicable provisions of Chapter 11-54, HARR entitled "Water Quality Standards".

2. A National Pollutant Discharge Elimination System (NPDES) permit for general
coverage will be obtained prior to the commencement of construction for
discharges (storm water runoff) related to construction activities, including
clearing, grading, and excavation that results in the disturbance of one or more
acres of total land area.

3. The proposed project will not involve the other types of discharges listed in Item
No. 2 of your letter nor will it involve discharges (storm water runoff) into Class
1 (inland) or Class AA (marine) waters.

4. An early consultation letter was sent to the U.S. Army Corps of Engineers. In
response, the Corps stated that the proposed project may not require a Section 10
Permit since the project site does not contain navigable waters that are subject to
its jurisdiction. Based on the information that was provided, the Corps could not
determine if the proposed project would involve activities that would require a

Section 404 Permit, such as the discharge (placement) of dredged or fill material
into waters of the U.S., including wetlands.

5. Notwithstanding other permit requirements, the land owner understands that all
project-related discharges must comply with the State’s Water Quality Standards
as set forth in Chapter 11-54, HARR.

Thank you for providing us with your comments and for participating in the early
consultation process. A copy of the Draft EA will be provided to you for review when it
becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafioletta, P.E.
Stacy Olsomo, P.E.
Martin Luna, Esq.
Mr. Glenn Tadaki  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, HI 96793

July 11, 2011

Mr. Glenn Tadaki  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, HI 96793

Dear Mr. Tadaki:

This correspondence is in response to your request for comments for the Early Consultation for the Preparation of the Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-5-008:019.

Project activities shall comply with the following Administrative Rules of the Department of Health:

* Chapter 11-46 Community Noise Control

Should you have any questions, please contact me at (808) 586-4701.

Sincerely,

Jeffrey M. Eckerd  
Acting Program Manager  
Indoor & Radiological Health Branch

Mr. Jeffrey M. Eckerd, Acting Program Manager  
Indoor & Radiological Health Branch  
Hawaii Dept. of Health  
591 Ala Moana Blvd.  
Honolulu, HI 96813

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-5-008:019

Dear Mr. Eckerd,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 11, 2011.

Project-related activities will comply with the applicable provisions of Chapter 11-46, HAR pertaining to “Community Noise Control”.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki  
Planner

cc: Blanca Lafolette, PRL  
Yoichi Shizu, P.E.  
Martin Luna, Esq.

From: Moore, Randall at HCS [rmoore@hcsugar.com]
Sent: Wednesday, July 13, 2011 10:26 AM
To: Glenn Tadaki
Subject: Puunene heavy Industrial Subdivision

Attachments: Puunene Heavy Industrial Subdiv_2011_map001.pdf

Glenn,

See the three maps with my comments. We will review your letter and provide additional comments.

Thank you,
Randall Moore
HAWAIIAN COMMERCIAL & SUGAR COMPANY
877-6598 office

This message, including any attachments, is intended for the use of the party to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure. If you are not the intended recipient, any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please contact the sender immediately by reply e-mail, and delete the original and any copies of this message. It is the sole responsibility of the recipient to ensure that this message and any attachments are virus free.
SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMX (2) 3-9-008.019

Dear Mr. Moore,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your e-mail dated July 13, 2011.

The information you provided to us (e.g., road names, land ownership) has been used to update our maps and plans.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available. Please feel free to call me at (808) 242-1555 should you have any questions.

Sincerely,

Glen Tadaki
Planner

cc: Blanca Lafolete, PRL
Martin Luna, Esq.
July 13, 2011

Mr. Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Hawaii 96793-1717

Dear Mr. Tadaki:

Subject: Early Consultation for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Puunene Heavy Industrial Subdivision at Off Molokai Highway, Puunene, Maui, Hawaii
TMK (2) 3-8-008: 019 85 acre parcel

Thank you for allowing us the opportunity to review the above subject project which requests comments on the Early Consultation for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Puunene Heavy Industrial Subdivision at Off Molokai Highway. We have the following comments and information on the above subject property:

The subject project is located in the critical wastewater disposal area as determined by the Maui Wastewater Advisory Committee. We do not have any individual wastewater system (IWSS) information on file. It is also not connected to the County sewer service system.

We have no objections as long as the domestic and non-domestic wastewater generated by the project is handled by wastewater systems that comply with our chapter 11-62, Hawaii Administrative Rules.

All wastewater plans must conform to applicable provisions of the Department of Health’s Administrative Rules, Chapter 11-62, "Wastewater Systems." We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at (808) 586-4584 or fax to (808) 586-4300.

Sincerely,

Sina Pruder, P.E., Acting Chief
Wastewater Branch

cc: UH-WWB's Maui Staff - Mr. Roland Tjeljan

Ms. Sina Pruder, Acting Chief
Wastewater Branch
Hawaii Dept. of Health
919 Ala Moana Blvd., Room 309
Honolulu, HI 96814-4920

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Puunene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Ms. Pruder,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 13, 2011.

All wastewater plans for the proposed project will comply with the applicable provisions of Chapter 11-62, HAR pertaining to "Wastewater Systems".

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafalette, PRL
Tom Nance, TNWRE
Stacy Otsomo, P.E.
Martin Luna, Esq.
July 15, 2011

Chris Hart & Partners, Inc.
C/O Glenn Takaki
115 North Market Street
Wailuku, HI 96793

RE: (EA) Proposed Heavy Industrial Subdivision
(2) 3-8-008: 019

Dear Glenn,

Thank you for allowing the Department of Fire & Public Safety the opportunity to comment on this proposed subdivision. Our comments are as follows:

1) Fire apparatus access and water supply for fire protection shall meet the following:

- Water supply for fire protection shall have a minimum flow of 2500 gallons per minute for a two-hour duration. Fire hydrants shall be placed on the service road to all parcels with hydrant spacing a maximum of 250 feet between hydrants.
- Service roads to proposed properties shall have a clear width of 20 feet. Any dead-end roads or cul-de-sacs shall have a clear width of 35 feet, and if greater than 150 feet in length, shall be provided with an approved fire apparatus turn-around. All turns and required turnarounds shall have an outside turning radius of 40.5 feet. The minimum grade for the service roads shall not be greater than 12%.
- Oasis buildings are proposed, there shall be at least one hydrant within 300 feet of any building to be constructed.

2) Because this subdivision is being created within an area subject to wildland fires, a minimum 30' buffer zone should be created along the East and South boundary to minimize the effects potential wildfires; the North and West boundaries are buffered by roads and the drainage swale. This buffer zone, as well as the drainage swale, should be maintained free of dry, overgrown brush. This responsibility must be placed upon the developer, at first, and then subsequently the members of the subdivision through a recorded agreement.

Item 1 was addressed in the submitted documents. If the proposed project is allowed, the developer will be responsible for providing approved fire apparatus access and water supply for fire protection.

The reasoning behind item 2 is simple. Developers should share in the responsibility of protecting their developments from the threat of wildfires when these developments are proposed within areas with the potential for wildland fires. Once tenants are occupying these lots, they'll be concerned about wildland fires. These buffer zones allow the creation and self-maintenance of defensible space.

If there are any questions or comments feel free to contact me at 244-9161. Thank you for your attention to fire prevention and public safety.

Sincerely,

Paul Ikeda
Captain, Fire Prevention Bureau
313 Manea Place
Wailuku, HI 96793
Proposed Pu‘unene Heavy Industrial Subdivision
TMK (C) 3-8-008.019
September 14, 2011
Page 2

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1555 should you have any questions.

Sincerely,

[Signature]

Planner

cc: Haruo Lafoletta, PRL
    Stacy Otseno, P.E.
    Martin Luna, Esq.
July 15, 2011

Mr. Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
15 North Market Street
Wailuku, Hawaii 96793

Dear Mr. Tadaki,

Subject: Early Consultation for the Proposed Puunana Heavy Industrial Subdivision

Off Molokolee Highway
Kahului, Maui, Hawaii
Tax Map Key: (2) 3-6-008: 019

Thank you for allowing us to comment on the Early Consultation for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) may be requiring access and electrical easements for our facilities to serve the subject project site. The existing area is currently served from our Maili Substation. Since the project’s anticipated electrical demand may have a substantial impact to our system, we highly encourage the customer’s electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that service can be provided on a timely basis. MECO may need to complete system upgrades along with securing a new substation site to accommodate the anticipated electrical load.

Should you have any questions or concerns, please call me at 871-2341.

Sincerely,

[Signature]

Kyle Tamori
Staff Engineer
Mr. Kyle Tamori, Staff Engineer
Engineering Division
Mau Electric Company, Ltd.
P.O. Box 398
Kahului, HI 96733-8998

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Mr. Tamori,

On behalf of the land owner, CMWY 2011 Investment, LLC, we are responding to your letter dated July 13, 2011.

The land owner acknowledges that access and electrical easements (in favor of MECO) may be required in order to serve the subject parcel and that electrical system upgrades and a new subdivision site may be needed to accommodate the anticipated electrical load.

Electrical demand requirements and a project time schedule will be submitted (by the project's electrical consultant) at such time in the future that an application for subdivision approval is filed with the County of Maui.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

cc: Blanca Lafollette, PRL
Stacy Otene, P.E.
Martin Luna, Esq.
Mr. Glenn T. Correa, Director  
Maua Dept. of Parks & Recreation  
700 Halla Naka Street  
Wailuku, HI 96793

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Mr. Correa,

On behalf of the land owner, CMBY 2011 Investment, LLC, we acknowledge the receipt of your letter dated July 19, 2011 and understand that the Parks Department has no comments at this time.

A copy of the Draft EA will be provided to you for review when it becomes available.

Thank you for providing us with your comments and for participating in the early consultation process. Please feel free to call me at (808) 242-1950 should you have any questions.

Sincerely,

Glen T. Correa  
Director of Parks & Recreation

cc: Blanca Lafleche, PRL  
Martin Luna, Esq.

Mr. Glenn T. Correa, Director  
Maua Dept. of Parks & Recreation  
700 Halla Naka Street  
Wailuku, HI 96793

SUBJECT: Early Consultation for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Mr. Correa,

The Department of Parks & Recreation has no comment at this time and looks forward to reviewing the Draft Environmental Assessment when it is available.

Please feel free to contact me or Robert Halvorson, Chief of Planning & Development, at (808) 270-7951, should you have any questions.

Sincerely,

Glenn T. Correa  
Director of Parks & Recreation

Cc: Robert Halvorson, Chief of Planning & Development
Mr. Glenn Tadaki, Planner
CHRIS HART & PARTNERS, INC.
115 North Market Street
Wailuku, Maui, Hawaii 96793

July 20, 2011

Subject: EARLY CONSULTATION FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PU‘UENENE HEAVY INDUSTRIAL SUBDIVISION TMIK (2) 8-6-008-019

Dear Mr. Tadaki:

We reviewed the subject application and have no comments at this time.

Please call Rowena M. Dagdag-Andaya at 270-7545 if you have any questions regarding this letter.

Sincerely,

[Signature]

David C. Goode
Director of Public Works

RECEIVED
JUL 25 2011

cc: Glenn Tadaki
Blanca Lafolette, PRL
Martin Luna, Esq.
Mr. Glen Tadaki  
Page 2  

In order to better ensure protection of potentially affected aquifers, please refer to the following attached BMP documents including recommended measures for implementation: 1) Summary of Best Management Practices for Trucking & Towing Basinyards; and 2) Auto Wrecker Best Management Practices. We recommend implementing the following BMPs during project construction:  

1. Evaluate the sites for the best grading method that will create the least amount of debris and sediment loss.  
2. Minimize disturbance to the smallest area possible.  
3. Retain natural ground cover until the last possible date. Stabilize dewatered areas by sodding or planting native species as soon as possible. Use high seeding rates to encourage rapid establishment.  
4. Use appropriate methods to minimize soil erosion and trap sediments.  
5. Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.  
6. Keep storm runoff on site.  

Conservation  

To alleviate demand on the Central Maui system, and for landscaping suggestions, please refer to the following attachments: 3) A Checklist of Water Conservation Ideas for Industrial and Large Landscapes; and 4) our draft planting brochure, “Saving Water in the Yard-What and How to Plant in Your Area.” We also recommend that the applicant implement the following conservation measures, where appropriate:  

1. Use Brackish or Reclaimed Water: for irrigation and dust control during construction/development where available. Reclaimed water is available at the Kahului Sewage Treatment Plant.  
2. Use Climate-adapted Plants: We recommend using native climate-adaptated plants for landscaping. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. The project is located in Plant Zone 3 (see attached planting brochure).  
3. Prevent Over-Watering by Automated Systems: If an automated watering system will be used, provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site. As an alternative, provide the more automated, soil-moisture sensors on controllers.  
4. Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20.A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets, and hose bibs. Water conserving washing machines, ice makers and other units are also available. Toilets should be high-efficiency models that use 1.28 gallons per flush or less. Urinals should be high-efficiency models that use 0.5 gallons per flush or less. Showerheads, if any, should have a flow rate of 2 gpm at 40 psi or less in all units.
Summary of Best Management Practices for Trucking & Towing Baseyards

GOAL: Often large quantities of hazardous materials are handled on baseyards. These include transmission, power steering, hydraulic and brake fluids, as well as fuel, oil, antifreeze, refrigerants, mercury, lead, sulfatic acid and solvents. These may be indiscriminately distributed all over the recycling yards causing extensive non-point source pollution of groundwater and surface runoff water. These BMPs attempt to consolidate, contain and collect these diffuse sources into manageable point sources which can be treated.

REQUIRED BEST MANAGEMENT PRACTICES:

- Assign at least one person to be specifically responsible for pollution prevention and clean up. Provide training to staff regarding the importance of pollution prevention and dealing with pollution as it occurs.
- Do not store leaking vehicles in the receiving area; move them to the dismantling area immediately or put drip pans under them. Use pumps to transfer toxic fluids.
- Remove all fluids, batteries, mercury switches, radionics, un-deployed air-bags, refrigerants, fuel tanks, tires, lead battery cables and lead tire balancing weights before crushing. Collect and recycle used antifreeze, oil, tires and batteries. Crimp lines or use special plastic plugs to close off all cut fluid lines to prevent drips and leaks. Remove and drain oil and fuel filters. Stand used oil filters in a drip pan for at least a day to drain. Use adsorbent to clean up spills. Collect the drained oil in proper containers for recycling. Recycle the metal parts of the oil filter after it is drained.
- Clean up all spills and leaks anywhere on the site immediately with appropriate adsorbent and deal with the waste properly to prevent contaminating the ground or surface runoff water. When spills do occur, dry cleanup methods shall be used.
- Areas where leaks may occur or fluids are stored are to be roofed to prevent stormwater flooding of the containment area. The containment area shall be raised above ground level so that storm runoff does not spill over the barn and overwhelm the collection sumps. Provide areas where leaks may occur or fluids are stored with impervious pavement, berms, curbs or other means of spill containment; use spill control equipment and connect to spill collection sumps. Construct dikes or berms capable of holding 25% of the total stored fluids volume, or 110% of the largest container, to contain spills. Maintain all sumps, drip pans and fluid containment structures regularly and properly empty storage and accumulated fluids.
- Use unbreakable, inert storage containers with sealed lids, and label each container to store solvents, lead, lead-acid batteries, mercury switches, oil filters, lead weights and battery cables and sodium azide air-bag propellants. Mercury must be stored in a tightly sealed container since it is volatile and highly toxic. Store batteries upright and stack them no more than 5 high.
- Provide fluid storage containers with level indicators on them. Store oily rags in a fire-proof container with a lid and in a separate location. Store fuels and other highly inflammable fluids in a separate area.
- Provide steam cleaning or pressure washing facilities with zero-discharge recycling systems equipped with oil/water separators. Provide parts cleaning areas with walls or curtains to prevent spray drift.

REFERENCE: http://www.nlms.org/bclss/bmphome.html
LAND USE TYPE: Commercial/Industrial

LAND USE: Auto wrecking

CONCERN: Distribution of hydraulic and brake fluids, fuel, oil, antifreeze, refrigerants, mercury, lead, sulfonated acid and solvents.

GOAL: Contain and collect diffuse pollutant sources into manageable point sources to be treated.

SUGGESTED PRACTICES: Recycling automobiles involves handling large quantities of hazardous materials including transmission, power steering, hydraulic and brake fluids, fuel, oil, antifreeze, refrigerants, mercury, lead, sulfonated acid and solvents. These tend, at present, to be indiscriminately distributed all over the recycling yards causing extensive non-point source pollution of groundwater and surface run-off water. These BMPs attempt to consolidate, contain and collect these diffuse sources into manageable point sources which can be treated.

Concrete or asphalt pads may not be impervious surfaces since they tend to crack with age unless they are installed on a packed, built-up, gravel base. For this reason a steel tarp may be better in some locations, especially where it is a retrofit installation.

Oil, antifreeze, tires and the plastic, lead and acid from batteries can all be recycled, reused or incorporated into new products.

Site Layout

For efficiency, and to prevent contamination of areas not specifically designed for certain activities, the recycling site should be segregated into specific areas especially equipped for vehicle receiving, holding, dismantling, cleaning, inventory flow, parts storage, core storage, fuel storage, special waste storage, crushing, sales, shipping, receiving and the office. There should be a logical relationship between these areas so that an incoming vehicle and its parts flow smoothly and as efficiently as possible from area to area and eventually out of the site as crushed hulls for scrap metal.

Vehicle Receiving

This is where incoming vehicles are stored temporarily prior to dismantling or transfer to the hulk storage area; this should be relatively short term storage to deal with vehicles arriving in batches faster than they can be dismantled. Incoming vehicles are often damaged and leaking fluids.

Vehicle Dismantling

This is where vehicles are dismantled which involves draining all the fluids some of which will spill and must be contained.

Special Waste

There are some components of vehicles which pose special hazards and must be stored securely until disposed of. These include switches with mercury in them, air-bags with sodium azide propellants, lead-acid batteries, tires and oily rags.

Parts Cleaning

This involves manual removal of heavy grease and oil followed by solvent-based, steam-cleaning or pressure washing of parts before they are stored for sale.

Fluid Storage

Fluids include, but are not restricted to, gasoline, diesel fuel, motor oil, transmission oil, power steering fluid, brake fluid, hydraulic fluid, differential fluid, antifreeze, windshield washer fluid, refrigerants, battery acid, cleaning solvents and contaminated water. Some of these are reused, some are special waste and some are wasted.

Hulk Storage

This is where the car body is stored once all fluids have been drained, mercury switches and batteries removed, core and valuable parts have been removed and there is no more possibility of toxic contaminants reaching the ground. The hulk is stored until body and frame members are needed for sale or the hulk is crushed and sold as scrap. It must be clean and free of fluids and toxic materials at this point and therefore a gravel pad in the open is adequate.

Vehicle Crusher

All fluids must be removed before crushing but there will always be some residuals which will be released upon crushing.

Storage of the Core and Liquid Containing Parts

Core parts are parts that can be remanufactured or rebuilt and thus always have intrinsic value unless seriously damaged. These parts are removed and stored prior to being sold and will usually contain fluids and lubricants.

Storage of Parts for Sale

These are parts for sale directly to customers as opposed to parts for sale to remanufacturers, and may have a lengthy shelf life. They may also have fluids in them.

Best management practices for the auto industry, specific to auto wreckers, include such actions as:

- Cleaning up all spills and leaks anywhere on the site immediately with appropriate absorbent and dealing with the waste properly to prevent contaminating the ground or surface runoff water.
- Training provided to staff with regard to the importance of pollution prevention and how to recognize and deal with pollution as it occurs.
- Assigning at least one person at each site as specifically responsible for pollution prevention and clean up.
- Maintaining all sumps, drip pans and fluid containment structures regularly and emptying sludge and accumulated fluids.
- Providing areas where leaks may occur or fluids are stored with impervious pavement, berms, curbs or other means of spill containment equipped with spill control equipment and connected to spill collection sumps.
- Roofing areas where leaks may occur or fluids are stored to prevent stormwater flooding of...
the containment area, which should be raised above ground level such that storm runoff does not spill over the berm and overwhelm the collection sumps.

- Sweeping all floors before washing them and sweeping away from gutters and catch basins.
- Using oil absorbent to clean up spills and picking up absorbent as soon as possible before tracking the waste around.
- Keeping storage time in the receiving area to a minimum and moving vehicles to the dismantling area and draining fluids as soon as possible.
- Avoiding storage of leaking vehicles in the receiving area; moving them to the dismantling area immediately or putting drip pans under them.
- Crimping lines, or using special plastic plugs, to close off all fuel fluid lines to prevent drips and leaks.
- Having refrigerants removed by licensed contractors with the proper equipment to prevent any leakage to the atmosphere.
- Removing all refrigerants with approved equipment which allows no losses and recycling all refrigerants with appropriate reclamation agencies.
- Removing and draining oil and fuel filters.
- Standing used oil filters in a drip pan for at least a day to drain; to facilitate draining puncture the dome end or the antifreeze back valve to break the vacuum.
- Collecting the drained oil in proper containers for recycling.
- Recycling the metal parts of the oil filter after it is drained.
- Collecting and recycling used antifreeze.
- Using pumps to transfer fluids like gasoline rather than pouring from open trays and pans.
- Using unbreakable, inert storage containers with sealed lids and label each container to store lead-acid batteries, mercury switches, oil filters, lead weights and battery cables and sodium azide airbag propellants/mercury, especially, must be stored in a tightly sealed container since it is volatile and highly toxic storing batteries upright and stacking them no more than 5 high.
- Collecting and recycling old batteries.
- Avoiding storage of lead in a moist atmosphere for an extended period of time.
- Storing oily rags in a fire-proof container with a lid and in a separate location where there will be no fire hazard.
- Storing small quantities of tires in a fashion and location approved by the local fire inspector.
- Collecting and recycling old tires.
- Providing parts cleaning areas with walls or curtains to prevent spray drift.
- Providing steam cleaning or pressure washing facilities with zero-discharge recycling systems equipped with oil/water separators.
- Using parts cleaning solvents as little as possible.
- Keeping solvents in closed containers.
- Considering changing to non-petroleum-based solvent cleaning methods such as terpene based solvents or alkaline detergents in ultrasonic tanks, heated dip tanks, agitating tanks or jet spray washers.
- Avoiding discharge of the waste water to municipal sewers due to the pre-treatment costs of cleaning the water before it meets discharge regulations.
- Avoiding use of underground storage tanks; these lead to very expensive clean up costs when they eventually corrode and leak causing extensive ground and water pollution.

- Using unbreakable, inert, fluid storage containers with sealed lids, labeling each container and using double-walled containers or secondary containment for large quantities of fluids.
- Constructing dikes or berms capable of holding 25% of the total stored fluids volume, or 110% of the largest container, to contain spills; generally more smaller tanks are more economical and safer than one large one.
- Storing fluids and other highly inflammable fluids in a separate area to meet local fire department regulations.
- Providing fluid storage containers with level indicators on them to prevent overfilling and spillage.
- Avoiding the stacking of waste fluid containers.
- Removing all fluids, batteries, mercury switches, radiators, un-deployed air-bags, refrigerants, fuel tanks, tires, lead battery cables and lead tire balancing weights before crushing.

REFERENCE: http://www.nal.usda.gov/ars/docs.htm
A Checklist of Water Conservation Ideas for Industrial & Large Landscapes

This checklist provides water conservation tips successfully implemented by industrial and commercial users. This list has been revised from the original copy first published and distributed by the Los Angeles Department of Water and Power and the Water Efficiency Manual by the North Carolina Department of Environment and Natural Resources.

**START A WATER CONSERVATION PROGRAM**
- Increase employee awareness of water conservation.
- Install signs encouraging water conservation in employee and customer restrooms.
- When cleaning with water is necessary, use budgeted amounts.
- Read water meter weekly to monitor success of water conservation efforts.
- Assign an employee to monitor water use and waste.
- Seek employee suggestions on water conservation; put suggestion boxes in prominent areas.
- Determine the quantity and purpose of water being used.
- Determine other methods of water conservation.
- Conduct contests for employees (e.g., posters, slogans, or conservation ideas).

**PLANNING AND DESIGN**
- Consider the following:
  - Physical conditions (drainage, soil type, sun/shade, etc.) and the use of the site (foot traffic, recreation, viewing, etc.)

- Creating shade areas, which can be 20 degrees cooler than nonshaded areas, decreasing evaporation.
- Grass areas only where needed; avoid small areas under 10 feet wide.
- Permeable materials such as porous concrete or permeable paving methods.
- Grading and directing surface runoff and rainfall to landscaped areas as opposed to drainageways that exit the property.
- Incorporate high water demanding plants at the bottom of slopes, and maintain the use of existing trees, plants, and wildlife in the area during planning.
- Minimize the use of impervious surfaces to lessen runoff and resulting stormwater pollution.
- Identify water source points.
- Develop a schematic of all water entry points (snow where your faucets, time clocks, solenoids, booster pumps, sprinklers and bubblers are located).
- Identify capacity of each water-carrying unit and frequency of use.
- Determine specific use for each entry source.

**ANALYZE AND IMPROVE SOIL CONDITIONS**
- Test the soil quality, nutrients and absorptive capacity, and then select plants based on findings. Adjust the pH level if necessary.
- Use organic matter (compost, mulch or manure) to increase the soil's water holding capacity. This helps improve water distribution and lowers levels of evaporation.
- When improving the soil of a given area, remember to treat a larger area around the planting to allow ample space for root systems.
- Prevent heavy construction equipment from compacting soil in areas around trees or other sensitive habitats.

**PLANT SELECTION**
- Choose native, climate-appropriate species.
- Consider plants' water demand, pest tolerance, soil nutrient and drainage requirements.

**INTERIOR AREAS**
- Discontinue continuous flow.
- Use ponded water where available.
- Adjust flows to reduce discharge of water.
- Install water-saving devices to decrease water consumption — restrooms (toilet tanks and flappers), faucets (aerators), cooling systems.

**MAINTENANCE PROCEDURES**
- Use recycling systems for chillers and cooling towers.
- Consider installing energy-saving air-conditioning equipment.

**DESIGN CRITERIA FOR TURF AND LANDSCAPE AREAS**
- Contact the Department of Water Resources or your local water supplier about possible landscape water audit classes for managers.
- Hire a landscape architect with water conservation and xeriscaping experience.
- Use turf only where actually necessary; immediate picnic areas, outside lunch areas, and gold course target areas (greens, tees, landing areas).
- Turfgrass should be cut to the maximum recommended height for its type (generally a minimum of two inches to a maximum of four inches) for most efficient water use.
- Use only low-water use plant material in non-turf areas.
- Retrofit toilets with high efficiency models that use 1.28 gallons per flush or less.
- Install showerheads with a flow rate of 1.5 gpm at 60 ps or less in all units.
- Retrofit bathroom sink faucets with fixtures that do not exceed 1 gpm at 60 ps.
Drip irrigation and microsprays place water at the base of the plant. This reduces evaporation and saves water by not soaking the entire ground surface. This works for trees, shrubs, and groundcovers.

- Use automatic irrigation systems monitored by moisture probes. (i.e., tensiometer sensors) and rain shut-off devices to cut power off during rain.
- Design dual watering systems with sprinklers for turf and low-volume irrigation for plants, trees, and shrubs. Operate sprinkler system before sunrise and after sunset. Amount of irrigation can be determined by the evaporative rate, which DWR can help you determine.
- Use properly treated waste water for irrigation where available.

**EXTERIOR AREAS**

- Regular aeration of clay soils will improve water holding capabilities and prevent runoff.
- Discontinue using water to clean sidewalks, tennis courts, pool decks, driveways, and parking lots.
- Make sure irrigation water does not run onto streets or into alleys. Adjust sprinklers to water only plants and not sidewalks or roads.
- Use the same size nozzle when replacement is needed. Sprinklers should be replaced with the same brand of sprinklers. Spray heads are aligned with grade.
- Replace worn spray nozzles.
- Regulate pressure properly for system demands.

- Make sure rotors or spray heads are mounted correctly. Replace with proper unit for the job.
- Post a current controller schedule inside the door of the controller.
- Check for leaking valves.
- Adjust the operating time (run times) of the sprinklers to meet appropriate seasonal or monthly requirements.
- Check plant leaves and take soil samples to confirm proper system functioning.
- Look into alternative sources for irrigation water (i.e., the use of wells as opposed to city water, water reuse operations from air conditioning condensate, storm water retention ponds, or cisterns, non-contact cooling water).
- Use dedicated water meters to monitor landscaping water use.
- Have a catchment/distribution uniformly test performed on-site to determine how evenly water is applied when sprinklers are in use.

For more Information, contact:
Maul County Department of Water Supply Water Resources and Planning Division
59 Kana Street, Wailuku, HI 96793
Telephone: (808) 244-6701
FAX: (808) 244-8550

**EXTERIOR AREAS**

- Regular aeration of clay soils will improve water holding capabilities and prevent runoff.
- Discontinue using water to clean sidewalks, tennis courts, pool decks, driveways, and parking lots.
- Make sure irrigation water does not run onto streets or into alleys. Adjust sprinklers to water only plants and not sidewalks or roads.
- Use the same size nozzle when replacement is needed. Sprinklers should be replaced with the same brand of sprinklers. Spray heads are aligned with grade.
- Replace worn spray nozzles.
- Regulate pressure properly for system demands.
Mr. David Taylor, P.E., Director
Maul Dept. of Water Supply
200 S. High Street
Waikiki, HI 96793

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu'unene Heavy Industrial Subdivision; TMK (2) 3-6-006:019

Dear Mr. Taylor,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 20, 2011.

Source Availability and Consumption. The private water system for the proposed project will be developed in accordance with Department of Health requirements for potable water systems. Notwithstanding this, the land owner understands that an additional source is currently available if water from the County system is needed and that the issuance of water meters (if needed) may be delayed until new sources are brought on line.

System Infrastructure. Fire protection service for the proposed project will be provided in accordance with system standards and certified by a professional engineer or architect.

Pollution Prevention. To minimize infiltration and runoff from industrial operations, Best Management Practices, including those mentioned in your letter, will be considered and appropriate measures implemented.

Conservation. Water conservation measures, such as those identified in your letter, will be evaluated during the project's detailed design and engineering phase and appropriate measures will be implemented.

cc: Blanca Lafollette, PRL
Tom Nasce, TINWR
Stacy Onuva, P.E.
Martin Luna, Esq.

Proposed Pu'unene Heavy Industrial Subdivision
TMK (2) 3-6-006:019
September 26, 2011
Page 2

Copies of your letter have been provided to the appropriate project consultants for their information and consideration.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glen Tadaki
Planner
Mr. Glenn Tadaki, Planner  
July 25, 2011  

As the proposed project will involve a County of Maui Community Plan Amendment and the use of State of Hawaii land (Kama'aina Road and a 25-foot wide strip of land across three adjacent State parcels), an EA must be prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, Chapter 203, Hawaii Administrative Rules (HAR), and

The Accepting Authority of the EA will be the State Land Use Commission.

Based on the foregoing, the Department provides the following comments with regards to the scope of work for the proposed Pu'unene Heavy Industrial Subdivision and related District Boundary Amendment, Community Plan Amendment, and Change in Zoning:

1. Clearly outline on all exhibits and charts the project area in relation to the Proposed Urban Growth Boundary for the Draft Maui Island Plan;

2. Explain in detail in a tabular form, the proposed actions and responsibilities of the Applicant to complete such actions such as an Internal subdivision road, private water system, private wastewater system, on-site drainage system, landscape plantings, communications and power connections, etc. as compared to the responsibility of each individual future lot owner; provide a time-line for project development outlining each infrastructure action step and who is responsible for such action, e.g., when will project site and individual lot drainage and roadways be completed and who will be responsible, and

3. Outline road, infrastructure, landscape, and design connections of the proposed project to the overall Pu'unene Master Plan including the proposed Maui Regional Public Safety Complex, the proposed public park, the proposed public event space, the Motorcross site, etc.

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Kurt Wollenhaupt of the Department's Current Zoning at kurt.wollenhaupt@maui.gov or at (808) 270-1789 or Planning Supervisor David Yamashita of the Department's Long Range Division at david.yamashita@maui.gov or at (808) 270-2539.

Sincerely,

WILLIAM SPENCE  
PLANNING DIRECTOR

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-720; FACSIMILE (808) 270-7209  
CURRENT DIVISION (808) 270-7200; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7257
Mr. William Spencer, Director
Maui Dept. of Planning
250 S. High Street
Wailuku, HI 96793

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pa‘uma‘ea Heavy Industrial Subdivision; TMK (Q) 3-8-008919

Dear Mr. Spencer,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 25, 2011.

1. The subject parcel’s location within the proposed Urban Growth Boundary for the (draft) Maui Island Plan will be shown in the Figures for the Draft EA.

2. The subdivision improvements that will be the responsibility of the land owner will be identified in the Draft EA, as well as the future lot owners’ responsibilities for the separate development of their lots.

The process of obtaining all the necessary land use entitlements for the subject parcel could take two to three years. After completing this process, the land owner plans to subdivide the property and create the heavy industrial subdivision. It is important to note that the actual number and size of the subdivision’s lots, and the timeframe for filing the application for subdivision approval, will be heavily influenced by prevailing market conditions at the time the land owner is ready to proceed. Given the extent of the entitlement process, as well as variable market factors and uncertain economic conditions in the future, a detailed schedule for the implementation of the future subdivision’s various infrastructure systems cannot be discerned at this time.

3. The Draft EA will discuss any pertinent infrastructure, landscape, and design connections between the proposed project and the Pa‘uma‘ea Airport Master Plan to the extent that current information about the Master Plan is readily available to the public.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1855 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Linolette, PRL
Stacy Otsuno, P.E.
Martin Luna, Esq.
Mr. Glenn Tadaki
July 26, 2011
Page 2

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowsk@dohe.hawaii.gov.

Sincerely,

Patti Kitkowskli
District Environmental Health Program Chief

Mr. Glenn Tadaki
July 26, 2011

Dear Mr. Tadaki:

Subject: Early consultation for the Preparation of a Draft Environmental Assessment for the Proposed Pu‘umea Heavy Industrial Subdivision; TMK (3) 3-8-008:019

Thank you for the opportunity to review this project. We have the following comments to offer:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.

2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, “Community Noise Control.” A noise permit may be required and should be obtained before commencement of work. The Enforcement and Radiological Health Branch should be contacted at 808 586-4700.

It is strongly recommended that the Standard Comments found at the Department’s website: http://hawaii.gov/health/environmental/env-planning/landuse/standard.html be reviewed, and any comments specifically applicable to this project be adhered to.
Ms. Patti Kitkowski, Chief
Maui District Health Office
Hawaii Dept. of Health
54 High Street
Wailuku, HI 96793

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Ms. Kitkowski,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 26, 2011.

1. The proposed project will comply with applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for construction activities.

2. Should noise from construction activities exceed the allowable daytime threshold (79 dBA) for industrial-zoned districts, the contractor shall obtain a Community Noise Permit from the Indoor and Radiological Health Branch pursuant to Chapter T1-46, HARR pertaining to “Community Noise Control”.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Proposed Pu‘unene Heavy Industrial Subdivision
TMK (2) 3-8-008:019
September 7, 2011
Page 2

Please feel free to call me at (808) 242-3935 should you have any questions.

Sincerely,

[Signature]

Eileen Yatsuki
Planner

cc: Blanca Lailaume, P.B.
Stacy Osuna, P.E.
Yoshih Ikai, P.E.
Martin Luna, Esq.
July 27, 2011

Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Hawai'i 96793-171

Re: Pre-Draft Environmental Assessment Consultation
Pe'una'a Heavy Industrial Subdivision
Island of Maui

Aloha e Glenn Tadaki,

The Office of Hawaii Affairs (OHA) is in receipt of your June 23, 2011 letter seeking comments ahead of a draft environmental assessment (DEA) which will be prepared to support the subdivision of an 86-acre tax map key (TMK) parcel into 28 fee-simple lots ranging in size from 0.63 acres to 13.41 acres in size and the development of a heavy industrial subdivision (project) in Kihei on the Island of Maui.

Based on the information contained within your letter, the project area is situated within the State Land Use Agricultural District and is currently designated for agricultural uses by County of Maui zoning and the Kihei-Makena Community Plan. The State Land Use Commission Designated Boundary Amendment (Agricultural to Urban), the subsequent County of Maui Change in Zoning (Agricultural to M-2 Heavy Industrial) and amendment to the Kihei-Makena Community Plan (Agricultural to Heavy Industrial) and the use of land (Kamahina Road) under the control of the State of Hawai‘i which are required to facilitate this project are all "triggers" which require preparation of this DEA pursuant to Chapter 343, Hawai‘i's Revised Statutes.

The project area appears to be situated within a larger area which was subject to intensive sugarcane cultivation during historic and modern times and is currently surrounded by existing land uses which include the Maui Raceway Park, a Hawaiian Commercial & Sugar Company (HC&S) irrigation water reservoir and HC&S sugarcane fields.

Your letter indicates that the landowner of the 86-acre TMK parcel and project proponent, CMBY 2011 Investment, LLC only intends to only develop basic subdivision infrastructure and utilities with individual lot owners being responsible for their own improvements. The DEA should discuss whether uses which are allowable under M-2 Heavy

Industrial County of Maui Zoning, but are declared "special uses" and require a use permit issued by the Maui County Council pursuant to §19.26.020(CB), Maui County Code are anticipated within the project. Should these "special uses" be anticipated, the DEA should then comprehensively discuss how project infrastructure (waterway and on-site drainage systems) intend to contain chemicals and materials and prevent them from entering adjacent irrigation water systems or adversely impact the overall quality of the South Maui watershed (watershed) and groundwater.

OHA notes that the Keola Pond National Wildlife Refuge (NWR) serves as a "settling basin" for the entire watershed and is subject to intermittent flooding during the winter months. It is possible that any chemicals or pollutants which enter the watershed end up in the NWR adversely impacting native species and near shore marine water quality.

We look forward to reviewing the DEA and providing additional comments at that time. Please provide one electronic copy and one hardcopy of the DEA to OHA at: Compliance Program when it becomes available. Should you have any questions, please contact Keola Lindsey at 394-0244 or kelindsey@oha.org.

"O wau ko nā me ka 'ōia'i'o,

Clyde W. Nāmā'o
Chief Executive Officer

OHA - Maui COC
Mr. Clyde W. Namm’o, Chief Executive Officer  
Office of Hawaiian Affairs  
State of Hawai‘i  
711 Kapālā Street, Suite 500  
Honolulu, HI 96813

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008019

Dear Mr. Namm’o,

On behalf of the land owner, CBBI 2011 Investment, LLC, we are responding to your letter dated July 27, 2011.

The Draft EA will identify land uses that are permitted under existing M-2, Heavy Industrial zoning including those uses that are declared “special uses”. While “special uses” are not anticipated at this time, the Draft EA will examine the potential effect of pollutants on adjacent and downstream properties and include a discussion of appropriate mitigation measures as warranted.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available. Please feel free to call me at (808) 242-1655 should you have any questions.

Sincerely,

[Signature]

Planner

Bianca Lafalette, PRL  
Stacy Otomo, P.E.  
Martin Luna, Esq.

119 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1055 • Fax 808-242-1666
www.chpmani.com
July 28, 2011

Mr. Glenn Tadaki, Planner  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, HI 96793

Dear Mr. Tadaki:

SUBJECT: Early Consultation for the Preparation of a DEA for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (2) 3-8-008:19

This is in response to your letter dated June 23, 2011, requesting comments on the above subject.

We have reviewed the information submitted for the above mentioned project and would like to offer the enclosed comments. Thank you for allowing us to review this project.

Very truly yours,

Assistant Chief Victor K. Ramos  
for: Gary A. Yabuta  
Chief of Police

Endecours

Cc: William Spence, Maui County Dept. of Planning

TO: GARY YABUTA, CHIEF OF POLICE, COUNTY OF MAUI

VIA: CHANNELS

FROM: RONALD BENNETT, POLICE OFFICER, VISITOR ORIENTED POLICE

SUBJECT: RESPONSE TO AN EARLY CONSULTATION REQUEST FOR: PROPOSED PU‘UNENE HEAVY INDUSTRIAL SUBDIVISION; TMK (2) 3-8-008:019

This TO-FROM is submitted as a response to a request for early consultation comments by Chris Hart and Partners, Inc. Planner Glenn Tadaki regarding:

SUBJECT: EARLY CONSULTATION REQUEST FOR THE PROPOSED PU‘UNENE HEAVY INDUSTRIAL SUBDIVISION;

TMK #: (2)3-8-008:019

RESPONSE:

In review of the submitted documents, concerns from the police perspective are upon the safety of pedestrian and vehicular movement as well as public safety.

In regards to pedestrian and vehicular movement, the focus of this early consultation is based on the documents submitted regarding the proposed development. In review of the proposal and the pending request for property easements along Kamakana road I would like to offer general safety concerns at this time and provide detailed suggestions upon the final Environmental Assessment draft.

In regards to public safety, a concern is at the entry/exit points of the property. At the entry/exit area, proper lighting and line of sight will be critical to vehicular and pedestrian safety.

Another area of concern is the portion of Kamakana road where the access road into the proposed property would intersect. This area will also need proper lighting and line of sight distance. During a site visit it was noticed that vehicles traveling east to west on Kamakana road (downhill) are required to stop at a posted stop sign, however the stop sign is very close to the sugar cane and will need to be further away from the cane to be more visible. This section of the roadway is also used by Hawaiian Cement trucks and HC&S vehicles. Some of these vehicles such as loaded Cement trucks and Cano haulng trucks are very large, heavy and require greater distances to stop.

Those general concerns are all I have to offer for the early consultation of the Draft Environmental Assessment.

I would like to reserve further comment for the final draft.
Mr. Cary A. Yabuta, Chief
Maui Police Department
55 Mahelani Street
Wailuku, HI 96793

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision, TMK (Q) 3-8-008-019

Dear Mr. Yabuta,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 28, 2011.

1. The land owner acknowledges that proper lighting and sight distances at the access points for the proposed project are important for vehicle and pedestrian safety.

2. The traffic study for the proposed project will include recommendations for maintaining sight distances and the visibility of traffic control devices.

The number of heavy vehicles (e.g., cement trucks, cane haulers) was estimated and has been included in the analysis of the study intersections.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.
MEMORANDUM

TO:  DLNR Agencies:
      x Div. of Aquatic Resources
      x Div. of Boating & Ocean Recreation
      x Engineering Division
      x Div. of Forestry & Wildlife
      x Div. of State Parks
      x Commission on Water Resource Management
      x Office of Conservation & Coastal Lands
      x Land Division - Maui District
      x Historic Preservation

FROM:  Charlene Unoki, Assistant Administrator
SUBJECT: Proposed Pāpāmaha Heavy Industrial Subdivision
LOCATION: Island of Maui
APPLICANT: Chris Hart & Partners on behalf of CM3BY 2011 Investors, LLC

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit your comments by July 26, 2011.

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.

Signed:  Date:
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 61  
HONOLULU, HAWAII 96810  

July 5, 2011

MEMORANDUM

TO: DLNR Agencies:  
  - Div. of Aquatic Resources  
  - Div. of Boating & Ocean Recreation  
  - Engineering Division  
  - Div. of Forestry & Wildlife 
  - Div. of State Parks  
  - Commission on Water Resource Management  
  - Office of Conservation & Coastal Lands  
  - Land Division - Maui District  
  - Historic Preservation

FROM: Charlene Usoh, Assistant Administrator

SUBJECT: Proposed Puuumea Heavy Industrial Subdivision

LOCATION: Island of Maui

APPLICANT: Chris Hart & Partners on behalf of CMBY 2011 Investment, 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 July 5, 2011.

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 587-0423. Thank you.

Attachments

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

Signed: ____________________________  
Date: ____________________________
Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (CWS). Under the Code, all waters of the State are held in trust for the benefit of all the citizens of the State. Therefore, all water use is subject to legally protected water rights. CWS strongly promotes the efficient use of Hawaii’s water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaiian Statutes, and Hawaii Administrative Rules, Chapters 13-967 to 13-711.

These documents are available via the Internet at [http://www.hawaiicwms.gov/cws.html](http://www.hawaiicwms.gov/cws.html).

Our comments related to water resources are checked off below.

☐ 1. We recommend coordination with the county to incorporate this project into the county’s Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☐ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the reutilization of agricultural resources into the State’s Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☐ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area’s treated water resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at [http://www.usgbc.org/leed](http://www.usgbc.org/leed). A listing of fixtures certified by the EPA as having high water efficiency can be found at [http://www.epa.gov/wise/wisesb/certify.htm](http://www.epa.gov/wise/wisesb/certify.htm).

☐ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area’s hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at [http://www.epa.gov/officeofwastewater/bmpweb.html](http://www.epa.gov/officeofwastewater/bmpweb.html).

☐ 6. We recommend the use of alternative water sources, wherever practicable.

☐ 7. There may be the potential for ground or surface water degradation/contamination and recommend that approval for this project be considered upon a review by the State Department of Health and the developer’s acceptance of any resulting requirements related to water quality.

Pending issues related to CWS:

Additional information and forms are available at [http://www.hawaiicwms.gov/cws.html](http://www.hawaiicwms.gov/cws.html).

☐ 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.

☐ 9. A Well Construction Permit(s) is (are) required for any well construction work begins.

☐ 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 11. There is (is) a well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 12. Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed or bank of a stream channel.

☐ 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.

☐ 15. A Permit to Amend the stream instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☐ OTHER:

This 86-acre development proposal is located on the Makai-facing slope of Hauula at the end of the Hauula Beach and along Lower Kailua Road. It proposes to have a private water system. Existing well No. 4227-01 appears to be on this property. If details and any uses are unknown. The location means the boundary between the Kailua and Pali Aquifer Systems; while sustainable yield for Kailua is for uncontrolled due to high artesian recharge, the Pali Aquifer sustainable yield of 7 mgd is not artificially augmented in this location. The site is about 2003 feet downstream from an crossed Hawaiian Cement Well successfully pumped tested at 250 gpm.

If there are any questions, please contact Charley Ito at 507-2016.
Mr. Russell S. Tsuji, Administrator
Land Division
Hawaii Dept. of Land & Natural Resources
1151 Punchbowl Street, Room 220
Honolulu, HI 96819

SUBJECT: Early Consultation Comments for the Preparation at a Draft Environmental Assessment (EA) for the Proposed Pu’u’uwehe Heavy Industrial Subdivision; TMK (Q) 3-0-008A019

Dear Mr. Tsuji,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated August 3, 2011.

1. The land owner acknowledges that the subject parcel is located in Flood Zone "K", an area of minimal flood hazard.

2. Copies of the Draft EA will be furnished to the Departments of Water and Planning and information about the project can be incorporated into the County’s Water Use and Development Plan.

3. The use of low-flow water fixtures (e.g., faucets, hose bibs, showerheads, toilets) is required by Section 16.20.676 of the Maui County Code. Water conservation measures, such as those identified in your letter, will be evaluated during the project’s design and engineering phases and appropriate measures will be included in the Consensus, Conditions and Restrictions for the project to ensure that future lot owners utilize water-efficient practices in their activities.

4. To minimize impacts from storm water runoff, the proposed project will comply with applicable regulatory requirements for storm water management. For example, Best Management Practices (BMPs) are required for all activities involving grading, grubbing, and stocking activities pursuant to Chapter 23.86 of the Maui County Code (Soil Erosion and Sedimentation Control). In addition, National Pollutant Discharge Elimination System permits for general coverage stipulate BMPs for all discharges (storm water runoff) associated with construction activities, including clearing, grading, and excavation that result in the disturbance of one or more acres of total land area.

5. To the extent that it is feasible and such sources are available, the use of alternative water sources will be examined during the project’s detailed design and engineering phase.

6. The Draft EA will include information about the source of drinking water for the proposed project.

7. The Draft EA will include a Groundwater Resource and Water System Assessment as well as information about existing Well No. 4927-01.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Planner

cc. Bianca Lafolette, PRL
Tom Nance, TNYRE
Stacy Okano, P.E.
Martin Luna, Esq.
United States Department of the Interior
FISH AND WILDLIFE SERVICE
Pacifica Island Fish and Wildlife Office
100 Ala Moana Boulevard, Room 3-122, Box 50288
Honolulu, Hawaii 96850

AUG 03 2011
RECEIVED
AUG 05 2011

Mr. Glenn Tadaki
Planner
Chris Hart & Partners, Inc.
115 North Market Street
Waikoloa, Hawaii 96793-1717

Subject: Technical Assistance for Proposed Punaene Heavy Industrial Subdivision Project, Maui

Dear Mr. Tadaki:

The U.S. Fish and Wildlife Service (Service) received your letter on July 5, 2011, requesting early coordination for the preparation of a draft Environmental Assessment (DEA) for the proposed Punaene Heavy Industrial Subdivision on Maui. The approximately 86-acre proposed project site is located about 1.5 miles east of Molokai Highway in the vicinity of the old Punaene Airport. Access from Molokai Highway to the site is provided by Kamania Road, a paved two lane road which also provides access to the nearby Hawaiian Cement quarry and surrounding agricultural fields. The proposed project includes subdivision of the parcel into 28 lots and construction of an internal road, water and wastewater systems, electrical and telephone connections, and landscaping. This response is in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended [16 U.S.C. 1531 et seq.].

Based on information you provided and pertinent information in our files, including data compiled by the Maui Biodiversity and Mapping Program, three protected species may be in the vicinity of the proposed project. Therefore, we recommend biological surveys be conducted for the following species and results of the surveys be included in the DEA.

1. The endangered Hawaiian goose (Branta sandvicensis, nene) has been observed in the vicinity of Molokai Highway and Kamania Road. We recommend a biologist familiar with nene behavior survey the area prior to the initiation of any work to determine if nene are using this site for foraging, nesting, or roosting. Furthermore, all on-site project personnel should be apprised that nene may be in the vicinity of the project at any time during the year and nene should be avoided at all times.

2. The endangered Black-crowned Night-Heron (Nycticorax nycticorax) may breed and feed within the proposed project area. Adult birds feed on nests close to native plants, including beach morning glory (Ipomoea pes-caprae), limes (Citrus x productionis), and mauipo (Coparris sandwicchanae); larvae feed upon non-native tea tobacco (Nicotiana glauca) and native tea (Nasothorn alanis). We recommend you have a qualified biologist survey the project area for the presence of tea tobacco or other host plants during the wettest portion of the year (usually November to April). If host plants are found on site, please coordinate with our office for further assistance.

3. The threatened Nene's shearwater (Aethia sillneri) and endangered Hawaiian petrel (Pterodroma sandwicchanae); collectively known as seabirds, may traverse the project area when flying between the ocean and mountain nesting sites during their breeding season (March through December). Artificial lighting, such as street lights and flood lights, can adversely impact seabirds by causing disorientation and collision with utility lines, buildings, fences, or vehicles. In addition, exhausted birds have been known to "fall out" and become grounded. Too weak to fly, these birds become vulnerable to predation by feral predators such as dogs, cats, and mongoose. We recommend that all construction activities take place only during daytime hours to avoid incidences of seabird injury or fatality. It is also recommended that all lighting outdoor lighting be shielded with the bulb pointed directly at the ground. If feasible, motion sensor lights should be installed to further reduce ambient lighting.

We hope this information assists you in preparing a DEA. If you have any questions concerning the recommendations included in this letter, please contact Ian Burdanske, Fish and Wildlife Biologist, at 1-800-752-9440 for further assistance.

Sincerely,

[Signature]
Loyal Mehrhoff
Field Supervisor
Proposed Pa’unene Heavy Industrial Subdivision
Tmk (2) 3 8 008 019
September 14, 2011
Page 2

3. Exterior building, parking, and walkway lights will be appropriately shielded or directed downward to minimize impacts to seabirds (e.g., Newell shearwater, dark-rumped petrel) which may become disoriented when traversing the project area.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Glenn Tadaki
Planner

cc: Blanca Lafolette, P.E.
    Phil Bruner
    Maya LeGrand
    Martin Luna, Esq.
Mr. Glenn Tadaki
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawaii 96793-1717

Dear Mr. Tadaki:

Subject: Early Consultation, Draft Environmental Assessment
Proposed Pumene Heavy Industrial Subdivision, CMBY 2011 Investment, LLC
Pukalani, Wailuku, Maui, TMK: (2) 3-8-008: 019

Thank you for the opportunity to review the proposed subdivision of an 86 acre parcel, located to the east of the Old Pumene Airport, into 28 lots of varying sizes, zoned for heavy industrial use, and to be sold in fee-simple. The project will provide an internal road, private water, private wastewater, and onsite drainage systems, landscaping, and connections for electrical and telephone service. Lot development will be the responsibility of the individual lot owners.

Access to the project will be over an easement from DLNR along Kamahina Road, which connects to Mokulele Highway, a State facility. The intersection of Kamahina Road and Mokulele Highway is signalized and channelized (on Mokulele Highway) with left-turn lanes.

We have the following comments:

1. A traffic assessment must be prepared for our review and approval. The assessment should determine the trips generated by the project, and any other relevant existing and future developments and trip-generators in the area, and the impact of those trips on the intersection of Kamahina Road and Mokulele Highway and propose mitigation measures, as required. It should take into account ambient traffic from other existing uses that use Kamahina Road.

2. Since there may be a possibility that some project traffic might use the Mau Roadway Park or as a shortcut to Mokulele Highway, the assessment should have a discussion of measures to be taken to minimize that possibility.

If there are any questions, please contact Ken Tatsumoto, Engineering Program Manager, Highways Division, Planning Branch at (808) 587-1830.

Very truly yours,

[Signature]

GLENN M. OKIMOTO, P.E.
Director of Transportation
Mr. Glenn M. Okimoto, Ph.D., Director
Hawai‘i Dept. of Transportation
369 Punchbowl Street
Honolulu, HI 96813

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu‘unene Heavy Industrial Subdivision; TMK (Q) 3-8-008:019

Dear Mr. Okimoto,

On behalf of the land owner, CMSB 2011 Investment, LLC, we are responding to your letter dated August 4, 2011.

1. A traffic impact assessment report (TIAR) will be included in the Draft EA for the proposed project. The TIAR will contain traffic projections including traffic generated by all known projects in the north Kahului area, as well as traffic on Kama‘ina Road associated with Hawaiian Cement’s quarry operations. The TIAR will also include recommendations to mitigate any project-related traffic impacts at the intersection of Mokuole Highway and Kama‘ina Road.

2. The TIAR will note that the proposed project will have no right of access to Maui Raceway Park roads and that the proposed drainage retention swales along the western boundary of the subject parcel precludes any traffic connection between the subject parcel and Maui Raceway Park.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

cc: Blanca Lefoletto, PRL
     Phillip Rowell, P.E.
     Stacy Orman, P.E.
     Martin Lane, Esq.
Mr. Glenn Tadaki
Page 2
August 31, 2011

State priority guidelines for sustainability, enacted under Act 181 on July 5, 2011. A copy of Act 181 is enclosed for your convenience.

We strongly recommend that petitioners and preparers communicate with affected State agencies early in the preparation of a draft EA/EIS. In reviewing draft and final EAs/EISs, OP looks for documentation of consultation with State agencies and any recommendations or agreements to mitigate related to impacted State programs and resources. It is particularly important to consult with the State Department of Transportation (DOT) regarding the preparation of any Traffic Impact Analysis Report (TIAR) that DOT will be reviewing and accepting, and the State Department of Agriculture when reclassifying agricultural lands, particularly agricultural lands with high productivity ratings.

Attachment A provides a list of issues based on LUC decision-making criteria, which OP examines in its review and are commonly raised in LUC deliberations on petitions for district boundary amendments. The draft EA should identify and discuss potential project impacts related to these issues, and provide recommendations for the avoidance, minimization, or mitigation of potential adverse impacts that may result from the project.

The following matters were noted in OP’s preliminary scan of the proposed project and should be addressed in the draft and final EA.

1. **Agricultural lands, uses, and infrastructure.** The project areas are immediately adjacent to agricultural lands and agricultural water infrastructure (reservoirs and irrigation ditches). What is the potential for stormwater runoff and/or industrial spills or releases onto adjoining agricultural land uses or into irrigation waters, and how will this be avoided or mitigated? What is the potential for conflicts or interference with agricultural activity on adjoining lands?

2. **Water resources.** Water resource demand from industrial users and the impact of industrial activities and potential discharges of industrial effluent on groundwater and surface water resources need to be addressed thoroughly.

3. **Wastewater treatment and disposal.** The project proposes to use an “enhanced individual wastewater system.” Selection of an appropriate system for industrial users who may need to dispose of industrial effluent is critical in terms of avoiding adverse impacts to ground and surface waters. Will the system serve individual lots or the 28 industrial lots, and how will compliance with State Department of Health rules for industrial effluent treatment and disposal be ensured?

4. **Stormwater management and drainage.** How will runoff and potential industrial spills and releases into groundwater, surface waters, irrigation water
systems, and downstream waters be avoided, minimized, or mitigated? Will there be water quality treatment for stormwater and runoff? Who will be responsible for long-term maintenance of stormwater management systems?

5. Access easements. A timeframe for obtaining the access easements and a discussion of progress in acquiring the easements should be provided.

The Office of Planning looks forward to receiving the draft EA for the proposed project. If you have any questions or wish to schedule a meeting with our Office, please call Ruby Edwards in the Land Use Division at (808) 587-2817.

Sincerely,

[Signature]

Erie F. Souki
Director

Enclosures

c: Mr. Marc Jaffelette, CST 2012 Investment, LHC

Attachment A

Issues of Concern in District Boundary Amendment Proceedings

Based on LUC Decision-Making Criteria

The following issues are commonly discussed and analyzed for project proposals in petitions and their supporting environmental assessments (EAs) or environmental impact statements (EISs) prepared pursuant to Chapter 253, Hawaii’s Revised Statutes (HRS). This list reflects the range of issues the State Land Use Commission (LUC) must take into consideration in its decision-making under Chapter 253, HRS, and Chapter 15-15, Hawai‘i Administrative Rules (HAR). This list is not exhaustive or complete.

1. Water Resources. Groundwater and surface water resource protection and water quality are critical State issues. A thorough evaluation of these resources includes identifying and discussing: (a) estimated water demand by types of land use; (b) proposed potable and non-potable water sources to be used for the project and measures to reduce water demand and promote water re-use in the project; (c) whether the proposed project is within a designated Water Management Area; (d) the impact of the project on the availability and yield and water quality of affected aquifers and surface water sources; (e) permits or other approvals required for proposed water use, and (f) the consistency of the project and impacts of the project in terms of proposed water use and system improvements and priorities contained in the County water use and development plan, prepared pursuant to the State Water Code, Chapter 174C, HRS.

2. Agricultural Lands. Article XI, Section 3, of the Hawai‘i State Constitution provides that “the State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands.” Promoting agriculture is a policy objective in the Hawai‘i State Plan, Chapter 226, HRS, and in the State Administration’s New Day Comprehensive Plan, which is available at http://hawaiirevISED.com/new-day. Agricultural activity in the vicinity of the proposed project should be identified, and the impact of urban use or conversion of project lands on existing and future agricultural uses and the viability of agricultural uses of adjoining agricultural lands needs to be examined. Please discuss how the proposed project meets policy objectives to promote and protect agriculture, particularly in cases where the lands have high agricultural value.

3. Affordable Housing. Increasing the supply of affordable housing is a critical State and County issue. Every County has an affordable housing policy and both the Hawai‘i State Plan, Chapter 226, HRS, and the State Administration’s New Day Comprehensive Plan identify affordable housing as a policy priority. Please discuss specifically how the proposed project will meet State and County affordable housing policy objectives, to include a discussion of how the project’s proposed residential product types will be allocated among the market and various affordable housing target populations, and the price ranges for the different product types.

4. Cultural, Archaeological, and Historic Resources. If archaeological or historic properties or artifacts, including native Hawaiian burials, are identified in an archaeological inventory survey on the property, the EA/EIS should discuss how the petitioner has consulted with the State Historic Preservation Division (SHPD), what plans will be prepared to monitor or protect identified resources, and how the petitioner intends to comply with Chapter 15, HRS, related to historic preservation. SHPD has information and guidance available at https://shp.state.hawaii.us/historic.htm.

The EA/EIS document should identify any cultural resources and cultural practices associated with the property, including cultural landmarks. If applicable, and discuss the impact of the proposed project on identified cultural resources and practices as well as proposed mitigation measures. While a cultural impact assessment is not a requirement for EA/EISs under Chapter 253, HRS, the LUC is obligated under Article XIII, Section 7 of the Hawai‘i State Constitution to protect the reasonable exercise of customarily and traditionally exercised native Hawaiian rights. Thus, the LUC requires information as to the presence of cultural resources and cultural practices associated with

LUC District Boundary Amendment Petition Form [August 2011]
with the project site and vicinity for decision-making on petitions. The State Office of Environmental Quality Control provides guidance for preparing a cultural assessment at http://soeqc.hawaii.gov/cultural/.

5. Biota. The EA/EIS should include an inventory and assessment of flora and fauna, including threatened, found in or in proximity to the project site and area to be addressed and caves on the property that are listed on the federal or state list of endangered or threatened species. Please also discuss species of concern and candidate for listing. The holder should consult with the Database Manager at the Hawaii Biodiversity and Mapping Program, Center for Conservation Research and Training, University of Hawaii, UHCC, 856-855A, as to the potential for the presence of rare species in the project area. The EA/EIS should discuss measures to be taken to project rare, threatened, or endangered species or ecosystems of concern as required by law. The design of the biological survey should consider both wet and dry season observations to capture the full range of flora and fauna.

6. Coastal Zone Management (CZM). The Office of Planning is the lead agency for the Hawaii Coastal Zone Management Program, which is a Federal-State partnership for protecting, restoring, and redeveloping coastal communities and resources. The coastal zone is defined as all land and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea (43 U.S.C. § 1454–1). The EA/EIS should reference this definition of the coastal zone. State agency actions must be consistent with the CZM program objectives and policies under Section 25A-2, HRS. The EA/EIS should discuss the project in terms of its consistency with the following CZM objective areas.

a. Coastal and Ocean Resources. The State has an interest in protecting coastal and marine ecosystems and resources, as well as coastal and marine water quality. The EA/EIS should identify any coastal and marine resources and ecosystems that may be impacted by the proposed project, and the potential for nonpoint sources of pollutants from the project to adversely affect coastal and marine water quality. Project impacts on existing sites and hydrology and measures to manage stormwater and runoff need to be discussed. The Office of Planning recommends the use of low impact development (LID) techniques and other best management practices (BMPs) that promote onsite infiltration and minimize runoff from storm events. More information on LID and stormwater BMPs can be found at http://hawaii.gov/opea/lowimpactwater.html.

b. Coastal and Other Hazards. The EA/EIS should describe any hazards that are relevant to the site and describe the measures that are proposed to mitigate any hazards, such as from seismic hazards, hurricanes, wind, storm wave, sea ice, floods, extreme events, weather, volcanic activity, earthquakes, landslides, subsidence, and point and nonpoint source pollution. This should include a discussion of any wildlife hazard and any mitigation measures that might be required to address potential threats from wildlife.

The EA/EIS should also provide an opportunity to address the sustainability of proposed projects in terms of natural hazards and hazard mitigation, and the potential impact of climate change on the proposed project over time. To this end, OPR recommends the final EA/EIS include a discussion of the proposed project with respect to the State Multi-Hazard Mitigation Plan, 2010 Update, available at http://www.soc.hawaii.gov/documents/HawaiiMultiHazardMitigationPlan2010PDF.pdf as well as the respective County Hazard Mitigation Plans.

c. Coastal-dependent Uses and Beach Protection. If the project is located on or near the coast, the EA/EIS should discuss why the proposed development needs to be located on the coast, the economic uses that will be of benefit to the State, as well as potential impacts on beach access. The discussion should identify measures to protect beach systems and ensure short- and long-term public access to beaches.

d. Coastal Recreational Resources. If the project is located on the coast, the EA/EIS should include a description of recreational uses and facilities on or near the project site, and discuss how the impact of increasing use on coastal and ocean recreational resources and competing uses will be mitigated and managed during project development and buildout.

e. Seacliff Hazards. The EA/EIS should discuss the impact of the proposed project on seacliffs, waves, and ocean hazards and how any impacts will be avoided, minimized, or mitigated.

f. Special Management Area (SMA) Permitting. The SMA is defined by the Counties and includes areas in the coastal zone that are particularly sensitive so that it requires special attention. Please identify whether the proposed project is within the SMA and how SMA permitting requirements pursuant to Chapter 25A, HRS, will be satisfied.

For additional resources and information, visit http://www.hawaii.gov/czm.

7. Wastewater Treatment and Disposal. The EA/EIS should discuss the anticipated volume of wastewater to be generated by the project, in addition to the proposed means of wastewater treatment and disposal. A description of the availability of County wastewater collection and treatment capacity and its existing service levels, design capacity, and allocated capacity is also needed. The EA/EIS should also identify whether any facility improvements would be required to accommodate additional wastewater generated within the service area, including the proposed project. If a private wastewater treatment system is identified as the preferred option, the EA/EIS should discuss the type of plant to be used, permitting requirements, plans for reuse and disposal of treated effluent and waste solids, and how the private system will be operated and maintained.

8. Energy Use and Impacts. The State's Clean Energy Initiative has adopted a goal of improving energy efficiency and renewable energy resources to meet 20% of Hawaii's energy demand by 2030, with 30% from efficient and renewable energy sources by 2030. The EA/EIS should quantify the potential energy requirements and impacts of the project and discuss measures to be taken to reduce energy demand, promote energy efficiency, and to promote use of alternative, renewable energy sources. Please discuss how energy efficiency and energy-demand reduction, including relocated transportation energy use will be incorporated in the design of the project. OPR encourages applicants to consult with the State Department of Business, Economic Development, and Tourism's Strategic Industries Division staff to identify the key strategies and practices that could be used to promote energy and resource conservation in the proposed project. Please also identify any generating or transmission capacity constraints that may exist as a result of the proposed project and other projects planned for the region.

9. Impact on State Facilities and Resources. The EA/EIS should quantify the impacts of the proposed project on State-funded facilities, including schools, highways, ports, and airports, and discuss these impacts in terms of existing and planned capacity of the impacted facilities. The EA/EIS should also include mitigation measures proposed to be used in the development of the project and describe efforts to address identified State agency concerns. Regarding transportation impacts, consider project design options that limit the need to drive, including mixed-use land uses, compact site design, walkable neighborhoods, and providing a variety of transportation choices (e.g., biking, public transportation, etc.).

10. Conservation Districts. If the proposed project is within the State Conservation District, the EA/EIS should provide an inventory of conservation resources, and discuss how the loss of these resources (rare, wetlands, etc.) will impact the public.
11. Conformance with County Plan Designations and Urban Growth or Rural Community Boundaries. Act 26, Session Laws of Hawaii' 2005, reaffirmed the Land Use Commission's duty to consider any proposed reclassification with respect to the Counties' adopted general, community, or development plans. If the proposed project is not consistent with the County plans or is outside a County urban growth or rural community boundary, the EA/EIS should provide an analysis and discussion of the following:

a. Alternative Sites Considered. Describe and discuss alternative sites that were considered for the project, and discuss why the project could not be accommodated on lands within the urban growth or rural community boundary, if the county plan delineates such boundaries, or on land already designated by the county for similar use.

b. Impact on Surrounding Lands. Discuss what the impacts of changing the county plan designation or extending the urban growth or rural community boundary would have on the surrounding lands.

c. Significant Public Benefits. Discuss what, if any, public benefits are provided by the proposed project above that already required under existing approval and permitting requirements.

d. Plan Amendment. Provide a timetable for application for and approval of any required plan amendment.

12. Environmental Health Hazards. The EA/EIS should discuss the potential for the project or project users to generate hazardous materials or release possible contaminants to the air, soil, or water, as well as measures to be taken to ensure that environmental and public health and safety will be protected during construction and after buildout. The EA/EIS should also identify and discuss any potential health and environmental threats that may be present due to site-specific contamination from past or current use. If contaminants of concern are identified for the project site, OP recommends that the petitioner consult with the State Department of Health's Hazard Evaluation and Emergency Response Office as to measures to be taken to address possible or actual contamination at the site.

13. Solid Waste Management. The EA/EIS should quantify the volume of solid waste likely to be generated by the project by types of users, and describe the impact the project will have on the County's existing and planned capacity for managing solid waste as represented in the County's solid waste management plan. The EA/EIS should discuss specific mitigation measures to be taken to reduce solid waste generation and ensure that recycling and reuse are incorporated within the project area by residential, commercial, and institutional users.

14. Sustainability Analysis. Sustainability and smart growth are themes that run through the Hawaii's State Plan, Chapter 226, HRS, and the State Administrations New Day Comprehensive Plan. With the enactment of Act 181 on July 23, 2011 adopting new priority guidelines for sustainability in the Hawaii's State Plan, OP will be reviewing proposed projects with respect to their adoption of sustainable building and development practices that will increase the sustainability of proposed projects and their long-term environmental, social, and economic benefits to Hawaii's residents and communities. OP encourages petitioners to use the EA/EIS process to identify and incorporate sustainable design and development practices, including green building practices, in the design, siting, and construction of proposed projects. To this end, we recommend that petitioners consider developing a sustainability plan that would guide the development and operation of projects to minimize the long-term resource impacts of proposed projects. Recent LUC petitioners have included sustainability plans in support of their request for reclassification.

There are a growing number of resources available to develop a sustainability framework for proposed projects, including, locally, the Office of Environmental Quality Control's Guidelines for Sustainable Building Design in Hawaii, and the Department of Health's, Health Community Design Smart Growth Checklist (http://hawai.gov/health/environmental/contemporary-planning/landuse/developinglist.pdf), and nationally, the U.S. Green Building Council's (U.S. GBC) Leadership in Energy and Environmental Design (LEED) rating systems, which offer guidelines and checklists for this purpose. Additional resources can be found at http://hawaii.gov/office/development.asp.
A BILL FOR AN ACT
RELATING TO SUSTAINABILITY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. During the 2005 Special Session, the legislature adopted Act 8, Special Session Laws of Hawaii 2005 (Act 8), to create the Hawaii 2050 task force to review the Hawaii state plan and the State’s planning process. The office of the auditor was required to prepare and submit to the legislature the Hawaii 2050 sustainability plan. In enacting Act 8, the legislature expressed its belief that government is responsible for resolving daily and immediate issues and public needs, while providing guidance to assure a sustainable future and outlook.

The creation of the Hawaii 2050 sustainability plan comes as the State faces a growing number of pressing issues, including the steady deterioration of public infrastructure, the lack of affordable housing, a continued reliance on a service-based economy, the vulnerability of Hawaii in a volatile global energy market, possible interruptions in travel and to critical food supplies, threats to fragile island ecosystems, ever-increasing numbers of residents, and an increasing number of visitors over the long term. These issues all raise questions about the long-term limits of growth in the State and highlight the need to begin planning and acting to assure Hawaii’s future. Clearly, a policy framework to establish sustainability as a state priority and ensure a coordinated and coherent approach to fulfilling the long-range vision for a sustainable Hawaii is needed. The mission of the Hawaii 2050 task force and the objectives of the Hawaii 2050 sustainability plan focus on the revitalization of the State’s long-term planning process to better guide the future development of Hawaii. Addressing and solving issues critical to Hawaii’s way of life and natural resources require coordinated community efforts to produce comprehensive, long-range planning policies and actions.

In 2005, the legislature adopted Act 225, Session Laws of Hawaii 2008 (Act 225), directing the University of Hawaii at Manoa college of social sciences public policy center to review the Hawaii 2050 sustainability plan and provide a definitive framework for policy makers including defined data, data sources, and benchmarks for each of the major goals.

The purpose of this Act is to establish sustainability as a state priority by implementing the recommendation of the social sciences public policy center to incorporate the Hawaii 2050
SECTION 2. Chapter 226, Hawaii Revised Statutes, is amended by adding a new section to part III to be appropriately designated and to read as follows:

"Sustainability. Priority guidelines and principles to promote sustainability shall include:

(1) Encouraging balanced economic, social, community, and environmental priorities;
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;
(3) Promoting a diversified and dynamic economy;
(4) Encouraging respect for the host culture;
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;
(6) Considering the principles of the ahupua'a system; and
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawaii."
Ms. Blanca Lafolette  
CMBY 2011 Investment, LLC  
ce/O Pacific Rim Land  
1300 Holopono Street, Suite 201  
Kahului, Hawai'i 96733

Dear Ms. Lafolette:

Subject: Early Consultation for the Preparation of a Draft Environmental Assessment  
Proposed Pu'unesse Heavy Industrial Subdivision  
CMBY 2011 Investment, LLC  
TMK (2) 3-8-008: 019  
Pualani, Wailuku, Island of Maui

The Office of Planning (OP) received a request for early comments regarding the proposed project, which will require a petition to reclassify approximately 80 acres of land from the State Agricultural District to the State Urban District for a 28.1-acre heavy industrial subdivision. We wish to inform you of the issues and criteria that are taken into account in our evaluation of requests for reclassification, and invite you to meet with us to discuss how your proposal will address these concerns and contribute to the achievement of State goals for sustainability.

This request is made in anticipation of district boundary amendment proceedings before the State Land Use Commission (LUC), pursuant to Chapter 205, Hawai'i Revised Statutes (HRS), and Chapter 15-15, Hawai'i Administrative Rules (HAR). OP represents the State as a mandatory party in proceedings before the LUC for amendments to district boundaries involving land areas greater than fifteen acres, pursuant to Section 205-4(c), HRS.

OP is required by Section 15-15-55, HAR, to file the State's position statement 30 days after a petition for a district boundary amendment is deemed "properly filed" by the LUC. In developing its position, OP evaluates whether the project meets the LUC decision-making criteria in Section 205-17, HRS, as well as its conformance with the Coastal Zone Management objectives and policies in Sections 205A-2, HRS. In addition, OP expects petitioners to review their proposals with respect to the State Administration's priorities in implementing the goals of the Hawai'i State Plan, Chapter 226, HRS. These priorities are set out in the Administration's New Day Comprehensive Plan, which is available at http://hawaii.gov/prov/about/a-new-day.

The LUC decision-making criteria in Section 205-17, HRS, include consideration of the following:

1. The extent to which the proposed reclassification conforms to the goals, objectives, and policies of Chapter 226, HRS, the Hawai'i State Plan, and relates to State Plan priority guidelines and State Functional Plans adopted pursuant to the State Plan. The Hawai'i State Plan is a broad policy document that guides the activities, programs, and decisions of State and local agencies.

Please note that Act 181, enacted on July 5, 2011, sets forth priority guidelines and principles in Part III of Chapter 226, HRS, to promote sustainability in the State. Petitioners will need to demonstrate how their project proposals will address the priority guidelines for sustainability. Act 181 is available at http://www.capitol.hawaii.gov/session2011/files/OM1485.PDF.

2. The extent to which the proposed reclassification conforms to the applicable district standards in Sections 15-15-18 through 15-15-21, HAR, and Chapter 205, HRS;

3. The impact of the proposed reclassification on the following areas of State concern: (a) preservation or maintenance of important natural systems or habitats; (b) maintenance of valued cultural, historical, or natural resources; (c) maintenance of other natural resources relevant to Hawai'i's economy, including agricultural resources; (d) commitment of State funds and resources; (e) provision for employment opportunities and economic development; and (f) provision for housing opportunities for all income groups, particularly the low, low-moderate, and gap groups;

4. The standards and criteria for the reclassification or rezoning of important agricultural lands in Section 205-50, HRS; and

5. The County general plan and all community, development, or community development plans adopted pursuant to the County general plan, as they relate to the land that is the subject of the reclassification petition.

Attachment A provides a list of issues based on LUC decision-making criteria, which OP examines in its review and are generally taken into consideration in LUC deliberations on petitions for district boundary amendments.

We encourage and welcome early consultation with our Office to discuss how a petition will address these issues and criteria—particularly the State concern in Item 3 above—and best practices that could or will be incorporated in the proposed project to address State

We also strongly recommend that petitioners consult with affected State agencies early in the project formulation process; and that they continue to do so in the preparation of any environmental compliance documents required under Chapter 343, HRS, so that potential impacts to resources, facilities, and services managed or provided by the State and appropriate mitigation measures are identified in petitions and their environmental compliance documents.

OP will be circulating your petition when it is filed along with your environmental compliance documents to affected State agencies. In its review, OP looks for petitioner documentation of consultation with State agencies and any recommended or agreed-to mitigation related to impacted State programs and resources. This is particularly important with respect to consultation with the State Department of Transportation (DOT) regarding the preparation of any Traffic Impact Analysis Report (TIAR) that DOT will be reviewing and accepting. In addition, we recommend consulting with the State Department of Agriculture when reclassifying agricultural lands, particularly agricultural lands with high productivity ratings.

Finally, we recommend consulting with the County Planning Department in the affected County regarding consistency of the proposed project with County plans. OP is not inclined to recommend approval of a petition that is inconsistent with adopted County general plans and community/development plans.

The degree to which your petition and the supporting environmental documents address these concerns will weigh heavily in OP’s evaluation of the proposed request and the development of the State’s position on the petition. The petitioner’s responsiveness to these concerns will also strongly influence the kinds of conditions, if any, OP will recommend to the LUC to ensure conformance with Chapter 305, HRS, should the petition be approved.

The Office of Planning looks forward to receiving information about how the petition and proposed project will address potential impacts and mitigation measures related to these issues. If you have any questions or wish to schedule a meeting with our Office, please call Ruby Edwards in the Land Use Division at (808) 587-2817.

Sincerely,

[Signature]

Maile K. Soaki
Director

Enclosure

cc: Mr. Glenn Tedaki, Chris Hart & Partners, Inc.
Proposed Pu'umene Heavy Industrial Subdivision
TMK (2) 3-8-008.019
October 12, 2011
Page 2

Early Consultation

As part of the early consultation process for the preparation of the Draft EA, letters requesting comments on the proposed project were sent to various federal, state, and county agencies, including the State Department of Transportation and the State Department of Agriculture.

Potential Impacts and Mitigation

The Draft EA will identify and discuss potential project-related impacts and include recommendations to minimize harm to the environment.

Agricultural Land, Uses, and Infrastructure

The Draft EA will contain a Preliminary Engineering Report (PER) which will evaluate existing topographic, soil, and drainage conditions and include a preliminary drainage plan for managing stormwater runoff. In addition, potential impacts from surface runoff and appropriate mitigation measures will be discussed in the Draft EA.

Water Resources

The Draft EA will include a Groundwater Resource and Water System Assessment. Potential impacts to water resources and appropriate mitigation measures will also be discussed in the Draft EA.

Wastewater Treatment and Disposal

Information about the "enhanced individual wastewater (septic) system" will be included in the PER for the proposed project. The proposed project is a "lot-only" subdivision. As such, the land owner will be responsible for the subdivision’s basic wastewater infrastructure (e.g., stubouts, transmission lines, central leach field). Each future lot owner will be responsible for the wastewater system improvements on his own lot (e.g., septic tank, sewer lines, stubout connection). All wastewater system improvements for the project, including provisions for installation, operation, and disposal, are required to comply with Chapter 11-62, HAR (Wastewater Systems).

Stormwater Management and Drainage

As previously noted, the PER for the proposed project will examine existing topographic, soil, and drainage conditions and include a preliminary drainage plan for managing surface runoff. In addition, potential impacts from stormwater runoff and appropriate mitigation measures will be discussed in the Draft EA. Provisions for the maintenance of the subdivision’s drainage system will be included in the Covenants, Conditions and Restrictions for the project. After completion, it is anticipated that the

Mr. Jesse K. Souki, Director
Office of Planning
Hawaii Dept. of Business, Economic Development & Tourism
P. O. Box 2589
Honolulu, HI 96804

SUBJECT: Office of Planning Early Consultation Comments (Ref. Nos. P-13388 and P-13389) for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu'umene Heavy Industrial Subdivision: TMK (2) 3-8-008.019

Dear Mr. Souki,

In response to my request for early consultation comments, Blanca Lafollete (land owner’s representative) and I received separate letters from the Office of Planning (OP). The letters, which were dated August 31, 2011, informed us of the issues and criteria that OP employs when reviewing land use petitions and their supporting environmental review documents.

On behalf of the land owner, CM2Y 2011 Investment, LLC, this letter responds to the letters sent to Ms. Lafollette (Ref. No. P-13389) and me (Ref. No. P-13388) as both letters were very similar in substance.

State Laws

The land owner understands that the proposed project will be evaluated in context of Section 285-17, HRS (Land Use Commission Decision-making Criteria), Section 285A-2, HRS (Coastal Zone Management Program; Objectives and Policies), and Chapter 226, HRS (Hawaii’s State Planning Act) that best management practices for addressing State sustainability guideline pursuant to Act 181 (2011) will be examined as well.

115 N. Market Street, Waikiki, Maui, Hawaii 96722-1717 • Ph: 808-242-1955 • Fax: 808-242-1956
www.chrishartmaui.com
let owner's association will be responsible for the long-term maintenance of the project's drainage system.

Access Easements

A Request for Use of State Lands for access easements was filed with the State Department of Land and Natural Resources in February 2011. If the access easements are not granted within five (5) years, Alexander & Baldwin, Inc. will provide alternate access easements to the subject parcel.

Copies of your comment letters have been provided to the appropriate project consultants.

Thank you for providing us with your comments and for participating in the early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otsuno, P.E.
Tom Nance, TNWRE
Martin Luna, Esq.
APPENDIX S
Draft EA Comment
Period
DRAFT EA REVIEW PROCESS


On June 26, 2012, the Maui Planning Commission convened and commented on the Draft EA. The MPC is serving as the accepting authority for the environmental review process. In addition, an article about the Draft EA was published in the July 2, 2012 edition of the Maui News. Based on coordination with Maui Planning Department, copies of the Draft EA were distributed to the following government agencies, organizations, and other parties as part of the environmental review process.

**Federal Agencies (3)**

Mr. George Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5440

Ms. Ranae Ganske-Cerizo, District Conservationist
Natural Resources Conservation Service
U.S. Dept. of Agriculture
77 Ho’okele Street, Suite 2020
Kahului, HI 96732

Mr. Loyal Mehrhoff, Field Supervisor
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, HI 96850

**State Agencies and Branches (18)**

Mr. Russell Kokubun, Chairperson
Office of the Chairperson
Hawai‘i Department of Agriculture
1428 S. King Street
Attention: Mr. Earl Yamamoto
Honolulu, HI 96814
Mr. Richard C. Lim, Director
Hawaii Dept. of Business, Economic Development & Tourism
P. O. Box 2359
Honolulu, HI 96804

Mr. Daniel Oronenker, Executive Director
Land Use Commission
Hawaii Dept. of Business, Economic Development & Tourism
Honolulu, HI 96804-2359

Mr. Jesse K. Souki, Director
Office of Planning
Hawaii Dept. of Business, Economic Development & Tourism
P. O. Box 2359
Honolulu, HI 96804

Mr. Alapaki Nahale-a, Chairperson
Office of the Chairperson
Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96805

Mr. Wilfred Nagamine, Chief
Clean Air Branch
Hawaii Dept. of Health
919 Ala Moana Blvd., Suite 203
Honolulu, Hawaii 96814

Mr. Alec Wong, P.E., Chief
Clean Water Branch
Hawaii Dept. of Health
919 Ala Moana Blvd., Room 301
Honolulu, HI 96801-3376

Mr. Jeffrey M. Eckerd, Acting Program Manager
Indoor & Radiological Health Branch
Hawaii Dept. of Health
591 Ala Moana Blvd.
Honolulu, HI 96813

Ms. Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Hawaii Dept. of Health
919 Ala Moana Blvd., Room 308
Honolulu, HI 96814-4920
Mr. Steven Chang, Chief
Solid & Hazardous Waste Branch
Hawai‘i Dept. of Health
919 Ala Moana Blvd., Room 212
Honolulu, HI 96814

Mr. Marshall Lum, Acting Chief
Wastewater Branch
Hawai‘i Dept. of Health
919 Ala Moana Blvd., Room 309
Honolulu, HI 96814-4920

Ms. Patti Kitkowski, Program Chief
Maui District Health Office
Hawai‘i Dept. of Health
54 High Street
Wailuku, HI 96793

Mr. Russell S. Tsuji, Land Administrator
Land Division
Hawai‘i Dept. of Land & Natural Resources
1151 Punchbowl Street, Room 220
Honolulu, HI 96809

Mr. Daniel Ornellas, District Land Agent
Maui Land Division
Hawai‘i Dept. of Land & Natural Resources
54 High Street, Room 101
Wailuku, HI 96793

Mr. Clyde W. Namu‘o, Chief Executive Officer
Office of Hawaiian Affairs
State of Hawai‘i
711 Kapi‘olani Blvd., Suite 500
Honolulu, HI 96813

Ms. Jenny Pickett, Maui Archaeologist
Maui District Office
State Historic Preservation Division
130 Mahalani Street
Wailuku, HI 96793

Mr. Dean Nakagawa, Administrator
Statewide Transportation Planning Office
Hawai‘i Dept. of Transportation
200 Rodgers Blvd.
Honolulu, HI 96819
Mr. Ferdinand Cajigal, District Engineer
Maui Highways Division
Hawai'i Dept. of Transportation
650 Papapala Drive
Kahului, HI 96732

County Agencies (8)

Mr. Kyle Ginoza, Director
Maui Dept. of Environmental Management
2200 Main Street, Suite 175
Wailuku, HI 96793

Mr. Paul Haake, Captain
Fire Prevention Bureau
Maui Dept. of Fire & Public Safety
313 Manea Place
Wailuku, HI 96793

Mr. Glenn T. Correa, Director
Maui Dept. of Parks & Recreation
700 Halia Nakoa Street
Wailuku, HI 96793

Mr. Aaron Shinmoto, Administrator
Zoning Administration
& Enforcement Division
Maui Dept. of Planning
250 S. High Street
Wailuku, HI 96793

Mr. Gary A. Yabuta, Chief
Maui Police Department
55 Mahalani Street
Wailuku, HI 96793

Mr. David C. Goode, Director
Maui Dept. of Public Works
200 S. High Street
Wailuku, HI 96793

Ms. Jo Anne Johnson, Director
Maui Dept. of Transportation
2145 Kaohu Street, Suite 102
Kahului, HI 96732

Mr. David Taylor, P.E., Director
Maui Dept. of Water Supply
200 S. High Street
Wailuku, HI 96793
Other Parties (9)

Mr. Gordon Yadao, Section Manager
Network Engineering & Planning
Hawaiian Telcom, Inc.
60 S. High Street
Wailuku, HI 96793

Mr. Dan Takahata, Manager
Engineering Division
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, HI 96733-6898

Mr. Grant Chun, Vice President
A&B Properties, Inc.
P.O. Box 156
Kahului, HI 96732

Mr. David Gomes, General Manager
Hawaiian Cement
P.O. Box 488
Kahului, HI 96733

Mr. Randall Moore, Manager
Agricultural Engineering Services
Hawaiian Commercial & Sugar Company
P.O. Box 266
Pu‘unene, HI 96784

Kihei Community Association
P.O. Box 662
Kihei, HI 96753

LeSEA Broadcasting Corporation
61300 South Ironwood
South Bend, IN 46614

Kihei Public Library
35 Waimahalai Street
Kihei, HI 96753

Maui Planning Commission
c/o: Maui Dept. of Planning
250 S. High Street
Wailuku, HI 96793

Letters commenting on the Draft EA and letters responding to those comments are included in the following section.
Comment and Response Letters
Date: June 7, 2012

To: Chris Hart & Partners
C/O Kurt F. Wollenhaupt
115 Market Street
Wailuku, HI 96793

Subject: (EA), (CPA), (DBA), and (CIZ) for the Pu‘unene Heavy Industrial Subdivision
Near Mokulele Highway
TMK: (2) 3-8-008:019

Dear Kurt:

Below are our requirements for our “Heavy Industrial Subdivisions”. We have no comment at this time, yet these requirements will be enforced during the subdivision and building permit processes.

Water supply for fire protection shall have a minimum flow of 2500 gallons per minute for a two hour duration. Fire hydrants shall be placed on the service road to all parcels with hydrant spacing a maximum of 250 feet between hydrants.

Service roads to proposed properties shall have a clear width of 20 feet. Any dead-end roads or cul-de-sacs shall have a clear width of 32 ft., and if greater than 150 ft. in length, shall be provided with an approved fire apparatus turn-around.

All turns and required turnarounds shall have an outside turning radius of 40.5 feet. The maximum grade for the service roads shall not be greater than 12%.

Once construction of buildings are planned, there shall be at least one hydrant within 300 feet of any building to be constructed.

If you have any questions, please call 808-244-9161 ext 25 or fax 808-244-1363.

Sincerely,

K. Davis
Lt. K. Davis

Mr. K. Davis, Lieutenant
Fire Prevention Bureau
Maui Dept of Fire & Public Safety
318 Manea Place
Wailuku, HI 96793

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Davis,

In response to your letter dated June 7, 2012, we would like to note that the proposed project will be developed in accordance with the fire protection requirements set forth in your letter.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-3555 should you have any questions.

Sincerely,

[Signature]

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Laforette, PRL
Stacy Osuna, P.E.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1905 • Fax 808-242-1505
www.chpmaui.com
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, HI 96793

Attention: Glenn Tadaki, Consultant

Subject: Draft EA / CPM / DBA / CIZ for the Puunene Heavy Industrial Subd.
TMIC (2) 3-8-008:019 (CPA 2012/002) (CIZ 2012/006) (EA 2012/0001)

Dear Glenn,

Thank you for allowing us to review and comment on the subject project. Your plans have been received and put on file.

Hawaiian Telcom, Inc. has no comment, nor do we require any additional information at this time.

Should you require further assistance, please call me at 342-5107.

Sincerely,

Tom Hutchison
OSP Engineer

cc: Kurt Wellenhaupt, Staff Planner, COM
    Gerry Segudo, Section Manager

BICS File No. 1107-083 (3092)

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Mr. Tom Hutchison, OSP Engineer
Network Engineering and Planning
OSP Engineering - Maui
Hawaiian Telecom
60 South Church Street
Wailuku, HI 96793

SUBJECT: Comments on the Puunene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMIC (2) 3-8-008:019

Dear Mr. Hutchison,

Pursuant to your letter dated June 7, 2012, we understand Hawaiian Telcom has no comments nor do you require any additional information at this time.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wellenhaupt, Maui Planning Department
    Blanca Lafollette, FRL
    Stacy Oehmo, P.E.

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115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1955
www.chpmaul.com
MEMORANDUM

TO : KURT F. WOLLENHAUP, STAFF PLANNER
DEPARTMENT OF PLANNING

FROM : GARY A. YABUTA, CHIEF OF POLICE

SUBJECT : PERMIT NO.: CPA 2012/0002, CIZ 2012/0005, EA 2012/0001
TMK : (2) 3-8-008:019
Name : DEA for Community Plan Amendment
Applicant : Dept. of Planning

☐ No recommendation or comment to offer.
☐ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project.

Assistant Chief Victor K. Ramos
For: GARY A. YABUTA
Chief of Police

Enclosure
It is the duty of the project manager to examine the impact of vehicular movement within the area while work is conducted on this project.

The planned project for future development is expected to increase vehicular traffic along Mokulele Highway and Kama'aina Road for traffic movement. It also increase calls for service for Police Officers. It is also important to consider proper and adequate lighting during evening, late night, and early morning hours during construction and after the project is completed. Congregation of the unlawful element, whether it is by status offense or by criminal offense tends to occur in poorly lit areas that are easily accessible and away from the general population.

This type of congregation usually leads to offenses such as Curfew Violations, Underage Drinking, Drug offenses, Littering, and Criminal Property Damage. Although this concern would fall upon police services, by providing adequate lighting and minimizing the opportunities for this type of behavior to occur would not only benefit the Police, but the Business' and the County as a whole as damages to these areas would be expected to be less than if these areas had inadequate lighting. For these reasons, it is strongly suggested that proper lighting for this new heavy industrial project be provided in order for not only the safety of vehicular movement but for crime prevention and deterrence as well.

Considerations should be taken as the future development is located between the beat boundary of District I (Waikuku) and District VI (Kahului), which would further tax the responding officers.

CONCLUSION:

There are no objections to the planned future development at this time, from the police standpoint, in regards to pedestrian and vehicular movement. However, consideration is requested for sufficient lighting to be installed for not only the safety of vehicular movement, but for crime prevention and deterrence as well.

Respectfully submitted,

Jihoon Cho
Police Officer III / Community Policing
06/14/12 @ 0845 hrs.

cc: Kurt Woltershaupt, Maui Planning Department
Blanca Lafolette, PRL

110 N. Market Street, Wailuku, Maui, Hawaii 96793 • Ph 808-242-1955 • Fax 808-242-1366
www.chpmaui.com
NO PERMIT REQUIRED

Dear Mr. Tadaki:

This responds to your letter dated May 1, 2012 requesting review comments for the proposed Pu'umene Heavy Industrial Subdivision in Kahului, Island of Maui. We have assigned this project the reference number POH-2011-00179. Please cite this reference number in any future communications with this office regarding this project.

We have completed our review of the submitted documents pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). For your information, Section 10 requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, or other activity occurring in, over, or under or affecting navigable waters of the U.S. For tidal waters, the shoreward limit of the Corps' jurisdiction extends to the Mean High Water Mark (MHW). Section 404 requires that a DA permit be obtained for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. For tidally influenced waters, in the absence of adjacent wetlands, the shoreward limit of the Corps' jurisdiction extends to the High Tide Line, which in Hawaii may be approximated by reference to the Mean Higher High Water Mark (MHHWM). For non-tidal waters, the lateral limits of the Corps' jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands.

Based on the information you submitted, the project area does not consist of any navigable water of the U.S. subject to the Corps' regulatory jurisdiction. Additionally, this proposed land development project would not involve the placement and/or discharge of dredged and/or fill material into waters of the U.S.; including wetlands. Therefore, a DA permit is not required.

This determination does not relieve you of the responsibility to obtain any other permits, licenses, or approvals that may be required under County, State, or Federal law for your proposed work.

Thank you for giving us the opportunity to review this proposal and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Michelle Lazzaro at (808) 855-4307, or through email at Michelle.K.Lazzaro@usace.army.mil. You are encouraged to provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://per2.mwp.usace.army.mil/survey.html.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch
Mr. George F. Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5440

SUBJECT: Comments on the Pu`unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008.019; Reference No. PCH-2011-00179

Dear Mr. Young,

Pursuant to your letter dated June 19, 2012, we understand that a Department of the Army permit is not required for the proposed project since it does not involve any navigable waters of the U.S. subject to the Corp’s jurisdiction nor would it involve the placement and/or discharge of dredged and/or fill material into waters of the U.S., including wetlands.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1555 should you have any questions.

Sincerely,
Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafolette, P.E.
Stacy Otomo, P.E.
June 19, 2012

Mr. Glenn Tadaki, Consultant  
Chris Hart & Partners, Inc.  
115 North Market Street  
Wailuku, Maui, Hawaii 96793-1717

Dear Mr. Tadaki:

Subject: Draft Environmental Assessment – Puunene Heavy Industrial Subdivision  
at the intersection of Molulele Highway, Mahamah Loop and  
Kamaaina Road, Kilhe, Maui, Hawaii 96753

TMK (2) 3-8-005: 019  86.03 acres

Thank you for allowing us the opportunity to comment on the Draft Environmental Assessment for the Puunene Heavy Industrial Subdivision. We have the following comments to offer.

The Wastewater Branch will not allow the use of multiple enhanced septic tanks to discharge into a central leach field. A separate soil absorption system, such as a leach field, must be provided for each proposed septic tank system. In addition, the septic tank system shall be constructed in accordance with applicable provisions of Hawaii Administrative Rules, chapter 11-62, "Wastewater Systems." If a sewer collection system is proposed for the subject project, a wastewater treatment plant shall be constructed in accordance with chapter 11-62, HAR, for the treatment and disposal of the wastewater.

All wastewater plans must conform to applicable provisions of the chapter 11-62, HAR. We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at phone 984-5292 on Maui or to our Oahu office at (808) 968-4204 or fax to (808) 968-4300.

Sincerely,

MARSHALL LUM, P.E., ACTING CHIEF  
Wastewater Branch

cc: DCH's Environmental Planning Office – Ms. Laura McIntyre  
DCH-WWf Maui Staff – Mr. Roland Tahan  
County of Maui – Department of Planning – Mr. Kurt Winkenhaupt

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Mr. Marshall Lum, P.E., Acting Chief
Wastewater Branch
Hawai‘i Dept. of Health
919 Ala Moana Blvd., Room 309
Honolulu, HI 96814-6920

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Lum,

Thank you for providing us with your comments on the Draft EA. In response to your letter dated June 19, 2012 we would like to note the following.

We recently contacted the department’s Maui Wastewater Branch and verified that wastewater from multiple septic tanks can no longer be discharged into a central leach field pursuant to current DOH policy.

In light of the foregoing, the wastewater treatment plans for the proposed subdivision will be modified to call for the installation of an aerobic treatment unit and leach field on each developable lot. Based on our discussion with Wastewater Branch staff, aerobic treatment units are permissible and can be used within 1,000 feet of a drinking water well.

The cost and installation of this individual wastewater system will be borne by individual lot owners when their lots are developed in the future. Each lot owner will also be responsible for compliance with Chapter 11-52, HAR pertaining to “Wastewater Systems”.

Thank you for providing us with your comments and for participating in the environmental review process.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]
Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafollette, PRL
Stacy Otomo, P.E.
Tom Nance, TNWRE
June 25, 2012

Mr. Kurt F. Wollenhaupt, Staff Planner
County of Maui, Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Wollenhaupt:

Thank you for your submittal requesting comments to the Draft Environmental Assessment (DEA) for the CPA, DBA and CIZ for the Pu‘unene Heavy Industrial Subdivision at TMK: (2) 3-8-008-019, Maui, Hawaii.

Based on our review, we have no additional comments at this time.

Should you have any questions, please contact me at (808) 526-4701.

Sincerely,

[Signature]

Jeffrey M. Eckerd
Program Manager
Indoor and Radiological Health Branch

June 26, 2012

Mr. Jeffrey M. Eckerd, Program Manager
Indoor & Radiological Health Branch
Hawai‘i Dept. of Health
P.O. Box 3378
Honolulu, HI 96801-3378

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008-019

Dear Mr. Eckerd,

As noted in your letter dated June 25, 2012, we understand that the Indoor and Radiological Health Branch has no additional comments at this time.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Cherin Tadaaka
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Laffoletti, PRL
Yoichi Ebisu, P.E.
June 26, 2012

Mr. Glenn Tadaki
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawaii 96793-1717

Dear Mr. Tadaki:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED PU‘UNENE HEAVY INDUSTRIAL SUEDIVISION PU‘UNENE, MAUI, HAWAII

The Safe Drinking Water Branch (SDWB) acknowledges receipt of the Draft Environmental Assessment (EA) dated April 2012, and expresses our appreciation for the opportunity to comment on the proposed project.

Please refer to our previous comments provided in the SDWB letter, dated July 5, 2011, submitted in response to your previous request for review and comment on the subject project.

If you have any questions, please call Craig Watanabe, of the SDWB Engineering Section, at (808) 586-4258.

Sincerely,

[Signature]

JOANNA L. SETO, P. E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

RECEIVED
JUN 28 2012

CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

[Signature]
Ms. Joanna L. Seto, P.E., Chief
Safe Drinking Water Branch
Hawai‘i Dept. of Health
919 Ala Moana Blvd., Room 308
Honolulu, HI 96814-4920

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Ms. Seto,

Thank you for your Draft EA comment letter dated June 26, 2012 which refers to the Safe Drinking Water Branch’s previous letter dated July 5, 2011 (see attached). In response to these comments we would like to reiterate the following:

1. Information about the source of drinking water for the proposed project has been included in the Draft EA. Refer to Appendix O, Groundwater Resources and Water System Assessment.

2. The public water system for the proposed project will comply with Title 11, Chapter 20, HAR entitled “Rules Relating to Potable Water Systems”.

3. The capacity requirements of the public water system for the proposed project will comply with Section 11-20-29.3, HAR relating to “Capacity demonstration and evaluation”.

4. The public water system for the proposed project will comply with provisions of Section 13-20-29, HAR relating to “Use of new sources of raw water for public water systems”. In addition, the land owner understands that the Director of Health must approve all new public water system sources prior to its use.

5. Pursuant to Section 11-20-29, HAR, the land owner acknowledges that an engineering report must be submitted to the Safe Drinking Water Branch (SDWB) for anyone proposing to use a new, natural water source to supply a public water system. As set forth in Subsection 11-20-29 (b) (8), all potential sources of contamination must be identified and control measures for reducing potential contamination must be evaluated. In addition, the land owner understands that a water quality analysis for all regulated contaminants must be submitted to the SDWB to evidence compliance with all drinking water standards.

6. The land owner acknowledges that all public water system sources are subject to a source water assessment which will delineate a water source protection area.

7. The land owner understands that any new public water system must be approved by the Director of Health before construction can commence pursuant to Section 11-20-30, HAR pertaining to “New and modified public water systems”.

8. The public water system for the proposed project will be operated in accordance with Title 11, Chapter 25, HAR entitled “Rules Pertaining to Certification of Public Water System Operators”.

9. The land owner understands that separate drinking water and non-potable systems need to be carefully designed and operated to prevent any cross-connections and potential backflow and that the dual system must be clearly labeled and physically separated to avoid drinking water contamination. The design and operation of the dual system for the proposed project shall comply with the provisions of Title 11, Chapter 21, entitled “Cross-connection and Backflow Control”.

10. The land owner acknowledges that all projects within a water source protection area that propose a potentially contaminating activity could affect an existing water source for a public water supply and that appropriate measures will need to be undertaken to prevent or reduce the potential for contamination of the drinking water source.

11. Copies of the SDWB’s July 5, 2011 letter and contact information were previously provided to the land owner and the appropriate project consultants.

Thank you for providing us with your comments and for participating in the environmental review process.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1605 • Fax 808-242-1656
www.chpmaui.com
Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafolette, PPL
Tom Nanse, TWE
Stacy Otomo, P.E.

Mr. Glenn Tadaki
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Hawaii 96793-3717

Dear Mr. Tadaki:

SUBJECT: EARLY CONSULTATION FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT (EAA) FOR THE PROPOSED PU‘UNENE HEAVY INDUSTRIAL SUBDIVISION
PU‘UNENE, MAUI, HAWAI'I
TMK (2) 3-8-008:019

The Safe Drinking Water Branch (SDWB) has reviewed the subject document and has the following comments:

1. The description of the project does not clearly identify the source of drinking water for the project. Please clearly identify the source of drinking water.

2. This project qualifies as a public water system. Federal and state regulations define a public water system as a system that serves 25 or more individuals at least 60 days per year or has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, entitled “Rules Relating to Potable Water Systems.”

3. All new public water systems are required to demonstrate and meet minimum capacity requirements prior to their establishment. This requirement involves demonstration that the system will have satisfactory technical, managerial, and financial capacity to enable the system to comply with safe drinking water standards and requirements in accordance with HAR Title 11, Chapter 20, Section 29.4, entitled “Capacity demonstration and evaluation.”

4. Projects that propose development of new sources of drinking water serving or proposed to serve a public water system must comply with the terms of HAR Title 11, Chapter 20, Section 29, entitled “Use of new sources of raw water for public water systems.” This section requires that all new public water system
5. The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses for all regulated contaminants, performed by a laboratory certified by the State Laboratories Division of the State of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional parameters may be required by the Director for this submittal or additional tests required upon his or her review of the information submitted.

6. All sources of public water systems must undergo a source water assessment which will delineate a source water protection area. This process is preliminary to the creation of a source water protection plan for that source and activities which will take place to protect the source of drinking water.

7. Projects proposing to develop new public water systems or proposing substantial modifications to existing public water systems must receive approval by the Director of Health prior to construction of the proposed system or modification in accordance with HARP Title 11, Chapter 20, Section 30, entitled "New and Modified Public Water Systems." These projects include treatment, storage and distribution systems of public water systems. The approval authority for projects owned and operated by a County Board or Department of Water or Water Supply has been delegated to them.

8. All public water systems must be operated by certified distribution system and water treatment plant operators as defined by HARP Title 11, Chapter 11-25 entitled, "Rules Pertaining to Certification of Public Water System Operators."

9. All projects which propose the use of dual water systems or the use of a non-potable water system in proximity to an existing drinking water system to meet irrigation or other needs must be carefully designed and operated to prevent the cross-connection of these systems and prevent the possibility of backflow of water from the non-potable system to the drinking water system. The two systems must be clearly labeled and physically separated by air gaps or reduced pressure principle backflow prevention devices to avoid contaminating the drinking water supply. In addition backflow devices must be tested periodically to assure their proper operation. Further, all non-potable spigots and irrigated areas should be clearly labeled with warning signs to prevent the inadvertent consumption on non-potable water. Compliance with HARP Title 11, Chapter 21 entitled "Cross-Connection and Backflow Control" is also required.

10. All projects which propose the establishment of a potentially contaminating activity (as identified in the Hawaii Source Water Assessment Plan) within the source water protection area of an existing source of water for a public water supply should address this potential and activities that will be implemented to prevent or reduce the potential for contamination of the drinking water source.

11. For further information concerning the application of capacity, new source approval, operator certification, source water assessment, backflow/cross-connection prevention or other public water system programs, please contact the Safe Drinking Water Branch at 808-448.

If there are any questions, please call Jennifer Mikaido at (808) 886-6258.

Sincerely,

[Signature]

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

JH:slm
July 2, 2012

Mr. Kurt Wollenhaupt
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai‘i 96793

Dear Mr. Wollenhaupt:

Subject: Draft Environmental Assessment (DEA)
Pu‘unene Heavy Industrial Subdivision
Pu‘unene, Maui, Hawai‘i
Tax Map Key: 3-8-08-19

We have reviewed the DEA for the subject project and have the following comments to offer:

1) We suggest that a list of acronyms used throughout the DEA be included following the Table of Contents for ease of reference.

2) In Chapter I, Project Overview, page 3, the State Land Use Classification of the Site Area is incorrectly identified as “Urban.” As stated elsewhere in the DEA, the correct State land use designation of the Site Area is “Agricultural.”

3) In accordance with section 11-200-10(4), Hawai‘i Administrative Rules (HAR), the DEA should include a general description of the action’s technical, economic, social, and environmental characteristics. We note that Chapter II, Description of the Property and Proposed Action, Section D, Description of the Proposed Action, Paragraph 2, Proposed Action, of the DEA describes the number and size of the proposed lots as well as the remaining acreage devoted to drainage facilities and the internal roadway system. Figure 5 of the DEA is identified for reference. However, Figure 5 does not depict the location, size, and configuration of these individual lots relative to the subdivision footprint. Although we acknowledge that the actual number and size of the lots will be impacted by market conditions, we believe that Figure 5 should be amended to provide a more detailed representation of the land development plan to better correspond with the written description provided in the above paragraph.

4) In accordance with section 11-200-10(6), HAR, the DEA should identify and summarize the impacts and alternatives considered. We note that there is no discussion in the DEA on the existing civil defense facilities in the area and on the potential impacts on such facilities from the project. We request that the Final EA address this matter, including any plan to fund and construct adequate civil defense measures (sirens) to serve the Petition Area as may be required by the State Department of Defense, Office of Civil Defense.

We also note that no inventory and assessment of arthropods on the property was conducted. Although the location of the property may not require that a comprehensive arthropod study be conducted, we request that this matter be addressed in the interest of full environmental disclosure.

Finally, the DEA does not include an analysis of the potential impacts and possible mitigation measures for cable television systems as it does for electrical and telephone services.

With respect to the discussion on alternatives, we acknowledge that Chapter II, Description of the Property and Proposed Action, Section E, Alternatives, of the DEA addresses various alternatives; however, this discussion does not appear to be an objective evaluation in that the alternatives presented are primarily discussed in a negative context relative to the proposed development. Please also include a discussion of the potential benefits of the alternatives, including the extent to which the

225 SOUTH BERETANSA STREET • SUITE 410 • HONOLULU, HAWAII 96813 • TEL: (808) 587-3822 • FAX: (808) 587-3827
EMAIL: land@hawaii.gov
MAILING ADDRESS: P. O. BOX 2655, HONOLULU, HAWAII 96804
alternatives could avoid some or all of the short and long-term adverse environmental effects.

5) In the DEA, there are numerous references to the term *potable water* and *non-potable water*. We request that they be replaced by the terms *drinking water* and *non-drinking water*, respectively. We have been advised that although potable water has generally been used to mean drinking water, the State Department of Health (DOH) uses the latter term specifically to indicate water for human consumption that is derived from surface water and/or groundwater and is regulated by the DOH pursuant to chapter 11-20, HAR.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the subject DEA.

Should you have any questions, please feel free to call Bert Saruwatari of our office at 587-3822.

Sincerely,

Daniel E. Orendorfer
Executive Officer

c: Glenn Tadaki
State Civil Defense are currently pending, the Final EA will address their comments as well as the foregoing comments from the Land Use Commission.

In response to your comments, the Final EA will include a report documenting the findings of an Arthropod Study. The primary objective of the study, which involved a field survey conducted by Robert W. Hobdy on July 16, 2012, was to inventory all arthropod species in the project area. A total of 15 arthropods were recorded, representing seven Orders of spiders and insects. No rare or endangered insects were observed including the endangered Blackburn's sphinx moth (Manduca blackburni). None of the moth's preferred hostplants, the tree tobacco (Nicotiana glauca) were found, and no adult moths, eggs or larvae were

A discussion of existing cable television service in the project area as well as potential impacts and mitigation measures will be included in the Final EA.

The Final EA will include a discussion of the potential benefits of the alternatives, including the extent that the alternatives could avoid short and long-term adverse impacts.

5. The terms “potable water” and “non-potable water” will be respectively replaced with the terms “drinking water” and “non-drinking water”.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 542-1955 should you have any questions.

Sincerely,

[Signature]

Glen Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lalolette, PLLC
Mr. William R. Spence  
July 2, 2012  
Page 2

3. The noise created during the construction phase of the project may exceed  
the maximum allowable levels as set forth in Hawaii Administrative Rules  
(HAR), Chapter 11-46, “Community Noise Control.” A noise permit may  
be required and should be obtained before the commencement of work.  
The Indoor & Radiological Health Branch should be contacted at  
808 586-4700.

It is strongly recommended that the Standard Comments found at the Department’s  
website: http://hawaii.gov/health/environmental/env-planning/landscape/landscape.html be  
reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-3230 or E-mail me at  
patricia.kitkowaki@doh.hawaii.gov.

Sincerely,

Patti Kitkowaki  
District Environmental Health Program Chief

c Glenn Tadaki, Chris Hart & Partners, Inc.  
E/F/O

Thank you for the opportunity to review this project. We have the following comments  
to offer:

1. National Pollutant Discharge Elimination System (NPDES) permit  
coverage may be required for this project. The Chap Water Branch  
should be contacted at 808 586-4309.

2. The proposed subdivision cannot exceed 50 lots if 10,000 square foot lots  
are used. Should the subdivision exceed the allowable 50 lots, a private  
wastewater treatment plant is required or the project must connect to the  
County sewer system.

CC: Glenn  
10/28/12

RECEIVED  
Jul 03 2012

Chris Hart & Partners, Inc.  
Landscape Architecture and Planning
Ms. Patti Kitkowski, Chief  
Maui District Health Office  
Hawai'i Dept. of Health  
54 High Street  
Wailuku, HI 96793

SUBJECT: Comments on the Pu’unene Heavy Industrial Subdivision  
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005  
TMK (2) 3-8-008:019

Dear Ms. Kitkowski,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 2, 2012.

1. The proposed project will comply with applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for construction activities.

2. Preliminarily, the proposed project would create 28 developable lots ranging from 0.5-acre to 20- acres in size. It is highly unlikely that the total number of lots will exceed that amount. Based on recent discussions with your department's Wastewater Branch, the wastewater treatment plan for the proposed subdivision will be modified to call for the installation of an aerobic treatment unit and leach field on each developable lot. Based on our discussion with Wastewater Branch staff, aerobic treatment units are permissible and can be used within 1,000 feet of a drinking water well.

3. Should noise from construction activities exceed the allowable daytime threshold (70 dBA) for industrial-zoned districts, the contractor shall obtain a Community Noise Permit from the Indoor and Radiological Health Branch pursuant to Chapter 11-46, HAR pertaining to "Community Noise Control".

Thank you for providing us with you comments and for participating in the environmental review process.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki  
Planner

cc: Blanca Lafalette, PRL  
Stacy Otomo, P.E.  
Yoichi Ebita, P.E.
**AGENCY TRANSMITTAL RESPONSE e-FORM**

**FOR DEPARTMENT OF PLANNING, COUNTY OF MAUI**

**June 13, 2012**

<table>
<thead>
<tr>
<th>AGENCY NAME</th>
<th>Department of Environmental Mgmt.</th>
<th>PHONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT:</td>
<td>Draft EA for Community Plan Amendment (CPA), District Boundary Amendment (DBA), and Change in Zoning (CIZ) for Pu’unene Heavy Industrial Subdivision located approx. one mile southeast of Mokulele Hvy., Mohomeha Loop &amp; Kamalina Rd. intersection, Maui, HI</td>
<td>270-0230</td>
</tr>
<tr>
<td>APPLICANT:</td>
<td>2-3-8-008-019, CPA 2012/0002, CIZ 2012/0005, EA 2012/0001</td>
<td></td>
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<tr>
<td>TMK:</td>
<td>See Above</td>
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</tbody>
</table>

**WASTEWATER RECLAMATION DIVISION COMMENTS**

**NO COMMENTS**

**SOLID WASTE DIVISION COMMENTS**

**NO COMMENTS**

**Signed:**

Michael M. Miyamoto, Deputy Director

**Date:** July 3, 2012

---

Mr. Michael Miyamoto, Deputy Director
Maui Dept. of Environmental Management
2200 Main Street, Suite 175
Wailuku, HI 96793

**SUBJECT:** Comments on the Pu’unene Heavy Industrial Subdivision

- EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
- TMK (2) 3-8-008:019

Dear Mr. Miyamoto,

Pursuant to your comments dated July 3, 2012, we understand the Department of Environmental Management has no comments at this time.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (988) 242-1559 should you have any questions.

Sincerely,

[Signature]

Glenn Tadaki
Planner

**cc:** Kurt Wollenhaupt, Maui Planning Department
Bianca Lafollet, PRL
Stacy Otomo, P.E.
Tom Nance, TNWRE

---

115 N. Market Street, Wailuku, Maui, Hawaii 96793 • Ph 808-240-1555 • Fax 888-242-1566
www.chpmmaui.com
3 July 2012

Blanca Lafolette
In C/o:
CMBY 2011 Investment LLC,
P.O. Box 220, Kihei,
HAWAIIAN ISLANDS, U. S. OCCUPIED TERRITORY 96793

Re: 86-Acre Heavy Industrial Subdivision

Greetings:

We are requesting information from you folks if you made any inquiries with the Legal Kingdom of Hawai‘i Government on your proposed building and construction endeavor in the Pu‘unene area of Maui, as described above.

We and many folks would appreciate hearing from you in regards to this inquiry.

Sincerely,

Sam Miguel, Executive Director-Citizen Affairs

A Non-Profit Citizen Advocacy Group ©
SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision  
EA 2012/0011, CEA 2012/0002, CIZ 2012/0005  
TMK (2) 3-8-008:019; Reference No. PCH-2011-00179

Dear Mr. Miguel,

On behalf of CMBY 2011 Investment, LLC, we are responding to your letter dated July 3, 2012 and find that no inquiry had been made with the Legal Kingdom of Hawai‘i Government.

It should be noted, however, that the Office of Hawaiian Affairs (OHA) and the State Department of Hawaiian Home Lands were consulted during the preparation of the draft environmental assessment, and that preparation of the Cultural Impact Assessment (CIA) involved consultation with the State Historic Preservation Division, the Maui County Cultural Resources Commission, the Maui Planning Department, the Central Maui Hawaiian Civic Club, Hale Mahalii, and Mr. Kimokeo Kapaulehua. In addition, CIA Notices were published three times in the Honolulu Star-Advertiser and the Maui News during July 2011 and in the August 2011 edition of OHA’s monthly newspaper, Ke Oia Ola.

Information about the proposed project can be found on the following website.

http://oeoc.doh.hawaii.gov/Shared%20Documents/EA_and_FIS_Online_Library/Mau i/2010s/2012-06-08-DEA-Pu%60uneneHeavy-Industrial-Subdivision.pdf

Thank you for expressing your interest in this project and for participating in the environmental review process.

cc: Kurt Wollenhaupt, Maui Planning Department  
Blanca Lafolette, PRL
In order to assess the project's potential cumulative impacts, a future scenario including all reasonably foreseeable projects must be analyzed. Such a future scenario is usually the horizon year of a travel forecast which has all reasonably foreseeable projects assumed as land use inputs in the model. However, the TIAR only provides one analysis scenario, an Opening Year (Year 2015) scenario in which the entire Project is assumed constructed. The Opening Year scenario may disclose direct traffic impacts but would not disclose cumulative traffic impacts. An additional analysis scenario farther in the future should be provided in the TIAR to analyze cumulative impacts.

In addition to not analyzing and disclosing potential cumulative traffic impacts, the DEA fails to address short term impacts caused by construction traffic for the Project. The DEA should be revised to address these potential short term impacts.

2. The Project may have significant impacts not disclosed in the DEA because the TIAR did not analyze the highest trip generating use allowed in the proposed zone. Currently the County of Maui allows any use permitted in the B-1, B-2, or B-3 District in the M-2 Industrial zone ("pyramid zoning") and does not limit the amount of these business uses in the M-2 zone. The DEA's TIAR analyzed the Project as if the site were developed as an industrial park; however, an industrial park is a much lower trip generator than many uses allowed in the B-1, B-2, or B-3 Districts, such as commercial retail. In the event the Project were developed such that the site's trip generation exceeds that assumed in the TIAR, significant traffic impacts may result that were not disclosed in the DEA's TIAR. To eliminate the possibility of having undisclosed impacts, the TIAR should be revised to assume the site is comprised entirely of commercial retail.

Alternatively, if the applicant does not wish to revise the TIAR, then the Project Description in the DEA MUST be revised to state the maximum traffic that the Project would generate (average daily trips, a.m. peak hour inbound trips, p.m. peak hour outbound trips, p.m. peak hour outbound trips, p.m. peak hour outbound trips) as assumed in the TIAR. This maximum trip generation MUST be a condition of the forthcoming permit issued by the County of Maui, and the trip generation of the site MUST be monitored by the County of Maui as the site develops to ensure compliance with this permit condition. Otherwise, if the Project is not conditioned on trip generation, then "pyramid zoning" would invalidate the environmental assessment since the project could develop as a different use with higher traffic volumes. Developing with a different use and higher traffic volumes than stated in the TIAR would also violate the Hawaii Environmental Protection Act (HEPA) because the environmental impacts of traffic may not be fully disclosed to the public and the decision maker at the time of project approval.

Specific Comments to the DEA

3. Page 13 of the DEA states subdivision construction is expected to begin in 2016 with an estimated construction period of about 30 months, and subsequent lot build-out period for the subdivision is expected to last approximately 10 years. However,

- Page 29 of the DEA states Project traffic will result in an increase of 0.3 DNL by 2015 which makes no sense if construction is not to begin until 2016.
6. The TIAR should be signed and stamped by a Licensed Professional Engineer from the State of Hawaii to ensure that an individual knowledgeable in the area of transportation engineering completed the work, or reviewed the document and agrees with the content of the document.

7. The study area is insufficient to determine whether the Project has any significant traffic impacts. Figure 8 of the TIAR shows in the a.m. peak hour the Project would generate 192 inbound trips from the north and 149 inbound trips from the south along Mokulele Highway at Mokulele Highway and Kama'aina Road. Per the Institute of Transportation Engineers (ITE) Transportation Impact Analysis for Site Development, an additional 100 vehicles per hour can change the level of service or appreciably increase the volume-to-capacity ratio of an intersection approach. (See Attachment B.) Therefore, the study area should be expanded on Mokulele Highway, north and south of the intersection of Mokulele Highway and Kama'aina Road, to ensure the project has no significant traffic impacts to other intersections along Mokulele Highway.

8. The TIAR should indicate the average daily trips (ADT) anticipated from the Project. Based on trip rates published in Trip Generation, 8th Edition: An ITE Informational Report, an industrial park is estimated to generate 62.11 trips per acre on an average weekday. (See Attachment C.) Using the equation 65.92 acres x 63.11 trips/acre, the proposed 65.92 net acre industrial park is estimated to generate 4,169 ADT. This data value should be included in the TIAR.

9. The Year 2015 scenario only includes other projects from the central and north Kīhei area. Projects from Kahului that would be expected to add traffic to Mokulele Highway, such as A & B's Maui Business Park, should also be included.

10. An HCM arterial analysis should be performed for Mokulele Highway for all study scenarios (Opening Day and Horizon Year) and this analysis and its results should be provided to determine whether the project would have a significant impact on the capacity of Mokulele Highway.

11. To determine whether the proposed Project has any cumulative traffic impacts, the TIAR should provide another study scenario with a year coinciding with the Horizon Year of the most recent approved travel forecast for Maui County.

12. Page 8 of the TIAR states counts for the intersection of Mokulele Highway and Kama'aina Road were conducted on Friday, August 12, 2011. Monday and Friday counts are typically lower than mid-week counts; therefore, traffic counts should only be gathered on Tuesday, Wednesday, or Thursday. The Project may have a significant traffic impact at this intersection that is not disclosed in the DEA, since the Friday counts used may be lower than the average weekday count resulting in an inaccurate baseline.

13. Page 10 of the TIAR states, "Level-of-service D is typically considered acceptable for peak hour conditions in urban areas." The Project site is in a rural area. Clarify what level-of-service is typically considered acceptable for peak hour conditions in rural areas.

Comments to the TIAR (Appendix O of the DEA):
14. Page 13 of the TIAR indicates that in the assessment of future background conditions, roadway improvements that are part of the related projects are assumed. There is no guarantee that the other roadway improvements will be constructed by the time the Project is operational or occupied; only roadway improvements that are currently assumed by permit and bond should be assumed in the Opening Year (Year 2015) scenario.

15. Page 31 of the TIAR states the average length of a vehicle assumed in the calculation of the length of the southbound left turn pocket on Molokule Highway at the intersection of Molokula Highway and Kamaaina Road is 25 feet. However, a longer length should be used in this calculation since (according to the TIAR) 25% of the vehicles using the site are anticipated to be heavy vehicles.

16. The last paragraph on Page 31 of the TIAR describes the deceleration lane calculation and states, “The storage lane calculations are described above.” However, what is described above is the storage lane calculations for left turn lanes, not deceleration lanes. Clarify how the lengths of deceleration lanes were calculated.

17. Page 32 of the TIAR states that it is recommended that areas adjacent to Kamaaina Road, South Firebreak Road and Lower Kibei Road should be monitored to ensure that the sugar cane growth does not impede sight distances and that visibility of traffic control devices is maintained. The Project should provide sight visibility easements for any areas on the Project site at intersections. Additionally, the Project should maintain the cane fields at a height no greater than 36” to ensure proper visibility is provided. The TIAR should be revised to state the Project shall cut down the sugar cane as necessary on the Project site or within the public right-of-way to maintain corner sight distance at intersections per requirements of AASHTO. The TIAR should also be revised indicating that the Project shall maintain the visibility of traffic control devices so that safe stopping distance for heavy vehicles is provided per requirements of AASHTO.

18. Appendix H of the TIAR: The TIAR’s responses to the Maui Police Department’s comments concerning public safety are unsatisfactory. The Project should take responsibility for providing adequate street lighting and should be responsible for maintaining the height of the cane fields if the cane fields lie within public right-of-way or within the Project site.

Final Remarks:

In conclusion, the DEA fails to comply with HAR §11-200-12 because it fails to disclose cumulative traffic impacts and short-term traffic impacts. Further, the DEA may fail to disclose significant impacts because the highest trip generating use allowed in the M-2 Industrial Zone was not analyzed. Therefore, it cannot be concluded at this time that a Finding of No Significant Impact (FONSI) is the appropriate environmental determination for this project.

Thank you once again for providing me the opportunity to review and comment on the DEA. I hope you find these comments helpful in producing a legally defensible environmental document.

Sincerely,

Victoria A. Huffman, P.E.

cc: Glenn Tadaki, Chris Hart & Partners (electronic copy)
Blanca Lafolette, CMBY 2011 Investment, LLC (electronic copy)
# A POLICY on GEOMETRIC DESIGN of HIGHWAYS and STREETS

## 2001

![American Association of State Highway and Transportation Officials logo]

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![Exhibit 5-1: Design Vehicle Dimensions (Continued)]

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### Table 5-1: Design Vehicle Dimensions (Continued)

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<th>US Customary</th>
<th>Metric</th>
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2. Initiating Transportation Impact Studies

Guidelines for Studies

In considering the transportation aspects of land development, it is important to determine early in the process if and when a transportation impact study is needed.

Transportation impact studies are currently being addressed in a variety of ways by jurisdictions throughout North America. A cross sampling of data collected by ITE shows the following situations or thresholds that commonly trigger a requirement for a transportation impact analysis:

- When development will generate a specified number of daily trips (the data collected by ITE found examples of 500, 750, 1,000, 2,000 and 3,000 vehicle trips per day, with 1,000 vehicle trips per day predominating);
- When development will generate a specified number of peak-hour trips (examples include 20, 30, 50, 75, 100, 150, 200 and 300 vehicle trips per peak hour, with peak-hour trips in the 50-100 range predominating);

A trip is defined as a single or one-directional travel movement with either the origin or the destination of the trip inside the study site.

- When a specified amount of acreage is being rezoned (examples include a wide variety of acreage based on type of land use; see Florida Department of Transportation 1997 and Georgia Department of Community Affairs 2002 for specific examples);
- When development contains a specified number of dwelling units or amount of square footage (examples include a wide variety of units and square footage based on type of land use; see Florida Department of Transportation 1997 and Georgia Department of Community Affairs 2002 for specific examples);
- When financial assessments are required and the extent of impact must be determined;
- When the development will require a significant amount of transportation improvements;
- When a previous transportation impact analysis for a site has been deemed out of date;
- At the judgment or discretion of staff, based upon unusual circumstances; or
- When development will occur in a sensitive area.

There is little consistency in specific threshold quantities for the first four criteria. Study requirements should be related to the cause of transportation needs and impacts, such as trips generated during peak or design hours.

A quantitative threshold for requiring a site transportation impact study should be established by each agency based on local needs, issues and policies. The threshold level may vary among agencies in response to local conditions and priorities. In lieu of other locally preferred thresholds, it is suggested that a transportation impact study be conducted whenever a proposed development will generate 100 or more added (new) trips during the adjacent roadways' peak hour or the development's peak hour.

This site trip generation threshold is appropriate for the following reasons:

- An additional 100 vehicles per hour can change the level of service or appreciably increase the volume-to-capacity ratio of an intersection approach; and
- Left- or right-turn lanes may be needed to satisfactorily accommodate right traffic without adversely affecting through (non-site) traffic.

It should be noted, however, that many jurisdictions in more densely populated areas tend to use lower thresholds for initiating a transportation impact analysis. These thresholds fall in the range of 30 to 100 peak-hour trips.

Judgment must also enter into the process. In some cases, although a development might generate fewer trips than the established threshold, a localized...
Industrial Park (130)

Average Vehicle Trip Ends vs: Acres
On a: Weekday

Number of Studies: 43
Average Number of Acres: 38
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Acre

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<th>Range of Rates</th>
<th>Standard Deviation</th>
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<tr>
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</tr>
</tbody>
</table>

Data Plot and Equation

Fitted Curve Equation: \( T = 47.94X + 595.34 \)

\( R^2 = 0.52 \)

(This page intentionally left blank)
Ms. Victoria Huffman  
c/o 163 Kali Pu’u Street  
Kihei, HI 96753-7164

SUBJECT: Comments on the Puʻunene Heavy Industrial Subdivision  
EA 2012/0031, CPA 2012/0002, CIZ 2012/0005  
TMK (2) 3-8-008:019

Dear Ms. Huffman,

On behalf of the Applicant (CMBY 2011 Investment, LLC), and with input from the project’s traffic engineer, we are responding to your letter dated July 4, 2012.

1. Cumulative and secondary effects are discussed in Chapter VIII of the Draft EA entitled, Chapter 343, HRS Significance Criteria. An expanded discussion of cumulative and secondary effects will be included in the Final EA.

   The Final EA will also include a discussion about the cumulative effect of traffic.

   Construction of the proposed project will primarily involve site work and the installation of subdivision infrastructure. After mobilization, construction equipment, materials and vehicles will be stored and secured onsite. As such, construction-related traffic impacts are expected to be minimal.

2. The trip generation analysis is not based on zoning but is predicated on the anticipated land uses for the proposed project. The Covenants, Conditions, and Restrictions for the subdivision will include language which will preclude the commercial uses that are currently allowed under existing M-2, Heavy Industrial District zoning. It should be noted that a proposed bill for M-3, Restricted Industrial District zoning, which specifically excludes general retail and office uses, is currently being reviewed by the County Council. Should the bill be adopted by the Council, the Change-in-Zoning application will be revised to reflect the change from M-2 to M-3 zoning.

3. Based on preliminary estimates in 2011, the construction of the project was anticipated to commence approximately four to five years from that time (i.e., 2015 at the earliest).

4 (A) The length of the left-turn storage lane was estimated using the procedure described in A Policy on Geometric Design of Highways and Streets published by the American Association of State Highway and Transportation Officials (AASHTO). An average vehicle length of 25 feet is the accepted vehicle length. It should also be noted that the storage length is in addition to the deceleration lane. No overlapping of storage length and deceleration length is allowed in the State of Hawai‘i. In addition, the definition of a heavy vehicle includes smaller vehicles, not just large trailer trucks as implied. The vehicle classification count did not segregate the heavy vehicles into separate categories as it is not required in the level-of-service analysis.

4 (B) The sugar cane fields adjacent to the intersections are owned by Hawaiian Commercial & Sugar Company (HC&S) and are not under the control of the Applicant. Notwithstanding this, the Applicant will work with HC&S to help minimize potential impacts to sight distance. As part of the subdivision application and review process, a driveway sight distance analysis and worksheet (for the subdivision driveway) will be submitted to the Department of Public Works for review and approval to ensure that adequate sight distance is provided.

5. All appendices in the Final EA shall be uniformly scanned to optimize viewing.

6. The State of Hawai‘i does not stipulate that traffic engineers must sign and stamp their reports with a seal. Hawai‘i County and Kauai County have asked that traffic reports be signed and stamped albeit Maui County has not asked traffic engineers to do so.

7. The next significant intersection south of Kama‘aina Road is at North Kihei Road, while the next intersection to the north is the access road for the Central Maui Baseyard. Both intersections operate at good levels-of-service based on the traffic engineer’s knowledge of the area, the conclusions of other recent traffic studies, and a recounncassment of the area as part of the project’s traffic study.

8. The total daily traffic a project will generate is not applicable for the level-of-service as all the level-of-service analyses examine peak hour conditions.
9. At the time the project’s traffic study was prepared, 2015 was the appropriate horizon year. Maui Business Park will not be generating any significant traffic until after 2015.

10. The intersection of Molokulele Highway at Kaka’aina Road is not impacted by conditions at adjacent intersections due to its location. There is no progression with adjacent intersections because of the distances. Therefore, an arterial analysis is not warranted.

11. The horizon year was selected based on the anticipated completion of the project at the time the traffic study was prepared. It should be noted that past projects of this type on the island of Maui have been fully occupied in a very short time. The background projects were assumed to be built out and fully occupied. Therefore, extending the horizon year would only affect the background growth rate.

12. This is a global statement that may be true in some areas of the mainland but not in Hawai‘i. Wednesday afternoon traffic is not counted in the State of Hawai‘i as public schools let out early on Wednesdays. As further information, the Hawai‘i County Public Works Department requires that all traffic counts in the Kona area be performed on Fridays.

Traffic counts performed on other weekdays can be used if they can be correlated with adjacent intersections. The PM count was performed on a Thursday afternoon and the AM count was performed the following Friday morning. Both were compared with counts at North Kihei Road, the next significant and signalized intersection south of Kama‘aina Road, which were performed on a Tuesday approximately one year earlier. The counts were comparable.

13. Since there is no established standard, Level-of-Service D has been used. The project area is included in the proposed Urban Growth Boundaries for the draft Maui Island Plan and is not a rural area compared to rural areas on the mainland.

14. The development projects that were included in the assessment of future background conditions are reasonably foreseeable future actions and are not proximate to or in the vicinity of the proposed project.

15. See response to 4(A).

16. Acceleration and deceleration lane lengths are not calculated. The deceleration lane lengths shown in Table 13 of the traffic study are taken from the existing intersection plans as indicated by Note (1) at the bottom of the table. The storage lengths are the lengths calculated in Table 12.
Mr. Glenn Tadaki, Planner  
July 6, 2012  
Page 2

Should you require further clarification, please contact Staff Planner Kurt Wollenhaupt at kurt.wollenhaupt@mauincounty.gov or at (808) 270-1789.

Sincerely,

CLAYTON I. YOSHIDA, AICP  
Planning Program Administrator

for WILLIAM SPENCE  
Planning Director

xc:  
Aaron H. Shinnoto, PE, Planning Program Administrator (PDF)  
John F. Summers, Planning Program Administrator (PDF)  
David Yamashita, Planning Supervisor (PDF)  
Kurt F. Wollenhaupt, Staff Planner (PDF)  
Ms. Blanca Lafollette, Project Coordinator  
Project File  
General File

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X:\WPC_DOCS\PLANNING\CpL/2012/0002\PuuneneHeavyIndustrial\WPC Comment Letter on Draft EA.DOC

Mr. Glenn Tadaki, Planner  
July 6, 2012  
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COUNTY OF MAUI  
DEPARTMENT OF PLANNING

July 6, 2012

Mr. Glenn Tadaki, Planner  
Chris Hart & Partners, Inc.  
115 N. Market Street  
Wailuku, Maui, Hawaii 96793

Dear Mr. Tadaki:

SUBJECT: MAUI PLANNING COMMISSION COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE COMMUNITY PLAN AMENDMENT (CPA), DISTRICT BOUNDARY AMENDMENT (DBA), AND CHANGE IN ZONING (CIZ) FOR THE PUUNENE HEAVY INDUSTRIAL SUBDIVISION, LOCATED APPROXIMATELY ONE (1) MILE SOUTHEAST OF THE INTERSECTION OF MOKULÈLE HIGHWAY, MEHAMEHA LOOP, AND KAMĀ'AINA ROAD, KIHEI, ISLAND OF MAUI, HAWAII; TMK: (2) 3-8-008:019 (CPA 2012/0002) (CIZ 2012/0004) (EA 2012/0001)

At a regular meeting held on June 26, 2012, the Maui Planning Commission reviewed the above-referenced document and provided the following comments:

1. Review and comment on potential resource protection and security measures to be enacted during the construction of the project to prevent criminal or nuisance behavior (e.g., theft, vandalism, littering, etc.) from occurring on the project site.

2. Review and comment on potential fiscal mechanisms (e.g., surety bond, insurance policy, etc.) that could be put in place in order to ensure that corrective action would and could be undertaken by the developer and/or Lot Owners Association should the project’s private water supply experience a catastrophic failure resulting in ground water contamination. Such protective fiscal mechanisms would be used to ensure the County of Maui does not become by default the financially responsible party to provide water to the project site.

3. Review and comment on how potential landowners and business owners can be encouraged to promote energy generation and conservation on the project site.

Please provide written responses to the above comments in the Final Environmental Assessment.
water system operations company using DOH certified operators, and ownership by an association that is solely responsible for all legal, and financial aspects of the system are among the requirements. Fiscal management by a professional financial management company and maintenance of adequate reserve funds to address emergencies and replacements ensure that financial requirements can be met. A developer funded cash reserve is required and can be returned to the developer only after the water association has successfully developed its own financial reserves. Recorded covenants on each parcel serviced by the system provide the water association with the ability to levy assessments to meet operational needs so that the system remains within regulatory requirements. Ultimately, the water association has the ability to lien properties serviced by the system to provide the resources to maintain the system in compliance with all applicable regulatory requirements. Additional information on the DOH Capacity Development Program can be found at: http://hawaii.gov/health/environmental/water/sewby/pdf/Governor%20Report.pdf

3. Lot owners will be encouraged to utilize energy generation and energy conservation measures when developing their parcels in the future. Examples of such measures include, but are not limited to: the use of windmills or photovoltaic panels to generate electricity, and the use of solar water heating systems, energy-efficient lighting and appliances, fiberglass insulation, double-glazed windows, skylights, and extended roof eaves (to minimize heat gain through windows) to conserve energy.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]
Glenn Tadaki
Planner

cc Kurt Wollenhaupt, Maui Planning Department
Blanca Lafollette, PRL
Harold Edwards, ITC
Tom Nanou, TMWIRE
Stacy Otomo, P.E.
Mr. William Spence  
Page 2  
July 9, 2012

Ref. No. P-13650  

July 9, 2012  

Mr. William Spence, Director  
Department of Planning  
County of Maui  
250 South High Street  
Wailuku, Hawaii 96793  

Attention: Mr. Kurt F. Wollenhaupt  

Dear Mr. Spence:

Subject: Draft Environmental Assessment (EA) for the Community Plan Amendment (CPA), District Boundary Amendment (DBA), and Change in Zoning (CIZ) for the Pu‘u‘enene Heavy Industrial Subdivision, Located Approximately One (1) Mile Southeast of the Intersection of Mokulele Highway, Mehanahe Loop, and Kama‘aina Road, Maui Hawaii, TMK: (2) 3-8-008: 019 (CPA 2012/0002) (CIZ 2012/0005) (DBA 2012/0001)

Thank you for the opportunity to review and comment upon the Draft EA to allow the development of the Pu‘u‘enene Heavy Industrial Subdivision, located approximately one mile southeast of the intersection of Mokulele Highway, Mehanahe Loop and Kama‘aina Road. The developer proposes to develop the approximately 96-acre area with 28 lots, drainage areas, and internal roadways. We note that the applicant also intends to file for a Land Use District Boundary Amendment to reclassify the land from the State Agricultural District to the Urban District. According to the EA, a Finding of No Significant Impact (FONSI) is warranted. OP notes that the following comments and concerns regarding the EA do not preclude OP from other concerns that may be brought out during subsequent Land Use Commission proceedings.

1. Compatibility with Surrounding Land Uses. The proposed area is surrounded on three sides with land owned by the State Department of Land and Natural Resources and the Department of Hawaiian Home Lands. These departments are working together with the Department of Public Safety and the Department of Accounting and General Services to master plan this area of over 1,000 acres. The proposed area is also adjacent to land that has an Executive Order to the County of Maui. The uses within all of these areas should be compatible with each other. We understand the applicant’s interest in developing a heavy industrial subdivision, however, we have strong concerns that the proposed uses should also be compatible with the other current and future uses within the region.

2. Waterbirds. The proposed heavy industrial subdivision will be situated adjacent to a reservoir located north, in which waterbird species have been observed. We also note that the project area is about 1.75 miles away from the Kealia Pond National Wildlife Refuge. According to the EA, stormwater runoff will be directed to the west side of the property within a series of retention basins. Also, according to the fauna study, no endangered waterbirds were found on the project site; however, its proximity to the Kealia Pond Refuge and the nearby reservoir suggests that waterbirds might fly over and/or otherwise utilize this area while traveling within and among the water bodies within the entire region. This should be noted in the EA.

3. Nene Goose. The EA also notes that the endangered Nene Goose has been seen around the Mokulele Highway area. According to the EA, a survey has not yet been completed to determine whether the Nene is utilizing the project site, but a survey may be done at a later time. Such a survey should be included as part of this EA.

4. Hawaiian Bat. The EA also notes that while a survey has been done for the Hawaiian Bat, the consultant’s recommendation that the trees in the project area not be cut down or disturbed between the months of April and August should be cited as a mitigation measure.

Thank you for the opportunity to review this document. If you have any questions, please contact Lorene Maki of our Land Use Division at (808) 587-2888.

Sincerely,

[Signature]

Jesse K. Souki  
Director

cc: /Chris Hart & Partners, Inc.  
Attention: Mr. Glenn Takeda, Consultant
SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2011/0005
TMK (2) 3-8-008:019

Dear Mr. Souki,

On behalf of the land owner, CMFY 2011 Investment, LLC, we are responding to your letter dated July 9, 2012.

1. In response to your comments, we contacted the Department of Hawaiian Home Lands (DHHL) to ascertain the status of master planning the State lands in the vicinity of the Old Pu‘unene Airport. As you are aware, the DHHL is one of the key State agencies involved in this master planning effort.

The DHHL owns a 646-acre parcel to the south of the proposed Pu‘unene Heavy Industrial Subdivision. This land has been zoned for General Agricultural use by the DHHL, which allows it to be used for Agricultural homesteads (i.e., farm lots). As noted by the DHHL, this parcel is neither conducive for residential use or farm dwellings because of prevailing dust and wind conditions. Although its location has not yet been determined, the DHHL has plans to set aside a 100-acre portion of the site for the future development of a private wastewater treatment plant (WWTP). The DHHL has held a series of meetings with lessees to gather their input for the future development of the parcel. Although preliminary, the time frame for the development of the DHHL parcel is projected to be at least five to seven years from now.

2. As a follow-up to your comments, the Final EA shall note that water birds might fly over the Subject Parcel or utilize the proposed drainage basin along the west side of the site as they travel between various water bodies within the region including the adjacent irrigation reservoir and the Kealia Pond National Wildlife Refuge.

3. In response to your comments, the Final EA will include a report documenting the findings of a survey for the nene (Hawaiian Goose). The survey, which was conducted by Robert W. Hobdy on July 16, 2012, notes that the Subject Parcel is not irrigated and is located in one of the driest regions on Maui. This area experiences long, hot and dry summers during which the grasses and

The Department of Public Safety's plans for the future Maui Prison have been delayed due to the lack of government funding and the absence of infrastructure (i.e., water, sewer) to support this project. More recently, the County of Maui has recommended that the future Prison be moved from its proposed location near Mokulele Highway to a new site (on State lands) approximately one mile east of the highway.

Existing heavy industrial uses in the area include the Hawaiian Cement quarry, 0.2 mile to east, and the Central Maui Baseyard, 1.3 miles to the north. The Subject Parcel is situated east of, and adjacent to Project District 18 (PD 10). As indicated by the Kīhei-Ma‘alaea Community Plan (1998), "The objective of this project district is to establish a master planned recreational and industrial (emphasis added) expansion area to meet future recreational needs and to provide areas for industrial (emphasis added) activities, including government facilities, whose locations are better suited away from urban areas. In its description of PD 10, the Community Plan also states that "Approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized for heavy industrial use." In addition, the Subject Parcel is located within the proposed Urban Growth Boundaries (as the draft Maui Island Plan which indicates that the Subject Parcel "represents a logical expansion of industrial land use in the area" and that "The area's location, midway between Kīhei and Kahului, make it an ideal site to serve the island's long term heavy industrial land use needs."

The Subject Parcel is ideally situated for heavy industrial activities given existing and future land uses in the area, its separation and distance from residential and commercial development, its convenient and centralized location for customers and suppliers, and its proximity to transportation facilities at Kahului Harbor and the Kahului Airport. In addition, the use of the Subject Parcel for heavy industrial purposes is consistent with existing heavy industrial uses in the area and is compatible with land uses for the site that are set forth by the draft MIP and the Community Plan.
herbaceous plants become seared and withered. Even in a substantial wet season, the vegetation is tough and the greener is fleeting. The report finds that nothing in this environment would equate to preferred habitat for nene or attract them to feed or breed here. The fact that no nene were observed during the survey was an expected outcome, consistent with the existing environmental resources.

4. Pursuant to your comments, the Final EA will include the recommendation that trees in the project area not be cut down or disturbed between the months of April and August to mitigate potential impacts to the Hawaiian Hoary Bat.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1555 should you have any questions.

Sincerely,

Glenn Takaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafolette, PRL

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Mr. Glenn Tadaki
July 9, 2012
Page 2

2. The Ma'ālea Beach, Pacific Ocean waters is identified as a Category 5 waters in the Clean Water Act, Section 303(d) list of impaired water bodies in Chapter IV of the 2006 State of Hawaii Water Quality Monitoring and Assessment Report. Priority 5 waters are described as surface waters where available data and/or information indicate that at least one (1) of the designated uses is not being supported or is threatened. The Ma‘alaea Beach, Pacific Ocean waters is presently identified as not attaining the applicable water quality criteria for turbidity and chlorophyll a. Accordingly, the subject project should include considerations toward ensuring the protection and improvement of the Ma‘alaea Beach, Pacific Ocean waters.

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

a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal 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. This area includes any construction base yard and the storage of any construction-related equipment, material, and waste products. An NPDES permit is required before the start of the construction activities.

b. Construction dewatering effluent.

c. Hydrotesting water effluent.

d. Storm associated with industrial activity.

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

4. For types of wastewater not listed in item 3 above or wastewater discharging into Class 1 or Class AA waters, you may need an NPDES individual permit. The NPDES application forms may be picked up at our office or downloaded from our website at http://www.hawaii.gov/health/environmental/permit/permit-index.html.

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document transmitted by letter, dated May 1, 2012, and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at http://www.hawaii.gov/health/environmental/permit/permit-index.html.

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

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
5. Please call the Army Corps of Engineers at (808) 438-3256 to determine if the subject project will require a Department of the Army (DA) permit(s). Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.

6. Please note that all discharges related to the project construction or operation activities, whether or not a NPDES permit coverage and/or 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.

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.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

MTJst

c: Mr. Kurt Wollenhaupt, County of Maui, Department of Planning
   Mr. Roland Asakura, CWB-Maui, Kauai District Health Office [via email only]
Proposed Pu’unene Heavy Industrial Subdivision

TMK (2) 3-8-008-019
July 19, 2012
Page 2

along the shoreline, forcing it further offshore where it is thoroughly mixed to background ocean water levels. As a result, any impact to groundwater flowing beneath the project site and flowing south toward Ma’alaea Bay will not adversely impact the beach’s water quality, including its turbidity and chlorophyll a levels.

3. The land owner acknowledges that a National Pollutant Discharge Elimination System (NPDES) is required for discharges into Class A or Class 2 State waters.

   a. Prior to the commencement of construction, an application for an NPDES permit for storm water associated with construction activities will be submitted to the Clean Water Branch (CWB) for review and approval.

   b. No dewatering activities are anticipated at this time. However, if such work is required, an application for a NPDES permit for dewatering activities will be submitted to the CWB for review and approval.

   c. If necessary, an application for an NPDES permit for hydro-testing water effluent will be submitted to the CWB for review and approval.

   d. An application for an NPDES permit for storm water associated with industrial activity will be submitted to the CWB for review and approval as required.

4. The proposed project will not involve discharges into Class 1 or Class AA State waters

5. The U.S. Army Corps of Engineers (USACE) was consulted during the preparation of the Draft EA. A copy of the Draft EA was subsequently furnished to the Corps of Engineers for their review and comment. In a letter dated June 19, 2012 (see attached), the Corps indicated that a Department of the Army permit is not required for the proposed project since it does not involve any navigable waters of the U.S. subject to USACE jurisdiction nor would it involve the placement and/or discharge of dredged and/or fill materials into waters of the U.S., including wetlands.

6. Notwithstanding other permit requirements, the land owner understands that all project-related discharges must comply with the State’s Water Quality Standards as set forth in Chapter 11-54, HAR.

Thank you for providing us with your comments and for participating in the environmental review process.
Dear Mr. Tadaki:

This responds to your letter dated May 1, 2012 requesting review comments for the proposed Pu‘unene Heavy Industrial Subdivision in Kahului, Island of Maui. We have assigned this project the reference number POH-2011-00179. Please cite this reference number in any future communications with this office regarding this project.

We have completed our review of the submitted documents pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). For your information, Section 10 requires that a Department of the Army (DA) permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to undertaking any construction, dredging, or other activity occurring in, over, or under or affecting navigable waters of the U.S. For tidal waters, the shoreward limit of the Corps’ jurisdiction extends to the Mean High Water Mark (MHW). Section 404 requires that a DA permit be obtained for the discharge (placement) of dredged and/or fill material into waters of the U.S., including wetlands. For tidally influenced waters, in the absence of adjacent wetlands, the shoreward limit of the Corps’ jurisdiction extends to the High Tide Line, which in Hawaii may be approximated by reference to the Mean Higher High Water Mark (MHHWM). For non-tidal waters, the lateral limits of the Corps’ jurisdiction extend to the Ordinary High Water Mark or the approved delineated boundary of any adjacent wetlands.

Based on the information you submitted, the project area does not consist of any navigable water of the U.S. subject to the Corps’ regulatory jurisdiction. Additionally, this proposed land development project would not involve the placement and/or discharge of dredged and/or fill material into waters of the U.S.; including wetlands. Therefore, a DA permit is not required.

This determination does not relieve you of the responsibility to obtain any other permits, licenses, or approvals that may be required under County, State, or Federal law for your proposed work.

Thank you for giving us the opportunity to review this proposal and providing us with the opportunity to comment. Should you have any questions, please contact Ms. Michelle Lazaro at (808) 835-4307, or through email at Michelle.K.Lazaro@usace.army.mil. You are encouraged to...
provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://per2.rwp.usace.army.mil/survey.html.

Sincerely,

[Signature]

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

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MEMORANDUM

TO:  

FROM:  

SUBJECT: Draft Environment Assessment (EA) for the Community Plan Amendment (CPA), District Boundary Amendment (DBA) and Change in Zoning (CIZ) for the Puʻunene Heavy Industrial Subdivision

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 comments.

At this time, enclosed are comments from the Commission of Water Resource Management on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuboi  
Land Administrator

cc: Glenn E. Saiki  
Land Administrator

RECEIVED  

cc: Central Files

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

Signed:

Date:
Russell Tsuji, Administrator
Page 2
July 2, 2012

5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/water BMPs.

6. We recommend the use of alternative water sources, wherever practicable.

7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:
Additional information and forms are available at http://hawaii.gov/efp/permits/resources.permits.htm.

6. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual lie water supply systems for new industrial and commercial developments.

9. A Well Construction Permit(s) is (are) required before any well construction work begins.

10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

11. There are (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

12. Ground water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.

14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works are (are) constructed or altered.

15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

OTHER:

The estimated water requirements for this project are 0.119 mgd potable and 0.305 mgd non-potable (total = 0.424 mgd). Existing County sources serving this area are already at maximum capacity. Estimated natural sustainable yield of the underlying Kahaluu Aquifer System Area is 1.0 mgd, which is augmented by return irrigation flow from extensive sugar cultivation. This is the last remaining sugar plantation in the State. It is not clear how long it will last. The sustainable yield of this aquifer is estimated with moderate confidence, due to uncertainty concerning regional aquifer system areas. The document makes a higher estimate. This may be optimistic. Imported surface water from Eua Wai‘a and Ia Wai‘a areas have an immediate impact and artificially increase the sustainable yield above the natural estimate of 1.0 mgd. The project proposes to divert three wells to meet the estimated demand, and install reverse osmosis treatment facilities for the potable fraction.

There are too many unanswered questions at this point to fully analyze the situation.

If there are any questions, please contact Charley ice at 087-0210.
Mr. Russell Y. Tsuji, Administrator 
Land Division 
Hawai‘i Dept. of Land & Natural Resources 
P.O. Box 621 
Honolulu, HI 96809

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision 
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005 
TMK (2) 3-8-008:019

Dear Mr. Tsuji,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 9, 2012 which transmitted the Commission on Water Resource Management’s (CWRM) comments on the Draft EA.

- Copies of the Draft EA have been furnished to the Maui Planning Department and Maui Department of Water Supply so that information about the proposed project can be incorporated into the County’s Water Use and Development Plan.

- A copy of the Draft EA has also been provided to the Hawai‘i Department of Agriculture and will help the department incorporate the reclassification of agricultural lands and the redistribution of agricultural resources into the State’s Agricultural Water Use and Development Plan.

- Best Management Practices prepared in accordance with Maui County Code, Chapter 20.08 (Soil Erosion and Sedimentation Control) will be submitted to the Maui Department of Public Works for review and approval prior to the issuance of grubbing and grading permits. In addition, since site work for the project will exceed one acre, a National Pollutant Discharge Elimination System Permit will be obtained from the Hawai‘i Department of Health’s Clean Water Branch for the discharge of storm water associated with construction activities.

- Alternative water sources will be considered for use to the extent that they are available and practicable.

- The proposed project shall comply with the State’s Water Quality Standards as set forth in Chapter 11-54, HAR.

- In their Letter of Assurance dated July 2, 2012, the CWRM informed the land owner that the Well Construction and Pump Installation Permits for Well Nos. 4927-02 and 4927-03 are ready to be issued.

- The CWRM’s 1.0 million gallons per day (MGD) sustainable yield is based exclusively on rainfall-recharge on less than half of the Kahului Aquifer’s total area. Other sources of the aquifer’s recharge (natural and man-made) are substantially larger: underflow from Haleakala, surface runoff from Haleakala, underflow from the West Maui Mountains, surface runoff from the West Maui Mountains, leakage from the East Maui and Wai‘anae Ditch systems, and irrigation return from HC&S sugar cane fields. Historically, these sources of recharge have supported pumping from the aquifer of 43 MGD for many decades. Present pumping is still in excess of 25 MGD, most of it by HC&S.

The total estimated groundwater use for the proposed project is about 0.5 MGD. The location of this draft is miles from the nearest wells and will have no impact on these wells. If HC&S no longer cultivates sugar cane, a substantial amount of that aquifer’s recharge would be reduced or eliminated altogether. However, it would also mean that about 28 MGD of pumpage from the aquifer would also cease. The wells for the proposed project are well positioned, with respect to the aquifer’s natural sources of recharge, to continue to be viable.

Thank you for providing us with you comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Planner

cc: Kurt Wellenhaupt, Maui Planning Department
    Blanca Lafalette, PRL
    Tom Nance, TNWRE
    Stacy Otomo, P.E.
July 9, 2012

Mr. Glen Tadaki
Chris Hart and Partners
115 N. Market Street
Wailuku, Hawaii 96793

Re: L.D.: Draft Environmental Assessment (EA)
   TMK: (2) 3-8-008; por. 019
   Project Name: Pu‘unene Heavy Industrial Subdivision

Dear Mr. Tadaki:

Thank you for the opportunity to comment on this Draft Environmental Assessment.

Although we previously submitted comments for the Early Consultation for the Preparation of a Draft EA on July 20, 2011, we have a few additional comments on this next phase in the EIR process: the Draft EA.

Water Use and Development Plan (WUDP) Final Candidate Strategy Report
The WUDP has recommended consideration be given to implementing a general hierarchy of water use priorities. The plan provides as example derived from existing law and practical considerations (page 103), in which “Industrial” use ranks priority 10 of 12. How will the EIS address the potential for the proposed project to impact higher priority present and proposed future water users/uses in the area by pumping an estimated 127,456 gpd from Kahului Aquifer and/or Paia Aquifer?

Brackish water desalination is recommended as a final candidate strategy in the WUDP. How might the implementation of the proposed project impact the potential for brackish water desalination in the area, for: 1) present users; 2) future users; 3) public users; and 4) private users?

Over-pumping of Kahului Aquifer
Although we note the proposed water system will be private, the aquifer over which part of the project lies—the Kahului Aquifer—is currently being over-pumped by over 2500% according to the Commission on Water Resources Management (CWRM) 2008 Water

"By Water All Things Flow Life"
Proposed Pu‘unene Heavy Industrial Subdivision
TMK (2) 3-8-008:019
July 23, 2012
Page 2

Mr. David Taylor, P.E., Director
Maui Dept. of Water Supply
200 S. High Street
Wailuku, HI 96793

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIT 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Taylor,

On behalf of the land owner, CMBY 2011 Investment LLC, we are responding to your draft EA comment letter dated July 9, 2012.

1. The proposed project plans to use the underlying brackish groundwater and will not be utilizing a potable water supply. In addition, there are no existing or proposed other higher priority water uses of groundwater in this part of the Kahului Aquifer. For these reasons, we feel that the proposed use is in conformance with the Water Use and Development Plan. This use is further supported by the approval of well construction and pump installation permits for the proposed project by the State Commission of Water Resource Management (CWRM). Refer to the attached Letter of Assurance from CWRM for CMBY Well Nos. 4927-02 and 4927-03.

2. The CWRM’s 1.0 million gallons per day (MGD) sustainable yield is based exclusively on rainfall-recharge on less than half of the aquifer’s total area. Other sources of the aquifer’s recharge (natural and man-made) are substantially larger: underflow from Haleakala, surface runoff from Haleakala, underflow from the West Maui Mountains, surface runoff from the West Maui Mountains, leakage from the East Maui and Waihe’e E‘le Settixs, and irrigation return from HC&S sugar cane fields. Historically, these sources of recharge have supported pumpage from the aquifer of 45 MGD for many decades. Present pumpage is still in excess of 25 MGD, most of it by HC&S.

The total estimated groundwater use for the proposed project is about 0.5 MGD. The location of this draft is miles from the nearest wells and will have no impact on these wells. If HC&S no longer cultivates sugar cane, a substantial amount of that aquifer’s recharge would be reduced or eliminated altogether. However, it would also mean that about 25 MGD of pumpage from the aquifer would also cease. The wells for the proposed project are well positioned, with respect to the aquifer’s natural sources of recharge, to continue to be viable.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Gleath Tadaki
Partner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafeolite, PRL
Tom Nance, TNWRE
Stacy Otoro, P.E.
Ms. Blanca Lalolette  
CMBY 2011 Investment, LLC  
P.O. Box 220  
Kihei, HI 96753

Dear Ms. Lalolette:

Letter of Assurance for Well No. 4927-02 & 03

We have completed the review process for your Well Construction/Pump Installation Permit application(s) and the permit(s) are ready to be issued. However, in accordance with the State Water Code, §174C-84(a), the permit can only be issued to a licensed contractor and, to date, one has not been identified for your well(s).

Once you have selected a licensed contractor, please have the contractor sign and return to the Commission a copy of the original application, upon which a permit will be immediately issued provided that the following conditions are met:

1. The contractor has no outstanding issues with the Commission.
2. There are no significant changes to the application.
3. There have been no significant changes to applicable laws, rules or regulations since the application date.
4. There have been no significant changes to hydrogeologic conditions since the application date.

Also, attached for your information are copies of comments from reviewing agencies.

If you have any questions, please contact Charley Ise of the Commission staff at 808-0218 or toll-free at 984-2400 (Maui), extension 70218.

Sincerely,

WILLIAM M. TAM  
Deputy Director

(This page intentionally left blank)
DATE: 07/09/2012

FROM: David Penn
956-3974

TO: Maui Planning Commission (Kurt Wollenhaupt)
(808) 270-7634
Chris Hart & Partners (Glenn Tadaki)
(808) 242-1956
State of Hawaii Office of Environmental Quality Control (OEQC)
586-4186

SUBJECT: Draft Environmental Assessment
Punene Heavy Industrial Subdivision, Maui

July 09, 2012
EA: 00330

Maui County Planning Commission
c/o Maui County Planning Department
250 S. High Street
Wailuku, HI 96793
VIA FAX TO: (808) 270-7634

Dear Commissioners,

Draft Environmental Assessment
Punene Heavy Industrial Subdivision
Punene, Maui

CMBY 2011 Investment, LLC proposes to transform 86 acres of unused agricultural land into a 28 lot heavy industrial subdivision by constructing overhead and underground electrical transmission lines; eleven acres of internal roadways; a master drainage system, including a nine acre retention basin; a master wastewater system, including a common leach field and a water system drawing 423,659 gallons per day of potable groundwater and treating over 1/4 of it for potable use. Potential activities within the proposed subdivision would include industrial uses that are permitted under M-2 zoning, as well as 1) energy systems, power plants, substations, and major utility facilities; 2) heavy equipment storage, servicing, and sales; 3) land fill, solid waste processing, and disposal; 4) biofuel product manufacturing and wholesale storage of biofuels; and 5) recycling process facilities.

This review of the Punene Heavy Industrial Subdivision Draft Environmental Assessment (DEA) is a service activity of the University of Hawaii’s Environmental Center to help determine and maintain the optimum quality of the environment. It is not intended to represent the official views of the University of Hawaii. The objectives of our review process are to enhance environmental consciousness, encourage cooperation and coordination, and facilitate public participation. These comments were drafted with the assistance of Karl Kim, UH-M Urban and Regional Planning; and Sara Boland, Environmental Center.

General Comments

On its face, at full build-out, the proposed action would involve land cover change and industrial activity that could have a significant effect on on-site and off-site environmental quality. Therefore, it may be useful for the DEA to provide greater detail about the specific types of industrial activities that could occur, such as quantifying the likely effects of each type of activity with regard to toxic releases, waste disposal, pollution loading, and utility demands. Such detail would provide a technical basis for identifying the net effect of alternative patterns.
of industrial activity, assessing the range of potential for environmental degradation (including spills, emergencies, and natural disasters), and comparing degradation potential across a broader set of alternatives (e.g., no action and full build-out under existing agricultural zoning). We are particularly concerned about (1) the treatment and disposal of stormwater and wastewater associated with the above-listed industrial activities, including brine produced by water supply desalination; (2) the quality of downstream receiving waters, including sensitive Class 1 inland waters and Class AA marine waters and marine sanctuary; (3) regional aquifer dynamics, particularly in conjunction with anticipated effects of additional pumping and sea level rise; and (4) island-wide electrical power demand and supply.

Without more rigorous analysis of planned activities, potential effect, mitigative effect, and secondary and cumulative impacts, there may be considerable uncertainty about the appropriateness of Maui County Planning Department’s anticipated finding of no significant effect. The overarching rationale for this finding appears to be the applicant’s assertions that adherence to zoning ordinances and permit conditions, along with the implementation of best management practices, will prevent significant environmental degradation. If this supposition were true, then existing environmental quality, statewide, would be higher than its current state. Although these kinds of environmental management tools can help to control and reduce environmental impacts, they are not designed to provide absolute protection against significant, secondary, and cumulative effects.

Specific Comments

1. Supporting Information and Rationale for Conclusions

Many of the facts and conclusions presented in the main text of the DEPA refer to a particular appendix for supporting information. These references would be more useful for reviewers if they included specific page numbers indicating exactly where to find the supporting information in a technical appendix. Otherwise, the large size of the document and the lack of tools for navigating the electronic version increases the difficulty of reviewing the proposed action in a thorough and timely manner.

2. Description of the Proposed Action, Existing Environment, Potential Impacts, and Mitigation Measures

The description of the proposed action provides limited information about the types, density, and intensity of industrial activities that would occur. Much of the potential impact depends not just on the land use, but also on the nature of the industrial activities proposed on the site.

a. Climate, topography, and soils: How can the applicant be certain that the work for the proposed project would involve minimal grading and grading (p. 20) when the development of an individual lot would be the responsibility of the lot owner? Would grading restrictions be included in the subdivision covenants and enforced by the association of lot owners?

b. Water bodies: Although there may be no wetlands, streams, ponds or other water bodies on the subject parcel, there are some sensitive areas in proximity— notably the HCA reservoir, Kealakekua National Wildlife Refuge, and the Hawaiian Humback Whale Marine Sanctuary. It is important for the DEPA to characterize watershed context and waterbody status in the area surrounding the proposed action and to show how pre- and post-construction drainage patterns interact with downstream receiving waters. The Environmental Planning Office of the State Department of Health previously developed a set of standard comments that address these assessment issues (available from the Environmental Center on request). Also, the proposed nine acre retention basin would be a significant addition to the local water environment that would require ongoing maintenance. For example, how would the potential use of the detention basin by endangered waterfowl be managed, what would be the composition of the sediment that accumulates in the basin, and what would the accumulated material be deposited after it is dredged/removed for maintenance purposes?

c. Noise, air quality: How can noise and air quality impacts be measured when uses have not been identified? The DEPA maintains that “there is insufficient information regarding any of the uses or activities that may be located within the proposed heavy industrial subdivisions to perform any quantitative impact assessments” (p. 33). In such a case, it may be useful for the applicant to provide qualitative information about the known noise and emission outputs for a range of industrial uses and activities that could occupy the site, which should be readily available in the professional, scientific, and gray literature (such as project planning documents and environmental impact analyses and audits for similar subdivisions).

d. Solid and hazardous waste: What materials would be used in the production processes that would be permitted within the proposed subdivision, including hazardous materials? What types of management activities would be necessary to reduce the risk of environmental harm stemming from exposure to these materials?

e. Water: It would be useful for the main text of the DEPA to describe the relationship of proposed water use with the state water resources protection plan and the county water use and development plan, including projections for overall use and fragility of the source aquifer over the life cycle of the proposed project. How would the proposed changes in land cover and human activity affect aquifer recharge?

f. Wastewater: Under existing regulations, the statement that “lot owners must submit their IWS plans to the DOH for review and approval” (page 76) implies that each lot would contribute no more than 1,000 gallons of domestic wastewater per day to the community disposal system (sewage field). The fact that the proposed development involves buildings other than dwellings means that the disposal system would handle no more than 15,000 gallons of domestic wastewater per day. How much non-domestic wastewater would be generated within the proposed heavy industrial subdivisions on a daily basis, and how would it be collected, treated, and disposed?

Does “sewage-type IWS” (page 76) mean the same thing as “household aerobic unit” (DOH regulations)? Who would be responsible for compliance with DOH regulations concerning the operation and maintenance of each aerobic unit, the individual lot owner or the
association of lot owners? Would this affect the probability of significant impacts from malfunctioning treatment units?

Drainage: It is important to realize that county drainage standards are designed to protect against flood damage, and do not guarantee attainment of state water quality standards. In this regard, it may be useful for the DEA to explore the relationship between proposed drainage plans and the proposals and recommendations of a recent study sponsored by the State Department of Business, Economic Development, and Tourism, Final Report Stormwater Impact Assessment Project, available at http://www.state.hi.us/ibedc/com/resource/Stormwater_Impact_Assessment_Project.pdf. The report includes a Proposed Methodology for Stormwater Cumulative Impact Assessment and a Recommended EIS Stormwater Cumulative Impact Methodology. For watershed context assistance, see Appendix C: Sensitive Watersheds, Watershed Sensitivity Reference.

g. Energy consumption and carbon footprint: The maximum potential energy demand includes both lot and industry specific uses and subdivision uses (e.g. common area lighting, water and wastewater pumping, water treatment). It would be useful for the DEA to specify the potential magnitude of this demand and explain what sources of electrical power would be tapped to fill this demand. What would be the relationships between energy demand and generation within the proposed subdivision and state and county energy plans?

3. Alternatives Analysis

The alternatives analysis identifies several options for land use and human activity and explains why each would not be feasible or desirable by virtue of private business reasons and opinions about public needs. However, it would be useful for the analysis to also address the potential variation in environmental effects among these alternatives.

4. Accepting Authority and Determining Agency

The DEA states that “the Maui Planning Commission will serve as the accepting authority for the environmental review process” (page 2). We suggest revising this section of the DEA to conform more precisely with the governing regulatory language. “Accepting authority” means the final official or agency that determines the acceptability of the EIS document, and does not pertain to the DEA and the environmental review process in general. Haw. Admin. R. § 11-200-2. As indicated on page 8 of the DEA, it appears that Maui County cannot issue an approval for the proposed action until after the State Land Use Commission (LUC) approves the proposed district boundary amendment. Therefore, “why isn’t the LUC “the agency initially receiving and agreeing to process the request for an approval?”” § 11-200-4.

5. Length of Document

The length of the DEA, nearly 800 pages, and the technical complexity of much of its content (e.g. the Environmental Site Assessment and Supplemental Data), increases the difficulty of thoroughly reviewing the document within the thirty day regulatory window. Although we advocate a comprehensive approach to environmental impact analysis, much of the information presented within the DEA is marginally substantive and overly repetitive. The Final Report on Hawaii’s Environmental Review System (Kim et al., 2010), available at http://onpg.doh.hawaii.gov/Shared%20Documents/Misc_Documents/Final-Report-on-Hawaii-Environmental-Review-System-2010.pdf, noted that “EAs increasingly resemble EISs as the distinction between EAs and EISs is becoming blurred” (page 20). This document is a prime example of this “blur,” and may by sheer size alone indicate that an EIS may be required for the proposed action.

6. Reviewer Assistance

The Final Report on Hawaii’s Environmental Review System (Kim et al., 2010) noted that “the use of more technologically sophisticated systems could . . . improve the quality of participation” in the system (page 75), and recommended integrating new communication technology into the system (page 81). In order to assist reviewers and facilitate public participation, we suggest that the digital version of an environmental review document incorporate several user-friendly features for content access and readability, including:

(a) comprehensive bookmarks for navigating the file, which correspond directly with the sections, tables, figures, appendices, etc. shown in the document’s table of contents;
(b) vertical page orientation throughout the document, such that a reader need not rotate a page before reading it on-screen; and
(c) searchable text, as specifically suggested in Kim et al. (2010), see page 81.

Thank you for considering our review of the Draft Environmental Assessment for Punanae Industrial Subdivision. Please contact me at 956-3974 to discuss our comments, and send us one hard copy of the Final Environmental Assessment when published.

Sincerely,

David Penn
Assistant Specialist

copy: Chris Hart & Partners (Glenn Tadaki)
State of Hawaii Office of Environmental Quality Control (OEQC)
Chitaranjit Ray, Interim Director
Karl Kim
Sara Bolduc
Mr. Chittaranjan Ray, Interim Director
Environmental Center
University of Hawai‘i
2500 Dole Street, Kraus Annex 19
Honolulu, HI 96822

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CFA 2012/0002, CHZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Ray,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to the Center’s July 9, 2012 comment letter written by David Penn.

Response to General Comments

Because heavy industrial uses on each lot will be determined by future lot owners, the effects of each type of industrial activity cannot be quantified at this time as the specific types of activities that would occur within the subdivision are unknown. Notwithstanding this, since heavy industrial uses have the potential to affect the environment, the Covenants, Conditions, and Restrictions (CC&Rs) for the proposed subdivision will require that all lot owners prepare and implement Best Management Practices (BMPs) and emergency response plans that are specific to the heavy industrial use on their lots. The CC&Rs will also stipulate that lot owners must comply with all Federal, State, or County laws, including, but not limited to, regulations governing health, safety, and the environment. An association of subdivision lot owners shall be formed and, among its duties, will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit is granted, specific terms of compliance are set forth to ensure that the permitted use will not adversely affect the environment. Failure to comply with the terms of the permit could result in enforcement action including penalties or revocation of the permit.

Response to Specific Comments

1. Supporting Information and Rationale for Conclusions

Key information from documents contained in the Appendix was brought forward and summarized in the main body of the EA for the reader’s convenience. Readers are encouraged to peruse any documents in the Appendix that are of specific interest to them.

2. Description of the Proposed Action, Existing Environment, Potential Impacts, and Mitigation Measures

Refer to the Response to General Comments

a. Climate, topography, and soils: Site work for the subdivision’s basic infrastructure (e.g., water, drainage, roadways) is expected to be minimal and will be the responsibility of the land owner. As lots within the subdivision are developed, each lot owner will be responsible for the site work on their lot. Provisions for the development of subdivision lots, including conformance with all applicable government requirements, shall be set forth in the CC&Rs and maintained by the association of subdivision lot owners.

b. Water bodies: Regardless of the magnitude of a storm event, no surface water (runoff), is expected to reach Ma‘alaea Beach. Studies have indicated that the mud caprock along the southern two-thirds of Ma‘alaea Bay prevents groundwater discharge along the shoreline, forcing it further offshore where it is thoroughly mixed to background ocean water levels. As a result, any impact to groundwater flowing beneath the project site and flowing south toward Ma‘alaea Bay will not adversely impact the beach’s water quality, including its turbidity and chlorophyll a levels. Provisions for the maintenance of the drainage retention area will be included in the CC&Rs and responsibility for its upkeep shall rest with the association of subdivision lot owners.

c. Noise, air quality: With regard to noise, worst case noise emissions from the proposed 28 subdivision lots, each continuously emitting 70 dBA (the maximum allowed under existing State noise regulations), were assumed in order to predict the resulting noise levels from the heavy industrial subdivision at the closest residential receptors. The results of the noise modeling indicated that worst case noise levels from the industrial subdivision could be between 3 and 29 dBA, and
well below 45 dBA at the closest residential receptors. Based on these noise modeling efforts, adverse noise impacts from on-site noise sources were not anticipated.

With regard to air quality, because future heavy industrial land uses on lots within the subdivision are unknown, the effects of each type of industrial activity cannot be quantified at this time. Some of the uses allowed by heavy industrial zoning could cause air pollution which could result in direct impacts on air quality. Given specific information about these land uses, potential air quality impacts from industrial sources can be estimated using computerized atmospheric dispersion models. It should be noted that before any facility with an air pollution source can be built anywhere in the State of Hawai‘i, an application must be submitted to the State Department of Health, Clean Air Branch for a permit to construct the facility. Detailed information about any air pollution emissions must be included in the application. Depending on the expected emission rates, a detailed air quality impact assessment may be required prior to construction and must demonstrate that the facility will comply with all applicable air quality standards. As such, an air quality impact assessment of project-related industrial emissions is not feasible at this time, an assessment may be required in the future depending on the specific nature of heavy industrial activity within the subdivision.

d. Solid and hazardous waste: Refer to the Response to General Comments

e. Water: Copies of the Draft EA were furnished to the Maui Planning Department and Maui Department of Water Supply so that information about the proposed project can be incorporated into the County’s Water Use and Development Plan. A copy of the Draft EA was also provided to the Hawai‘i Department of Agriculture and will help the department incorporate the reclassification of agricultural lands and the redistribution of agricultural resources into the State’s Agricultural Water Use and Development Plan. The proposed subdivision plans to use the underlying brackish groundwater and will not be utilizing a potable water supply. In addition, there are no existing or proposed other higher priority water uses of groundwater in this part of the Kahului Aquifer. For these reasons, we feel that the proposed use is in conformance with the County’s Water Use and Development Plan. This use is further supported by the July 2, 2012 approval of well construction and pump installation permits for the subdivision by the State Commission of Water Resource Management (CWRM) for Well Nos. 4927-02 and 4927-03. The CWRM’s 1.0 million gallons per day (MGD) sustainable yield is based exclusively on rainfall recharge on less than half of the aquifer’s total area. Other sources of the aquifer’s recharge (natural and managed) are substantially larger. Underflow from Haleakala, surface runoff from the West Maui Mountains, leakage from the East Maui and Waiehu’s Ditch systems, and irrigation return from HC&S sugar cane fields. Historically these sources of recharge have supported pumpage from the aquifer of 45 MGD for many decades. Present pumpage is still in excess of 25 MGD, most of it by HC&S. The total estimated groundwater use for the proposed project is about 0.5 MGD. The location of this draft is miles from the nearest wells and will have no impact on these wells. If HC&S no longer cultivates sugar cane, a substantial amount of that aquifer’s recharge would be reduced or eliminated altogether. However, it would also mean that about 25 MGD of pumpage from the aquifer would also cease. The wells for the proposed project are well positioned, with respect to the aquifer’s natural sources of recharge, to continue to be viable.

f. Wastewater: Refer to the Response to GeneralComments. Also, in commenting on the Draft EA, the State Department of Health (DOH), Wastewater Branch indicated that wastewater from multiple septic tanks can no longer be discharged into a central leach field pursuant to current DOH policy. As such, the wastewater treatment plant for the proposed subdivision will be modified to call for the installation of an aerobic treatment unit and leach field on each developable lot which is permitted by the DOH and can be used within 1,000 feet of a drinking water well. The cost and installation of this individual wastewater system will be borne by individual lot owners when the lots are developed in the future. Each lot owner will also be responsible for compliance with Chapter 11-52, HAR pertaining to “Wastewater Systems”. Provisions for the development of subdivision lots, including compliance with all applicable regulatory standards, shall be included in the CC&Rs and enforced by the association of subdivision lot owners.

Drainage: The proposed project will comply with all applicable provisions of Chapter 11-54, HAR entitled “Water Quality Standards” and Chapter 11-55, HAR titled “Water Pollution Control”. The land owner acknowledges that a National Pollutant Discharge Elimination System (NPDES) is required for discharges into Class A or Class 2 State waters. Prior to the start of construction, an application for an NPDES permit for storm water associated with construction activities will be submitted to the DOH, Clean Water Branch (CWB) for review and approval. No construction dewatering effluent or hydro-testing water effluent is anticipated at this time. However, if such work is required, NPDES permits for these activities will be obtained from the CWB. In addition, an application for an NPDES permit for storm water associated with industrial activity will be submitted to the CWB for review and approval if necessary. The proposed project will not involve discharges into Class 1 or Class AA State waters.

g. Energy consumption and carbon footprint: Electrical demand requirements will be submitted (by the project’s electrical consultant) at such time in the future that an application for subdivision approval is filed with the County of Maui. In addition to sustainable practices, subdivision lot owners will be encouraged to
implement and utilize energy generation and energy conservation measures during lot development and onsite operations

3. Alternatives Analysis

The Final EA will examine the potential environmental effects of the various alternatives.

Housekeeping

4. Accepting Authority and Determining Agency

To conform more precisely to HAR 11-200-2, the Final EA will indicate that the Maui Planning Commission is the Approving Agency for the environmental review process. The State Land Use Commission (SLUC) initially agreed to serve as the Approving Agency. However, since the Executive Director’s position was going to be vacated at the time (due to retirement) and because the timeframe for the selection of a successor was indeterminate, the Maui Planning Commission, with the concurrence of the SLUC, agreed to serve as the Approving Agency.

5. Length of Document

Thank you; your comments have been duly noted.

6. Reviewer Assistance.

Thank you; your comments have been duly noted.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
    Blanca Lafolette, PRL
Chris Hart & Partners, Inc.
Attention: Mr. Glenn Tatadi
113 N. Market Street
Wailuku, HI 96793-1717

Department of Planning
County of Maui
Attention: Mr. Kurt Wollenhaupt, Staff Planner
250 South High Street
Wailuku, Hawaii 96793

July 10, 2012

Dear Mr. Tatadi and Mr. Wollenhaupt:

SUBJECT: Draft Environment Assessment (EA) for the Community Plan Amendment (CPA), District Boundary Amendment (DBA) and Change in Zoning (CIZ) for the Pu‘unene Heavy Industrial Subdivision

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on July 9, 2012, enclosed are comments from the Engineering Division on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Taaui
Land Administrator

Enclosure(s)
cc: Central Files

TO: DLNR Agencies:
--- Div. of Aquatic Resources
--- Div. of Boating & Ocean Recreation
X Engineering Division
--- Div. of Forestry & Wildlife
--- Div. of State Parks
--- Commision on Water Resource Management
--- Office of Conservation & Coastal Lands
--- Land Division – Maui District
--- Historic Preservation

FROM: Russell Y. Taaui, Land Administrator
Draft Environment Assessment (EA) for the Community Plan Amendment (CPA), District Boundary Amendment (DBA) and Change in Zoning (CIZ) for the Pu‘unene Heavy Industrial Subdivision

LOCATION: Pu‘unene & Wallsup, Island of Maui
TMX: (2) 3-8-008:019

APPLICANT: County of Maui, Department of Planning

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by July 5, 2012.

Only one (1) copy of the CD is available for your review in Land Division office. Room 220.

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 Lydia Morikawa at 587-0410. Thank you.

Attachment

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

Signed:
Date:

cc: Central Files
DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  

LD/LydiaMorikawa  
REF:DEAdistrictBdDryAmendmentPunene  
Maul.576  

COMMENTS  

(1) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program does not have any regulations for developments within Zone X.  

(1) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X.  

(1) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is X.  

(1) 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 Tyacke-Bohm, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0057.  

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:  

(1) Mr. Mike Sin Li at (808) 768-4098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.  

(1) Mr. Frank DeMarco at (808) 961-6042 of the County of Hawaii, Department of Public Works.  

(1) Mr. Francis Cerino at (808) 270-7771 of the County of Maui, Department of Planning.  

(1) Ms. Wynne Shigemura at (808) 241-4850 of the County of Kauai, Department of Public Works.  

(1) The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage. 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.  

(1) Additional Comments:  

(1) Other:  

Should you have any questions, please call Mr. Satze S. Agran on the Planning Branch at 597-0258.  

Signed:  

CARTY S. CHANG CHIEF ENGINEER  
Date: 6/24/12  

Mr. Russell Y. Tsujii, Administrator  
Land Division  
Hawai’i Dept. of Land & Natural Resources  
P.O. Box 621  
Honolulu, HI 96819  

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision  
EA 2012/0001, CFD 2012/0002, CIZ 2012/0003  
TMK (2) 5-8-008.019  

Dear Mr. Tsujii,  

Thank you for your letter dated July 30, 2012 which transmitted the Engineering Division’s comments on the Draft EA. Pursuant to their comments, we acknowledge that the subject parcel is located in Flood Zone X, an area of minimal flood hazard, and that the National Flood Insurance Program does not have regulations for developments within Zone X.  

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.  

Sincerely,  

Gifrey Tadaki  
Planner  

CC: Blanca Lafolette, PRL  
Stacy Onano, P.E.  

115 H. Main Street, Wāikoloa, Hawai‘i 96738  
Fax: 808-885-1816  
www.chrishart.com
July 10, 2012

Kurt Wollenhasput, Staff Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Wollenhasput:

SUBJECT: PUUNENE HEAVY INDUSTRIAL SUBDIVISION
TMK (2) 3-8-008:019
CPA 2012/0002, CIZ 2012/0005, EA 2012/0001

Thank you for the opportunity to review the Draft Environmental Assessment for the subject project. Our Department is interested in discussing with the applicant a water source for the Maui Raceway Park's potable water needs.

Please feel free to contact me or Karla Peters, CIP Coordinator, at 270-7981, should you have any questions.

Sincerely,

GLENN T. CORREA
Director of Parks and Recreation

cc: Glenn Tadaki, Christ Hart & Partners, Inc.
Robert Helvorson, Chief of Planning and Development

GTC:RH:kp
August 8, 2012

Mr. Glenn T. Correa, Director
Maui Dept. of Parks and Recreation
700 Hali‘a Nakoa Street, Unit 2
Wailuku, HI 96793

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0003, CFA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Correa,

On behalf of the land owner, CMBY 2011 Investment, LLC, we acknowledge the receipt of your July 10, 2012 letter commenting on the Draft EA. Since the receipt of your letter, the land owner met with Patrick Matsui, Robert Halvorson, and Karla Peters on August 6 to discuss the department’s interest in a water source for the Maui Raceway Park (MRP).

As discussed during the meeting, an existing ¾-inch meter provides water for the MRP. The Parks Department would like a larger 1-1/2 inch meter but were informed by the Water Department that the larger meter is unavailable. As such, the Parks Department has been interested in pursuing other potential water sources for the MRP.

In addition to the MRP, the private water system for the proposed project was also discussed. The land owner offered to enter into further discussions with the Parks Department to help develop a water system (on a fair share basis) that would serve the MRP. However, since no County funds are available for the pro-rata development of such a system, the Parks Department will likely refocus its efforts to obtain the larger water meter.

Thank you for providing us with your comments and for participating in the environmental review process.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafoulette, PRL
Stacy Otomo, P.E.
July 10, 2012

Mr. Kurt Wollenhaupt, Staff Planner
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

Subject: Draft Environmental Assessment (EA) for the Community Plan Amendment (CPA), District Boundary Amendment (DBA), and Change in Zoning for the Pu‘unene Heavy Industrial Subdivision
Tax Map Key: (2) 3-8-008:019
Kēhei, Maui, Hawaii

Dear Mr. Wollenhaupt,

Thank you for allowing us to comment on the Environmental Assessment for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) would like to encourage the customer’s electrical consultant to submit electrical drawings to us as soon as practical to address and coordinate any possible relocations of our facilities. Please also refer to our MECO letter addressed to Mr. Glenn Tadaki of Chris Hart & Partners, Inc. and July 18, 2011, in response to a prior request for this project.

Should you have any questions or concerns, please call Kelcie Kawamura at 872-3246.

Sincerely,

Ray Okazaki
Supervisor, Engineering

cc: Mr. Glenn Tadaki, Consultant, Chris Hart & Partners, Inc.

July 15, 2011

Mr. Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawaii 96793

Dear Mr. Tadaki,

Subject: Early Consultation for the Proposed Puunene Heavy Industrial Subdivision

Off Mokulele Highway
Kahului, Maui, Hawaii
Tax Map Key: (2) 3-8-008:019

Thank you for allowing us to comment on the Early Consultation for the subject project.

In reviewing our records and the information received, Maui Electric Company (MECO) may be requiring special and electrical easements for our facilities to serve the subject property site. The existing area is currently served from our Maalaea Substation. Since the project’s anticipated electrical load may have a substantial impact to our system, we highly encourage the customer’s electrical consultant to submit the electrical load requirements and project time schedule as soon as practical so that service can be provided on a timely basis. MECO may need to complete system upgrades along with securing a new substation site to accommodate the anticipated electrical load.

Should you have any questions or concerns, please call me at 871-2341.

Sincerely,

Kyle Tamori
Staff Engineer
Mr. Ray Okazaki, Supervisor
Engineering Division
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, HI 96733-6898

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Okazaki,

Thank you for your Draft EA comment letter dated July 10, 2012 which also refers to a previous MECO letter dated July 15, 2011 (see attached).

In response to your letter of July 10, 2012, we would like to note that the land use approval process could take at least two years. Accordingly, electrical drawings for the project will be submitted after the entitlements have been granted and in conjunction with the filing of an application for subdivision approval. Coordination for any possible relocation of MSCO facilities would also be undertaken during the same timeframe.

With regard to your letter dated July 15, 2011, we would like to reiterate that access and electrical easements (in favor of MECO) may be required in order to serve the subject parcel and that electrical system upgrades and a new substation site may be needed to accommodate the anticipated electrical load.

Electrical demand requirements and a project time schedule will be submitted (by the project’s electrical consultant) at such time in the future that an application for subdivision approval is filed with the County of Maui.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glen Tadaki
Planner

cc: Blanca Ladolette, PRL
Stacy Otomo, P.E.
July 25, 2012

Mr. Glenn Tadaki, Consultant
CHRIS HART & PARTNERS, INC.
115 North Market Street
Wailuku, Maui, Hawaii 96793

Subject: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE COMMUNITY PLAN AMENDMENT, DISTRICT BOUNDARY AMENDMENT AND CHANGE IN ZONING FOR THE PU‘UNENE HEAVY INDUSTRIAL SUBDIVISION
TMK: (2) 3-6-038:019 CPA 2012/0002, CIZ 2012/0005, EA 2012/0001

Dear Mr. Tadaki:

We reviewed the subject application and have no comments at this time.

Please call Rowena M. Dagdag-Andaya at 270-7845 if you have any questions regarding this letter.

Sincerely,

David C. Goode
Director of Public Works

Mr. David C. Goode, Director
Maui Dept. of Public Works
200 S. High Street
Wailuku, HI 96793

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-6-038:019

Dear Mr. Goode,

As a follow-up to your letter dated July 25, 2012, we understand that the Department of Public Works has no comments at this time.

Thank you for providing us with your comments and for participating in the environmental review process.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafolette, PRL
Mr. Glenn Tadaki, Planner  
Chris Hart & Partners, Inc.  
115 North Market Street  
Waikiki, Hawaii 96793  

July 25, 2012

Dear Mr. Tadaki:

SUBJECT: REQUEST FOR COMMENT ON DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE COMMUNITY PLAN AMENDMENT (CPA), DISTRICT BOUNDARY AMENDMENT (DBA), AND CHANGE IN ZONING (CIZ) FOR THE PU'UNENE HEAVY INDUSTRIAL SUBDIVISION, LOCATED APPROXIMATELY ONE (1) MILE SOUTHEAST OF THE INTERSECTION OF MOKULELE HIGHWAY, MENAMENA LOOP, AND KAMA'AINA ROAD, ISLAND OF MAUI, HAWAII; TMK: (2) 3-8-006:019 (CPA 2012/0002) (CIZ 2012/0005) (EA 2012/0001)

The Department of Planning (Department) is in receipt of the above-referenced document for the proposed Pu'unene Heavy Industrial Subdivision. The Department understands the proposed action includes the following:

- The Applicant is the CMBY 2011 Investment, LLC with Chris Hart & Partners, Inc. acting as the Applicant's Consultant;
- The Applicant is proposing to subdivide an 86-acre vacant and undeveloped site adjacent to the Old Pu'unene Airport into approximately 28 fee-simple, heavy industrial lots;
- The proposed project is located adjacent to Project District 10 (Old Pu'unene Airport area – 561 acres) as outlined in the Kihei-Ma'alaea Community Plan dated March 6, 1988;
- The proposed project is located within the Proposed Urban Growth Boundary for the draft Maui Island Plan;
- The proposed project will require the Applicant to seek a District Boundary Amendment (from the State Agricultural to the State Urban District) from the State of Hawaii Land Use Commission, and a Change in Zoning (from Agricultural to M-2, Heavy Industrial) from the County of Maui;

As the proposed project will involve a County of Maui Community Plan Amendment and the use of State of Hawaii lands (Kama'a Road and a 26-foot wide strip of land across three adjacent State parcels), an EA must be prepared in accordance with Chapter 345, Hawaii Revised Statutes (HRS) and Title 11, Chapter 200, Hawaii Administrative Rules (HAR); and

The Accepting Authority of the EA will be the Maui Planning Commission.

Based on the foregoing, the Department provides the following comments with regards to the scope of work for the proposed Pu'unene Heavy Industrial Subdivision and related District Boundary Amendment, Community Plan Amendment, and Change in Zoning:

1. The Department recommends that the Applicant process the District Boundary Amendment with the State Land Use Commission PRIOR to a review of the Community Plan Amendment and Change in Zoning applications by the Maui Planning Commission.

2. The Department understands the Applicant desires to pursue a rezoning to the PROPOSED M-3 - Industrial District designation and that legislation to enact an M-3 District is currently being reviewed by the County Council. Should the Council adopt this new district in a timely manner, the Applicant will revise their application to reflect a Change of Zoning application from Agricultural to M-3, Industrial District. The Maui Planning Commission will then consider the proposed request for M-3, Industrial District zoning.

3. The proposed M-3, Industrial District allows a range of heavy industrial uses without the need for additional review by the Planning Commission and County Council under the County Special Use Permit application procedures. Consequently, should the M-3, Industrial District zoning be approved prior to review of the CPA and CIZ by the Maui Planning Commission, the Department requests the Applicant review mitigation measures to reduce potential impacts of heavy industrial uses to surrounding lands and resources, including a review of procedures to address industrial emergencies.
Proposed Pu‘unene Heavy Industrial Subdivision
TMK (2) 3-8-008:019
August 8, 2012
Page 2

association of subdivision lot owners shall be formed and, among its duties, will be responsible for reviewing the development plans of each lot owner and for ensuring compliance with the CC&Rs.

In Hawai‘i, a use or activity including a potential pollution source is subject to the regulatory review and approval process in which detailed information about the use or activity is evaluated, potential impacts are identified, and appropriate mitigation measures are prescribed. If a regulatory permit or approval is granted, specific terms of compliance are set forth depending on the nature of the potential impacts.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-8553 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafelette, PRL
Mr. Glenn Tadaki  
Chris Hart & Partners, Inc.  
115 North Market Street  
Wailuku, Hawaii 96793

Dear Mr. Tadaki:

Pu‘unene Heavy Industrial Subdivision  
Draft Environmental Assessment (DEA), TMK: 9-1-016:142  

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

We strongly recommend one (1) omni-directional 121 dB(c) siren be installed for coverage of the proposed development. State Civil Defense will work with the developer on placement of these additional sirens.  

We defer to the appropriate State and federal agencies as to the protection of any cultural, historical, and archeological elements of the property.  

If you have any questions, please call Ms. Havinne Okamura, Hazard Mitigation Planner, at (808)733-4300, extension 556.  

Sincerely,

DOUG MAYNE  
Vice Director of Civil Defense

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Mr. Douglas Mayne, Vice Director  
Hawai‘i State Civil Defense  
3940 Diamond Head Road  
Honolulu, HI 96816-4495

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision  
EA 2012/0001, CPA 2012/0002, CIZ 2012/0008  
TMK (2) 3-8-036:019

Dear Mr. Mayne,

On behalf of the developer, CMBY 2011 Investment, LLC, we would like to thank you for your August 2, 2012 letter commenting on the Draft EA.  

In response to your comments, the developer will work with State Civil Defense to install one (1) omni-directional 121 dB(c) siren to provide coverage for the project area.  

Thank you for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.  

Sincerely,

Glenn Tadaki  
Planner

cc: Kurt Wollenhaupt, Maui Planning Department  
Bert Saywatz, SLJC  
Blanca Lagolette, PRL

115 N. Market Street, Wailuku, Maui 96793-1717  
Ph 808-242-1955  
Fax 808-242-1955  
www.chrismaui.com
AGENCY NAME: TransWater

COUNTY AGENCIES
x Dept of Transportation
x ZAED, Zoning & Enforcement Division
x USIA, NRCS
x Fish & Wildlife

STATE AGENCIES
x Dept of Agriculture, Honolulu
x Dept of Health, Honolulu, Oahu
x Dept of Health, Honolulu, SHAINB
x DLNR, Land, Maui
x DOT, Maui
x DOT, Statewide Planning Office (4)

OTHER
x A&B Properties, Inc.
x Hawaiian Cement
x Kheki Community Association
x LeSEA Broadcasting Corporation

PROJECT NAME: Puunene Heavy Industrial Subdivision
APPLICANT: CNBY 2011 Investment, LLC
STREET ADDRESS: Approximately One-mile Southeast of the intersection of<br>Mokuhilo Highway, Mahina Loop, and Kalama Road, Puunene, Maui, Hawaii.
PROJECT DESCRIPTION: Proposed Heavy Industrial Subdivision on an 86-Acre Parcel
PERMIT NO.: CPA 2012/0002, CIZ 2012/0005, EA 2012/0001

TRANSMITTED TO YOU ARE THE FOLLOWING:
Application(s) (Previously Transmitted)

These are transmitted as checked below:
X For your Comment and Recommendation

On May 1, 2012, a request for comment and recommendation was sent to your office regarding the above-referenced application(s). The deadline for response was on July 9, 2012; however, as of this date, the Department of Planning (Department) has not received a response from your agency. If comments have been transmitted, please disregard this reminder. If you have not responded, please address your comments and recommendations directly to me by August 22, 2012 or to Mr. Glenn Tadaki, Chris Hart & Partners, 115 N. Market Street, Wailuku, HI 96793. Please identify any comments you would like the Department to propose as conditions.

Sincerely,

Kurt Wollenhaupt, Staff Planner

xx: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)
Kurt F. Wollenhaupt, Staff Planner (PDF)
Glenn Tadaki, Chris Hart & Partners
Project File
General File

KpValue
KPAP_DOCSPLANNINGCops20120002_PuuneneHeavyIndustrialAgencyReminder.doc

Signed: [Signature]
Date: 8-14-12
Print Name: [Signature]
Title: [Title]
Ms. Jo Anne Johnson, Director  
Maui Dept. of Transportation  
2145 Kahului Street, Suite 102  
Wailuku, HI 96793

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision  
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005  
TMK (2) 3-8-008:019

Dear Ms. Johnson,

Pursuant to your department’s comments dated August 14, 2012, we acknowledge that the Maui Department of Transportation has no comments at this time.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

[Signature]

Glenn Tadaki  
Planner

cc:  Kurt Wollenhaupt, Maui Planning Department  
Blanca Lafcette, PRL
Hi Kurt, I am in receipt of your letter asking if Hawaiian Cement has any comments or concerns we would like to submit. I understand our deadline is 8-22-12. I would like to respond by stating Hawaiian Cement has no comments or concerns about this project. Thank you for asking.

Dave Gomes
General Manager
Hawaiian Cement, MC&A Division
808-871-7004
808-877-7414 (fax)
808-870-2949 (coll)
dave.gomes@hawaiiancement.com

August 15, 2012

Mr. David Gomes, General Manager
Maui Concrete & Aggregate Division
Hawaiian Cement
P.O. Box 488
Kahului, HI 96732

SUBJECT: Comments on the Po‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-8-008:019

Dear Mr. Gomes,

As a follow-up to your August 14, 2012 e-mail to Kurt Wollenhaupt, we understand that Hawaiian Cement has no comments at this time.

Thank you for providing us with your comments and for participating in the environmental review process.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Kurt Wollenhaupt, Maui Planning Department
Blanca Lafollette, PRL
Aloha Glenn,

This is Ian Bordenave. I was the consulting biologist for the Technical Assistance letter that your office received from the Service (2011-TA-0384). I believe you and I spoke over the phone about a year ago regarding this project, too. Anyhow, I've gone through the biological surveys and the Flora and Fauna section of the Draft EA that you provided, and everything looks good except one small detail... Regarding the Hawaiian hoary bat (Lasiurus cinereus semotus), the latest guidance from the Service is to avoid cutting or trimming of trees and woody shrubs over 15 feet in height from June 1 through September 15. This recommendation was formulated by the Service using data from Tomich and Bonacorsco involving studies on lactation (Tomich) and fledging (Bonacorsco) corresponding to the vulnerable, non-violent period in the Hawaiian hoary bat's life history. Although no bats were observed during this latest round of surveys at the Pu‘unene site, the range and foraging behavior attributed to the species raises the possibility that they may be present (albeit intermittently) during the spring, summer, and fall months in vegetation exceeding 15 feet in height. Though I understand that the comment period for the Draft EA is closed, incorporation of these recommendations into the Final EA and project Master Plan is nonetheless suggested.

Mahalo!

Ian Bordenave
Biologist
U.S. Fish and Wildlife Service
Pacific Islands Field Office
Ecological Services, Consultations & HCP
300 Ala Moana Blvd., Suite 3-122
Honolulu, HI. 96814
Phone: (808) 792-0453
E-Mail: ian_bordenave@fws.gov

Patrice Ashfield/PE/R1/FWS/DOE
08/21/2012 11:44 AM

Mr. Loyal Mehrhoff, Field Supervisor
Pacific Islands Fish and Wildlife Office
U.S. Fish and Wildlife Service
Attention: Ian Bordenave
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, HI. 96850

SUBJECT: Comments on the Pu‘unene Heavy Industrial Subdivision
EA 2012/0001, CPA 2012/0002, CIZ 2012/0005
TMK (2) 3-S-008:019; Reference No. POH-2011-00179

Dear Mr. Mehrhoff,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to the U.S. Fish and Wildlife Service’s e-mailed comments dated August 21, 2012.

In accordance with the recommendations provided by the Fish and Wildlife Service, the cutting or trimming of trees and woody shrubs over 15 feet in height shall be avoided from June 1 through September 15 to mitigate potential impacts to the Hawaiian Hoary Bat.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-1555 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc Kurt Wollenhaupt, Maui Planning Department
Blanca Lafolette, FRL

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-2255 • Fax 808-242-2255
www.cfpmau.com
MEMO TO: Clayton Yoshida; Planning Program Administrator (PDF via email)
Current Planning Division

ATTN: Kurt Wollenhaupt, Staff Planner

FROM: Aaron Shinmoto, Planning Program Administrator
Zoning Administration and Enforcement Division

SUBJECT: CZ, CPA, & EA FOR THE PUUNENE HEAVY INDUSTRIAL SUBDIVISION
PUUNENE, HAWAII
TMK: (2) 3-6-003:019
CPA 2012/0002 & CZ 2012/0005 & EA 2012/0001

DEPARTMENT OF PLANNING
TRANSIMENTAL
August 23, 2012

TRANSMITTED TO YOU AS INDICATED:
(X) For Your Information
(X) For Necessary Action

Our comments are noted below. These comments are not intended to be specific conditions of project approval. But, if you feel that any of them warrant a condition you may incorporate them into your recommended conditions of project approval.

1. The above parcel contains the following designations:
A. State Land Use Agriculture.
B. Community Plan Agriculture.
C. County Zoning Agriculture.
D. Special Management Area = No.
E. Flood Zone X.

2. We will provide specific subdivision comments when we receive a preliminary subdivision map from the applicant or Development Services Administration (DSA). Please note that we would want a map equal in quality and size to a preliminary subdivision plat that is submitted to DSA.

3. The Proposed Land Use Development Plan as shown on Figure 5 shows that the subdivision will be accessed by a single connection on the northern side of the subdivision and a drainage retention swale along the western side of the development.

A. Although a single connection to this subdivision may be fine for some time into the future, the neighboring parcels will eventually be developed, so this subdivision should be designed to allow for at least one additional connection to neighboring parcels (south, east, and/or west). As neighboring land is developed, this will help ensure better connectivity and linkages between neighboring land uses, provide an additional exit/entry for emergency purposes, and shorten commute times.

B. An option to ensure that an additional connection is reserved for this purpose would be to designate a future connection point as a "reserve strip". Section 18.016.100 of the Maui County Code states, "Reserve strips shall be required when the director determines such strips to be necessary for the orderly future development of the community according to either the general plan or projected future development in the area surrounding the subdivision. The land comprising such strips shall be reserved for future use and development under conditions approved by the director."

C. The edge of the drainage retention swale is an ideal location to incorporate a greenway that includes a pedestrian/bicycle pathway that is separate from any roadway. This would initially be used by workers and customers of the businesses within the subdivision and provide connectivity points to neighboring lots as they are developed along this greenway.

D. The integration of a pedestrian/bikeway network (separate from roadways) within this proposed industrial subdivision including potential connections to neighboring parcels should be considered in this report. The submitted report does not seem to consider this in accordance with the County Wide Policy Plan or the Kihei-Makena Community Plan.

E. Conditions placed into the approved Change in Zoning addressing the above would help ensure that they are incorporated into the project.

4. The following items are copied from the County Wide Policy Plan (CWPP) and the Kihei-Makena Community Plan (KMCP) in support of the above comment.

A. CWPP, Promote Sustainable Land Use and Growth Management, Objective 3, Policy h: Ensure better connectivity and linkages between land uses.

B. CWPP, Promote Sustainable Land Use and Growth Management, Objective 4, Policy d: "Promote creative subdivision designs that implement best practices in land development, sustainable management of natural and physical resources, increased pedestrian and bicycle functionality and safety, and the principles of livable communities."

C. KMCP, Physical & Social Infrastructure, Transportation, Objectives and Policies: "Plan, design, and construct a pedestrian and bikeway network throughout the Kihei-Makena region which considers the utilization of existing stream beds, drainageways, wetlands and public rights-of-way along coastal and inland areas."

D. KMCP, Land Use, Objectives and Policies: "Establish a system of parks, utility easements, shoreline areas, drainageways and wetlands as an open space framework for the urban areas of the region, i.e. where structures exist or are planned to exist, and provide an integrated system of pedestrian and bicycle paths."

If you have any questions regarding this letter, please feel free to contact Paul Critchlow at paul.critchlow@mauinounty.gov or at 270-5795.

X: Paul Critchlow, Staff Planner (PDF via email)
Kurt Wollenhaupt, Staff Planner (PDF via email)
CPA 2012/0002, CZ 2012/0005 & EA 2012/0001 (KVA Related Documents & Project Files)
General File
K:\SAP_DOCS\PLANNING\2012\Comments_CZ_CPA_EA_PuuneneHeavyIndustrial\Transmittal\comments1.doc
Proposed Pu’unene Heavy Industrial Subdivision
TMK (2) 3-B-008:019
August 30, 2012
Page 2

3C. The size, shape, and layout of the lots, roadways, and drainage swale could change in response to market conditions at the time the application for preliminary subdivision approval is submitted. Notwithstanding this, the land owner will examine the feasibility of including a pedestrian and bicycle pathway along the edge of the grassed drainage swale during the preparation of the preliminary plat map.

3D. A separate, shared pedestrian and bicycle path on the east side of Mokulele Highway currently links Kahului with Kihei. Kama’aana Road, South Firebreak Road, and Lower Kilaeu Road are privately-owned roadways that fall under the control of the State of Hawai’i and A&B Hawai’i. In addition to the subject parcel, these roadways provide access to the Hawaiian Cement quarry and sugar cane fields in the area. Heavy trucks and machinery used for sugar cane cultivation/transport and concrete manufacture/delivery characterize traffic along these roadways. Integrating a pedestrian and bicycle network along or in proximity to roadways that are actively used for agricultural and heavy industrial purposes is contrary to the best interests of public safety and well being.

There are no “hard and fast” rules for determining the most appropriate type of bicycle facility for a particular location since roadway speeds, traffic volume, right-of-way width, presence of parking, adjacent land uses, and anticipated bicycle use must all be considered. Unless a change is warranted by future conditions, the streets within the subdivision will function as a “shared roadway” facility in order to accommodate bicycle traffic.

The time frame for the future development of neighboring lands is highly indeterminate and subject to the availability of funding, the establishment of infrastructure, and contingent upon securing the necessary land use approvals. As part of a comprehensive master-planning process, the State of Hawai’i is evaluating infrastructure needs for the future development of State and County lands in the vicinity of the Old Pu’unene Airport. The State Department of Hawaiian Home Lands (DHHL) owns a 64.6-acre parcel to the south of the subject parcel which it has zoned for Agricultural homesteads (i.e., farm lots) as dust and wind conditions make it unsuitable for residential or commercial use. The DHHL also has plans to develop a private wastewater treatment plant on a portion of their site. The Department of Public Safety’s plans for the Maui Prison have been delayed due to the lack of government funding and the absence of infrastructure (e.g., water, sewer) to support this project. The County of Maui recently recommended that the Prison be moved from its proposed location in Project District 10 (Old Pu’unene Airport area) to State-owned land approximately one mile east of Mokulele Highway. The County’s plans for PD 10 are pending the completion of an updated master plan, obtaining the necessary land use approvals for the project, and the availability of funding and
infrastructure. It is estimated that it could take at least 10 years or more before any ground-breaking construction commences on the State and County lands.

Notwithstanding this, the land owner is willing to meet with neighboring property owners to discuss potential connections should the establishment of a pedestrian and bicycle network in the area be warranted in the future.

3E. Thank you; your comments have been duly noted.

4A. A major guiding principle for the development of any pedestrian and bicycle network is that it should connect to places that people want to go such as homes, schools, work, public services, shopping, and recreational areas.

The lands within and in the vicinity of the subject parcel do not possess any of the basic elements that would justify the cost and development of a separate pedestrian and bicycle network on land that will be specifically utilized for purely heavy industrial activities and is geographically separate and spatially distant from other urban areas such as Kahului or Kihei which would benefit from such a network.

The subject parcel is located on the Central Maui plain in the vicinity of the Old Pu’unene Airport. As identified on Page 13 of the KMCP, the four communities that comprise this region are: 1) Ma’alaea, 2) Kihei, 3) Wailea, and 4) Makena. The KMCP describes Ma’alaea as “a quiet, residential community,” Kihei as “the residential and commercial center of the region,” Wailea as “a master-planned resort community,” and Makena as containing “resort facilities, significant open spaces, and cultural landscapes while retaining rural village characteristics.”

The north-south, linear development pattern in Kihei is directly tied to Pi’ilani Highway and South Kihei Road and the community’s near total dependence on the automobile for travel within the region. To address this dependency and reduce traffic congestion, the KMCP encourages the establishment of a pedestrian and bicycle network since it would provide an alternate mode of transportation and improve travel in Kihei by connecting to places that people want to go.

While a pedestrian and bicycle network would provide connectivity within Kihei, it would not be as appropriate for a distant urban land use such as the proposed project whose location is better suited away from other urban areas.

Project District 10 (Old Pu’unene Airport area) lies to the west of the subject parcel and is the only land use in the area that has been included in the KMCP. Although the subject parcel and PD 10 were included in the KMCP region, it can be argued that this area should have been included in the Waihale-Kahului Community Plan region given its geographic location and proximity to Kahului, and its association with historic land use and development in Central Maui.

4B. The proposed project will comply with the applicable provisions of Title 18 of the Maui County Code (Subdivisions). Best Management Practices will be utilized in the design and development of the project.

4C. The subject parcel does not include any existing stream beds, drainageways, wetlands, and public rights-of-way along coastal and inland areas that would contribute to the development of a pedestrian and bicycle network for the Kihei-Makana region.

4D. While the proposed drainage swale along the west side of the subject parcel contributes an area of open space, there are no parks, utility easements, shoreline areas, and wetlands on the property which would contribute to the establishment of an open space framework for the area.

Thank you for providing us with your comments and for participating in the environmental review process. Please feel free to call me at (808) 242-4955 should you have any questions.

Sincerely,

[Signature]

 Planner

cc: Kurt Wollenhaupt, Maui Planning Department
    Blanca Lalolette, PRL