ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

FILE COPY

May 3, 2012

JUN 08 2012

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OFC. OF ENVIRONMENTAL QUALITY CONTROL
RECEIVED

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

Dear Mr. Hooser:

SUBJECT: 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, 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 Department of Planning (Department), on behalf of the Maui Planning Commission (Commission), has reviewed the Draft EA prepared in accordance with Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 11-200, Hawaii Administrative Rules (HAR), for the subject project. Please publish notice of availability for this project in the next available Office of Environmental Quality Control (OEQC) Environmental Notice, which is anticipated to be June 8, 2012.

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

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

Sincerely,

CLAYTON I. YOSHIDA, AICP
Planning Program Administrator

for WILLIAM SPENCE
Planning Director

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

Applicant Action EA
Chapter 343, HRS
Publication Form

Project Name: Pu`unene Heavy Industrial Subdivision – DEA

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

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

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

Consultant: Chris Hart & Partners
115 N. Market Street
Wailuku, HI 96793
Contact: Glenn Tadaki (808) 242-1955

Status: Statutory 30-day comment period starts 6/8/12; comments are due by 7/9/12. Send comments to Approving Agency and Consultant.

Summary: The proposed action involves subdividing the 86-acre subject parcel to create 28 developable lots and provide nine acres for a drainage retention basin and 11 acres for the subdivision's internal roadway system. The proposed subdivision will have privately owned and maintained water, wastewater, drainage, and roadway systems, as well as common area landscaping and irrigation. Each subdivision lot owner will be responsible for the development of their own lot. Access from Mokulele Highway to the subject parcel will be furnished by existing and proposed access easements.

Revised February 2012

DRAFT 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

Project Assessment Document
Volume II

CHRIS
HART
& PARTNERS

April 2012

DRAFT ENVIRONMENTAL ASSESSMENT

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HEAVY INDUSTRIAL SUBDIVISION

TMK: (2) 3-8-008: 019

Pu`unene, Maui, Hawai`i

Project Assessment Document
Volume II

CHRIS HART & PARTNERS

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

April 2012

TABLE OF CONTENTS

I. PROJECT OVERVIEW 1

A. OVERVIEW OF THE REQUEST 1
B. PROJECT PROFILE 2
C. CHAPTER 343, HRS ACCEPTING AUTHORITY 3
D. REQUIRED APPROVALS 4
E. EARLY CONSULTATION 4

II. DESCRIPTION OF THE PROPERTY AND PROPOSED ACTION 6

A. PROPERTY LOCATION 6
B. EXISTING SITE CONDITIONS AND LAND USE 6
C. REASONS JUSTIFYING THE REQUEST 7
D. DESCRIPTION OF THE PROPOSED ACTION 8
E. ALTERNATIVES 13

III. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATION MEASURES 17

A. PHYSICAL ENVIRONMENT 17
1. Surrounding Land Uses 17
2. Climate, Topography and Soils 19
3. Water Bodies 21
4. Natural Hazards 22
5. Flora 23
6. Fauna 26
7. Noise 28
8. Air Quality 31
9. Archaeological/Historic Resources 34
10. Cultural Resources 37
11. Scenic and Open Space Resources 40
12. Hazardous Materials 41

B. SOCIO-ECONOMIC ENVIRONMENT 48
1. Population 48
2. Economy 48
3. Agriculture 59

C. PUBLIC SERVICES 65
1. Recreation 65
2. Police and Fire Protection 65
3. Schools 66
4. Health Care 66
5. Solid Waste Disposal 67

D. INFRASTRUCTURE 68
1. Water 68
2. Wastewater 75
3. Drainage 76
4. Roadways 78
5. Electrical and Telephone Systems 86

IV. RELATIONSHIP TO GOVERNMENTAL PLANS, POLICIES AND CONTROLS .. 88

A. STATE ENVIRONMENTAL LAW 88
B. STATE LAND USE DISTRICTS 88
C. LAND USE COMMISSION RULES 88
D. LAND USE COMMISSION DECISION-MAKING CRITERIA 93
E. HAWAI`I STATE PLAN 97
F. STATE FUNCTIONAL PLANS 99
G. HAWAI`I COASTAL ZONE MANAGEMENT PROGRAM 101
H. A NEW DAY IN HAWAI`I PLAN 109
I. STATE PRIORITY GUIDELINES FOR SUSTAINABILITY 110

V. CONFORMANCE WITH COUNTY PLANS AND PROGRAMS 112

A. MAUI COUNTY GENERAL PLAN 112
B. KIHEI-MAKENA COMMUNITY PLAN 116
C. MAUI COUNTY ZONING 118

VI. SUMMARY OF ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED . 123

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES ... 124

VIII. CHAPTER 343, HRS SIGNIFICANCE CRITERIA 125

IX. FINDINGS AND CONCLUSIONS 130

X. REFERENCES 131

ATTACHMENTS

FIGURES

Figure 1	Regional Location Map
Figure 2	Aerial Location Map
Figure 3	Parcel Location Map
Figure 4	Site Photographs and Reference Map
Figure 5	Proposed Land Development Plan
Figure 5A	Conceptual Landscape Site Plan
Figure 6	Earlier Concept Site Plan
Figure 7	Pu`unene Airport Master Plan - Concept Land Uses
Figure 7A	Areas of Potential Future Development
Figure 8	Soil Classifications
Figure 9	Soil Productivity Ratings
Figure 10	Flood Insurance Rate Map
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

APPENDICES

Appendix A	Zoning & Flood Confirmation
Appendix B	Topographic Survey Map
Appendix C	Existing M-2, Heavy Industrial Zoning Regulations
Appendix C-1	Proposed M-1, M-2, and M-3 Industrial Zoning Regulations
Appendix D	Quitclaim Assignment of Partial Interest in Easement (Easement 7)
Appendix D-1	Request for Use of State Lands
Appendix E	Flora Survey
Appendix F	Faunal Survey
Appendix G	Noise Study
Appendix H	Air Quality Study
Appendix I	Archaeological Inventory Survey
Appendix J	Archaeological 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 Resources & Water System Assessment
Appendix P	Preliminary Engineering Report
Appendix Q	Traffic Impact Analysis Report
Appendix R	Early Consultation Letters

I. PROJECT OVERVIEW

A. OVERVIEW OF THE REQUEST

CMBY 2011 Investment, LLC (aka, CMBY), the owner of property identified by TMK (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 vacant and undeveloped except for a 2-acre radio antenna site whose lease expires December 31, 2013. The subject 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 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.

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 (from the *State Agricultural District* to the *State Urban District*), a Community Plan Amendment (from *Agriculture* to *Heavy Industrial*) and a Change in Zoning (from *Agricultural* to *M-2, Heavy 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 entitled *Environmental Impact Statements* and Title 11, Chapter 200, Hawai`i Administrative Rules entitled *Environmental Impact Statement Rules*. Based on consultation with the Maui Planning Department and the State Land Use Commission (SLUC), the Maui Planning Commission will serve as the accepting authority for the environmental review process.

B. PROJECT PROFILE

District:	Pu`unene District, Island of Maui

Tax Map Key:	(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 – *Urban* Kihei-Makena Community Plan – *Agriculture* County Zoning – *Agricultural*
Flood Insurance Rate Map:	Zone "X", area of minimal flooding
Existing Land Uses:	Vacant and undeveloped except for a 2-acre radio antenna site whose lease expires on December 31, 2013
Proposed Land Use:	Heavy industrial subdivision
Site Access:	Mokulele Highway, Kama`aina Road, South Firebreak Road, Lower Kihei Road

C. ACCEPTING AUTHORITY

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
6. Well Drilling and Pump Installation Permits from the State Commission on Water Resource Management
7. Public Water System Approval from the State Dept. of Health, Safe Drinking Water Branch
8. 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 of 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). In addition, the Maui Planning Commission will now be serving as the accepting authority for the environmental review process based on subsequent 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 except for a 2-acre radio antenna site whose lease expires on December 31, 2013. **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 M-2, 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, Pu`unene 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 State 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-2, Heavy Industrial*. The State Land Use Commission is the decision-making body for the District Boundary Amendment (DBA), while the Maui County Council will serve as the decision-making authority for the CPA and CIZ.

A Petition for the DBA will be submitted to the State Land Use Commission for processing and a consolidated application for the CPA and CIZ will be filed with the County of Maui for processing. Assuming the DBA is granted, the Maui County Council will proceed to take action on the CPA and CIZ. The approval of these land use requests will provide the land owner with the necessary entitlements to develop and utilize the subject property for heavy industrial purposes.

The County's heavy industrial zoning regulations have been codified and are set forth in Chapter 19.26 of the Maui County Code. Generally speaking, *M-2, Heavy Industrial* zoning encompasses those uses that involve the manufacture or treatment of goods from raw materials. The uses that are outright permitted by *M-2* zoning and the uses that require a Special Use Permit from the County are identified in Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*. The minimum lot size under *M-2* zoning is 10,000 square feet, while the minimum lot width is 75 feet and the maximum building height is six stories. Parcels that are zoned for *M-2* use and are bordered by *Agricultural*-zoned lots are required to have front and side yard setbacks of 10 feet and a rear yard setback of 15 feet. **See** Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*.

Due to the pyramid-like structure of current *M-2* zoning regulations, any use permitted under *B-1* (Neighborhood Business), *B-2* (Community Business), *B-3* (Central Business), and *M-1* (Light Industrial) zoning is also allowed under *M-2* zoning with certain exceptions. **See** Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*.

Proposed bills, which would amend the existing *M-1* and *M-2* zoning regulations and create an additional *M-3* (Industrial) zoning category, have been drafted by the Maui Planning Department. **See** Appendix C-1, *Proposed M-1, M-2, and M-3 Industrial Zoning Regulations*.

The proposed bills will be transmitted to the Maui County Council for review after they have been finalized. If approved, the proposed bills would establish a new industrial zoning hierarchy which would include the following zoning classifications as listed by order of greatest magnitude: 1) *M-3, Industrial*; 2) *M-2, Light Industrial*; and 3) *M-1, Light Industrial*. **See** Appendix C-1, *Proposed M-1, M-2, and M-3 Industrial Zoning Regulations*.

If the proposed *M-3* zoning regulations are adopted as shown in Appendix C-1, all permissible and special uses under current *M-2* zoning standards would be entirely permitted except for any uses permitted under present *B-1*, *B-2*, *B-3*, and *M-1* zoning standards which would no longer be allowed. It should be noted that the proposed *M-3* regulations also include five new allowable uses that are not covered under existing

M-2 zoning. These new permitted uses include: 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 or wholesale storage of biofuels; and 5) recycling processing facilities. In the event the bill for *M-3* zoning is not adopted, the land owner requests that the preceding five new uses that are contained in the proposed bill for M-3 zoning (as shown in Appendix C-1) be allowed under conditional *M-2* zoning. **See** Appendix C-1, *Proposed M-1, M-2, and M-3 Industrial Zoning Regulations*.

The Petition for State land use reclassification has been prepared on the basis that the land owner will be seeking a zoning change from *Agricultural* to *M-2, Heavy Industrial*. However, if the proposed bill for *M-3* zoning is adopted after the land owner's request for the DBA has been filed; the Petition will be amended to reflect the change to *M-3* zoning. Maui County Council action on the consolidated application for the CPA and CIZ will occur after the DBA has been granted.

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. 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 5A, 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 potable and non-potable wells, booster pumps, and a reverse osmosis purification system, as well as water transmission lines, manholes, and laterals to each lot. The potable well will provide water for domestic use, while the non-potable 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. The subdivision's wastewater (enhanced septic tank) system will be privately owned and maintained by the Lot Owner's Association. The private wastewater system will include a central leach field, and wastewater transmission lines, manholes, and laterals to each lot.

   As lots within the subdivision are developed, each lot owner will be responsible for tying in to the subdivision's wastewater system by connecting to the lateral on their lot.

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.

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 State Land Use Commission or the County of Maui as a result of the entitlement process.

It is estimated that the land use and subdivision approval process will take approximately four to five years. As such, subdivision construction is expected to begin in 2016. 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

Analysis: This alternative calls for maintaining the existing physical condition and land use classifications for the subject parcel and would preclude the development of the property for a more appropriate use. In this light, the "no action" alternative is not a viable option and was dropped from consideration.

2. Deferred Action

Analysis: This alternative calls for deferring development until some point in the future. However, future market conditions (poor economy, high interest rates, increased labor and material costs) could affect the feasibility and timing

for undertaking the project. As such, the "deferred action" alternative was deemed unfeasible and was dropped from consideration.

3. Alternative Locations

Analysis: There is a very limited inventory of vacant land that is currently available for heavy industrial activities. The vast majority of property that is zoned for such use is currently utilized for light industrial and retail and commercial activities. There are existing heavy industrial-zoned areas at Kahului Harbor, the Maui Electric Company (MECO) power plant at Ma`alaea, the HC&S sugar mill at Pu`unene, the former Maui Pineapple cannery, and the MECO office and baseyard complex in Kahului. Except for 11 acres in the Central Maui Baseyard, there are no other locations that have vacant and/or available heavy industrial land that can adequately accommodate purely heavy industrial uses.

4. Different Land Uses

Analysis: While it may be possible to reclassify the subject property for a different land use such as single-family residential, apartment, or business, such a change would be inconsistent with existing and planned future uses in the area and would not only have a continuous, exponential impact upon the environment but place greater demands upon public services and infrastructure. In light of the foregoing, seeking different land uses for the site was dropped form consideration.

5. Other Site Plans

Analysis: During the preliminary planning phase for the project, different site layouts were prepared and evaluated. For example, the locations of some of the smaller subdivision lots and the layout 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 process examined existing topography, soils, drainage patterns, and infrastructure. Spatial relationships and adjacencies, infrastructure requirements, lot sizes and configurations, and engineering requirements for access and utilities were examined during this

process as well. While there are other plans that could be examined, the proposed land development plan provides a layout that is functional and lends itself to the proposed heavy industrial use of the site.

6. Lot Sizes

Analysis: Under current County zoning, the minimum size requirement for an M-2, Heavy 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 high density development could trigger the need for additional public services and infrastructure improvements.

Conversely, increasing lot sizes would produce fewer lots, reduce density, and minimize impacts upon public services and infrastructure. However, decreasing the number of lots 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.

7. Agricultural Use

Analysis: Seed crop cultivation is a potential alternative land use. However, since good soil and growing conditions are critical to the success of such an operation, the subject parcel's poor soil quality and low land productivity rating render this alternative infeasible.

8. Preferred Alternative

Analysis: While there are other land uses or land development plans that can be examined, the proposed project was deemed the most appropriate in terms of fulfilling the need for heavy industrial space in Central Maui and for being consistent with existing and planned heavy industrial uses in the area. For example, in the section on Project District 10 (Old Pu`unene Airport Area), the current Kihei-Makena Community Plan, states that "*approximately 125 acres, including and adjacent to the Hawaiian Cement site, should be utilized*

for heavy industrial use." The subject parcel is included within the proposed Urban Growth Boundaries for the (draft) Maui Island Plan. In addition, the Plan notes that the proposed heavy industrial use of the property is "compatible with adjacent land uses and represents a logical expansion of industrial land use in the area" and that its "location midway between Kihei and Kahului makes it an ideal site to serve the island's industrial needs."

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 and the Pu`unene Airport Master Plan 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 Project District 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 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 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.

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 master plan for 222 acres of land in the vicinity of the Old Pu`unene Airport. The land for the master plan 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 Pu`unene Airport Master Plan (PAMP) area lies within Project District 10 and is currently in the process of being updated to provide space for future public and recreational uses. See Figure 7, Pu`unene Airport Master Plan - Concept Land Uses.

As noted in the Kihei-Makena Community Plan (1998), Project District 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 for the (draft) Maui Island Plan. The subject parcel, the PAMP 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 indicated by the State Department of Hawaiian Home Lands (DHHL), the department owns approximately 184 acres of land bordered by Mehameha Loop which is designated for future commercial development. The DHHL also owns a 646-acre parcel of land to the south of the subject parcel – TMK (2) 3-8-008: 034 – which is presently zoned for General Agricultural use by the DHHL but could be up-zoned for a higher land use. Parcel 34 and other State-owned parcels in the Old Pu`unene Airport area are currently being evaluated as part of a comprehensive master planning effort by the State of Hawai`i to address infrastructure needs for the future development of public lands in the vicinity of the Old Pu`unene Airport (personal communication with Kaleo Manuel, December 27, 2011). **See** Figure 7A, Areas of Potential Future Development.

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 adjacent to the Hale Pi`ilani Subdivision. 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.

The subject property is ideally situated for heavy industrial activities given past, present, and planned land uses in the surrounding 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 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-Moloka`i 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 proposed project will involve minimal grubbing and grading. 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.

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 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. The Corps 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 S, 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. Since the proposed project will not involve any work in, over, or under the wetland nor will it include the placement of dredged and/or fill material into the wetland or the Pacific Ocean, Section 10 and Section 404 permitting requirements are not triggered.

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.

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. 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.

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 Pu`unene Heavy Industrial Subdivision and access easements are 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 Hawaiian Short-eared Owl or Pueo (*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

Pacific Golden Plover or Kolea (*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 cardinales*), House Finch (*Carpodacus mexicanus*), and Nutmeg Mannikin (*Lonchura punctulata*).

Mammals. The only feral mammal observed during the field survey was the Small Indian Mongoose (*Herpestes javanicus*). Rats (*Rattus spp.*) and Mice (*Mus muscullus*) 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.

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, Alaeke`oke`o) 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. As such, the proposed project should not adversely affect the water birds at the reservoir.

The 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.

As a follow-up to the land owner's response to their early consultation comments (See Appendix R), the U.S. Fish & Wildlife Service provided supplemental comments via telephone (personal communication with Eric Bordenave, September 27, 2011). Mr. Bordenave indicated that the endangered Hawaiian goose (nene) 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.

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.

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.

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 the nearest residential areas in Kihei (2.3 miles), Ma`alaea (3.6 miles), Kahului (4.0 miles), and Pukalani (6.4 miles).

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.

Should noise from construction activities and/or industrial operations exceed permissible sound levels (70 dBA) for lands zoned for agricultural and industrial use, a Community Noise Permit will be obtained from the DOH in accordance with Chapter 11-46, Hawaii Administrative Rules (*Community Noise Control*).

8. Air Quality

Existing Conditions. 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 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, 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 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/m^3) between 2005 and 2008. Average annual concentrations ranged from 20 to 26 □g/m^3.

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/m^3 between 2005 and 2009. Average annual concentrations ranged from 4 to 6 □g/m^3.

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, Hawai`i Administrative Rules (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.

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.

At this time, there is insufficient information regarding any of the uses or activities that may be located within the proposed heavy industrial subdivision to perform any quantitative impact assessments. Some of the facilities allowed by County zoning could emit significant amounts of air pollution. Before any air pollution sources can be built in Hawai`i, an application and detailed information about potential air pollution emissions must be submitted to the DOH for a permit to construct the facility. If warranted, the DOH may require the applicant to assess the air quality impact of the potential emissions.

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

The development of the proposed project will comply with all applicable Federal, State, and County standards for the control of air pollution, including Chapter 11-60, HAR (*Air Pollution Control*).

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. (IARII) in 1999 as part of an AIS for the area. The 1999 IARII 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.

Since its completion, the inventory survey has been submitted to the State Historic Preservation Division (SHPD) for review and approval.

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 (IARII-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 State Historic Preservation Division (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.

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.

Since its completion, the monitoring plan has been submitted to the State Historic Preservation Division (SHPD) for review and approval.

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) 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 manmade 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-2, Heavy Industrial* zoning is six stories. 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.

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) 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-potable well were located on the site. Limited quantities of cathode ray tubes (CRTs), 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 (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, 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 (11primary 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. Analytical results from the initial site investigation activities for the Phase I ESA indicated that elevated concentrations of 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 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.

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 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 (TA-H) 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.

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. To minimize impacts to adjacent and downstream properties, provisions outlining the responsibility of lot owners for the properly delivery, removal, storage, use, and handling of hazardous materials will be included in the Covenants, Conditions, and Restrictions for the proposed subdivision. Examples of such provisions include, but are not limited to, the following.

- Lot owners must utilize appropriate measures to contain spills and prevent materials from leaching or draining into surface or subsurface areas.
- Lot owners must utilize Best Management Practices (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 products 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 and State regulations. Lot owners will be

required to prepare a Hazardous Waste Response Plan 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 100,504 in April 1990 to 128,241 the following year, an increase of increased 27.6 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 and 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 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 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 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 M-2 Heavy Industrial District's "stacked" 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. <u>County of Maui</u>

   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 Hawai`i 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&Ps 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 (NRCS) of the U.S. Department of Agriculture (USDA) indicates that the subject parcel has soil that basically consists of Subclass VIIs with some parts designated Subclass VIs. Subclass VIIs 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 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.

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, Hawa`ii Revised Statutes, 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 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.

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. 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 potable and non-potable (irrigation, fire flow) uses. 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 (10)

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.

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 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 potable and non-potable 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 potable and non-potable 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 potable quality water in some locations and brackish water in most of its

remaining area. As designated by the State Commission on Water Resource Management (CWRM), the aquifer has a sustainable yield of 1.0 million gallons per day (MGD), an amount which is based on rainfall recharge on only a portion of the aquifer's area and also does not account for the aquifer's other sources of recharge. The actual sustainable yield of the aquifer is far greater, even if HC&S were to cease operations including its importation of ditch water. 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 the Commission.

Potable and Non-potable Requirements. To estimate the projected potable and non-potable 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 potable and non-potable uses on industrial lands was utilized in determining the project's estimated potable water demand. Based on the foregoing, the projected potable demand is estimated to be an average of 118,800 gallons per day (gpd), while the non-potable requirement is projected to be an average of 305,200 gpd.

Proposed Water System Infrastructure. To provide an onsite groundwater supply for potable and non-potable 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 potable use, the report proposes three (3) 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 potable storage and a 0.40 MG reservoir for non-potable storage.

Since both reservoirs would be at grade and therefore would not provide sufficient pressure for potable and non-potable 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-potable 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-potable use and as feed water for the reverse osmosis (RO) treatment process to produce potable 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-potable 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 in 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.

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

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 potable and non-potable (irrigation, fire flow) uses.

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

The potable water system for the proposed subdivision is defined as a *Public Water System* by Chapter 11-20, Hawai`i Administrative Rules (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 (potable/non-potable) for industrial lands, the potable water demand for the subdivision's developable lots was determined to be about 118,620 gallons per day (gpd).

The non-potable 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-potable 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 subdivision.

- A total of three (3) wells with a capacity of 300 gallon per minute (gpm) each, with one well providing standby capacity.
- A total of three (3) 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 potable use.
- A 0.30 million gallon (MG) storage reservoir for non-potable use.
- The potable and non-potable water systems 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.

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 for the proposed subdivision. An association of subdivision lot owners will be formed to assume the responsibility of operating and maintaining the system.

Well Construction and Pump Installation Permits will be obtained from the State Commission on Water Resource Management (CWRM) for the groundwater wells. The wells will be developed and operated in accordance with the *Hawai`i Well Construction and Pump Installation Standards* established by the 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 Hawaii 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, regarding *Rules Relating to Potable Water Systems*; Title 11, Chapter 21, HAR, pertaining to *Cross-connection and Backflow Control*; and Title 11, Chapter 25, HAR, entitled *Rules Pertaining to Certification of Public Water System Operators*.

In addition, the design of the proposed water system improvements will 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.

To minimize subsurface and ground water contamination from industrial activities, all lot owners will be required to implement Best Management Practices for the delivery, removal, storage, use, and handing of any hazardous materials on their property and in all common areas of the proposed subdivision.

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.

In light of the foregoing, the proposed project is not expected to result in any adverse long-term impacts to groundwater resources and 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. For wastewater collection and treatment, a master wastewater system will be installed within the subdivision's internal roadway system and a sewer lateral will be provided for each lot. Wastewater from the lots will be conveyed by sewer lines to a community leach field within the subdivision which will be positioned at least 1,000 feet away from the groundwater wells for the subdivision. The construction plans for the master sewer system will be submitted to the Wastewater Branch of the State Department of Health (DOH) for review and approval.

In order for the master wastewater system to function as designed, provisions for the maintenance of the system will be included in the Covenants, Conditions, and Restrictions for the proposed subdivision. An association of subdivision lot owners will be formed to assume the responsibility of operating and maintaining the system.

All lot owners must comply with Chapter 11-62, Hawaii Administrative Rules (HAR), pertaining to *Wastewater Systems*. HAR 11-62 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. Therefore, as lots within the subdivision are being developed, lot owners must submit their IWS plans to the DOH for review and approval. All lot owners will be required to install an aerobic-type IWS since this type of unit and can be used within proximity to the drinking water sources and wells.

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

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.

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 for the proposed subdivision. An association of subdivision lot owners will be formed to assume the responsibility of operating and maintaining the system. 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 build up 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 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.

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

Potential Impacts and Mitigation Measures. A Traffic Impact Analysis Report (TIAR) for the proposed project was prepared by Phillip Rowell and Associates in September 2011. **See** Appendix Q, Traffic Impact Analysis Report.

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 Kama'aina 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 Kama'aina 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 Kama`aina 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 Kama`aina 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 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

Intersection	*Recommended Measures to Mitigate Existing (2011) Deficiencies*	*Recommended Measures to Mitigate Background Deficiencies*	*Recommended Measures to Mitigate Background Plus Project Deficiencies*
Mokulele Highway, Kama'aina Road, and Mehameha Loop	No mitigation required.	No mitigation required.	(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.

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 traffic can create short-term traffic impacts. As such, a Traffic Management Plan (TMP) 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).*

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, Telephone and CATV Systems

Existing Conditions. Maui Electric Company (MECO) and Hawaiian Telcom provide electrical and telephone service for the island of Maui.

An overhead electrical transmission system runs along the right side of Kama`aina Road, South Firebreak Road, and Lower Kihei Road. The system provides service to the surrounding area and is located within an easement granted to MECO.

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 electrical and telephone lines will be extended to the subject parcel from existing overhead facilities in the project area.

New power and phone systems within 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 telephone systems will be coordinated with the utility companies to ensure that these systems meet all applicable design and operational criteria. Exterior lighting will utilize fully shielded or downward directed fixtures for safety, security, and parking and to minimize impacts (fallout and disorientation) to seabirds traversing the project area.

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.

Lot owners will be encouraged to utilize energy conservation measures when developing their parcels in the future. Examples of such measures include, but are not limited to the following: 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.

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 Hawai`i. 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 accepting authority for the environmental review process.

B STATE LAND USE DISTRICTS

Pursuant to Chapter 205, HRS, all lands in the State of Hawai`i 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 area which encompasses 222 acres of land west of and adjacent to the subject parcel and is a component of Project District 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 Project District 10 (across Mokulele Highway) which it plans to lease for future commercial development. The DHHL also owns a 646-acre parcel of land to the south of the subject parcel – TMK (2) 3-8-008: 034 – which is presently zoned for General Agricultural use by the DHHL but could be up-zoned for a higher land use. Parcel 34 and other State-owned parcels in the Old Pu`unene Airport area are currently being evaluated as part of a comprehensive master planning effort by the State of Hawai`i to address infrastructure needs for the future development of public lands in the vicinity of the Old Pu`unene Airport (personal communication with Kaleo Manuel, December 27, 2011).

(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 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. 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 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 addition, the State Department of Hawaiian Home Lands 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 Conditional Permit). 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 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. 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 Pu`unene Airport Master Plan area, and Project District 10 all lie within the proposed Urban Growth Boundaries 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 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 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, Archaeological Monitoring Plan, 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 monitoring plan approved by the State Historic Preservation Division. 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.

(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 (i.e., 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 Hawai`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 226103) 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. As such,

subdivision construction is expected to begin in 2016. 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. 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 manmade 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. Since its completion, the inventory survey has been submitted to the State Historic Preservation Division (SHPD) for review and approval. An Archaeological Monitoring Plan 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. Since its completion, the monitoring plan has been submitted to the State Historic Preservation Division (SHPD) for review and approval.

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-2, Heavy Industrial* zoning is six stories. 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). The Maui Planning Commission will be serving as the accepting authority 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. The general public and government agencies will have another opportunity to comment on the proposed project during the 30-day comment period following the publication and notice of availability of the Draft EA.

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 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 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 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 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, 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 Kihei-Makena Community Plan 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.

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).

The County's heavy industrial zoning regulations have been codified and are set forth in Chapter 19.26, MCC. Generally speaking, *M-2, Heavy Industrial* zoning encompasses those uses that involve the manufacture or treatment of goods from raw materials. The uses that are outright permitted by *M-2* zoning and the uses that require a Special Use Permit from the County are identified in Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*. The minimum lot size under *M-2* zoning is 10,000 square feet, while the minimum lot width is 75 feet and the maximum building height is six stories. Parcels that are zoned for *M-2* use and are bordered by *Agricultural*-zoned lots are required to have front and side yard setbacks of 10 feet and a rear yard setback of 15 feet. **See** Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*.

Due to the pyramid-like structure of current *M-2* zoning regulations, any use permitted under *B-1* (Neighborhood Business), *B-2* (Community Business), *B-3* (Central Business), and *M-1* (Light Industrial) zoning is also allowed under *M-2* zoning with certain exceptions. **See** Appendix C, *Existing M-2 Heavy Industrial Zoning Regulations*.

Proposed bills, which would amend the existing *M-1* and *M-2* zoning regulations and create an additional *M-3* (Industrial) zoning category, have been drafted by the Maui Planning Department. **See** Appendix C-1, *Proposed M-1, M-2, and M-3 Industrial Zoning Regulations*.

The proposed bills will be transmitted to the Maui County Council for review after they have been finalized. If approved, the proposed bills would establish a new industrial zoning hierarchy which would include the following zoning classifications as listed by order of greatest magnitude: 1) *M-3, Industrial*; 2) *M-2, Light Industrial*; and 3) *M-1, Light Industrial*.

If the proposed *M-3* zoning regulations are adopted as shown in Appendix C-1, all permissible and special uses under current *M-2* zoning standards would be entirely permitted except for any uses permitted under present *B-1*, *B-2*, *B-3*, and *M-1* zoning standards which would no longer be allowed. It should be noted that the proposed *M-3* regulations also include five new allowable uses that are not covered under existing *M-2* zoning. These new permitted uses include: 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 or wholesale storage of biofuels; and 5) recycling processing facilities. In the event the bill for *M-3* zoning is not adopted, the land owner requests that the preceding five new uses that are contained in the proposed bill for M-3 zoning (as shown in Appendix C-1) be allowed under conditional *M-2* zoning. **See** Appendix C-1, *Proposed M-1, M-2, and M-3 Industrial Zoning Regulations*.

The Petition for State land use reclassification has been prepared on the basis that the land owner will be seeking a zoning change from *Agricultural* to *M-2, Heavy Industrial*. However, if the proposed bill for *M-3* zoning is adopted after the land owner's request for the DBA has been filed; the Petition will be amended to reflect the

change to *M-3* zoning. Assuming the DBA is granted; the land owner will subsequently prepare and submit a consolidated application for the CPA and CIZ.

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.

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.

   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 Archaeological Inventory Survey provides further evidence to support this conclusion as no cultural remains were encountered on the surface or through sub-surface testing. 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 State Historic Preservation Division and/or the Maui/Lana`i Island Burial Council will be promptly notified to establish an appropriate mitigation strategy.

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 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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FIGURES

FIGURES

Figure 1	Regional Location Map
Figure 2	Aerial Location Map
Figure 3	Parcel Location Map
Figure 4	Site Photographs and Reference Map
Figure 5	Proposed Land Development Plan
Figure 5A	Conceptual Landscape Site Plan
Figure 6	Earlier Concept Site Plan
Figure 7	Pu`unene Airport Master Plan - Concept Land Uses
Figure 7A	Areas of Potential Future Development
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

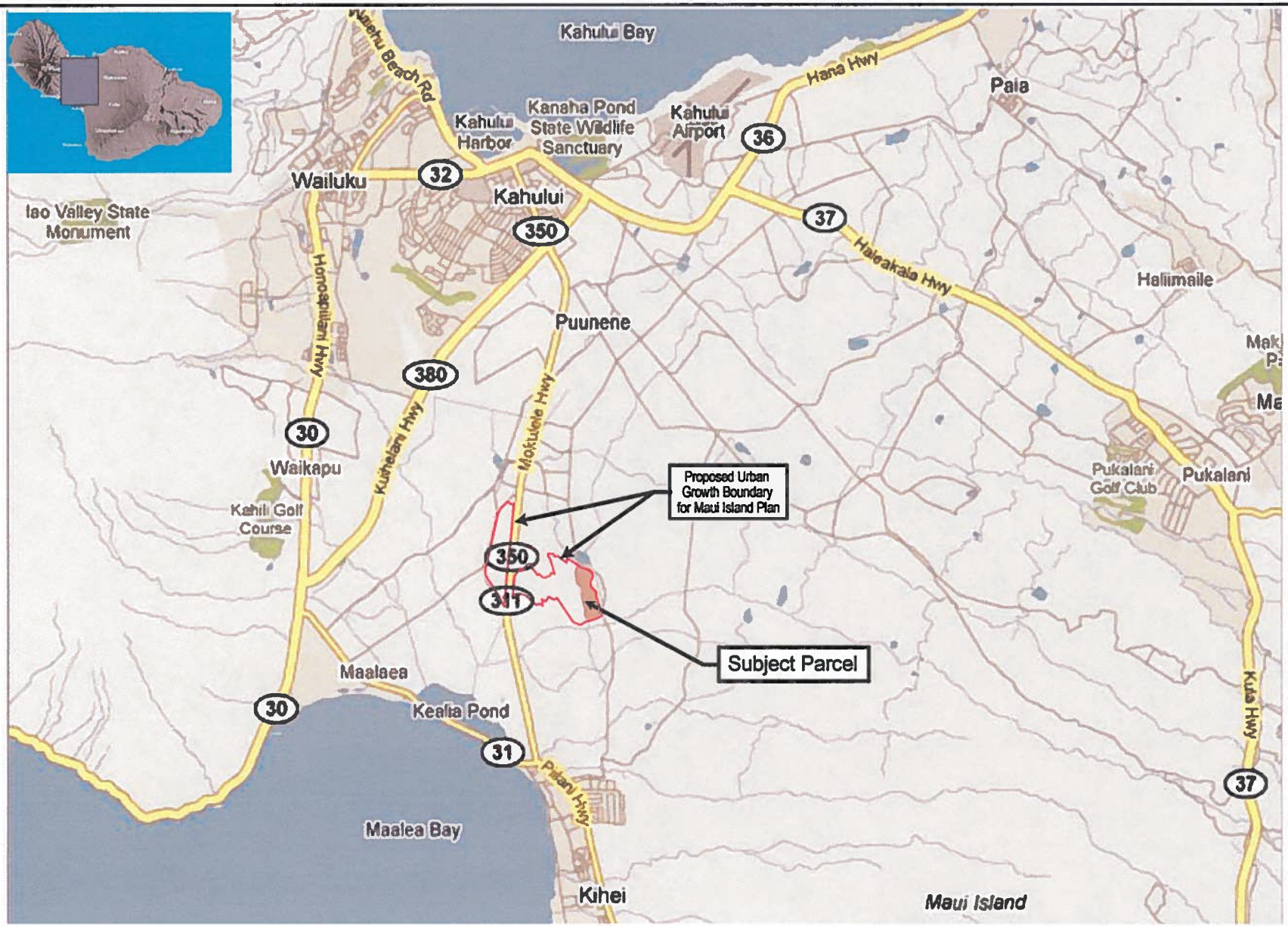

FIGURE 1

Not to Scale

Regional Location Map

Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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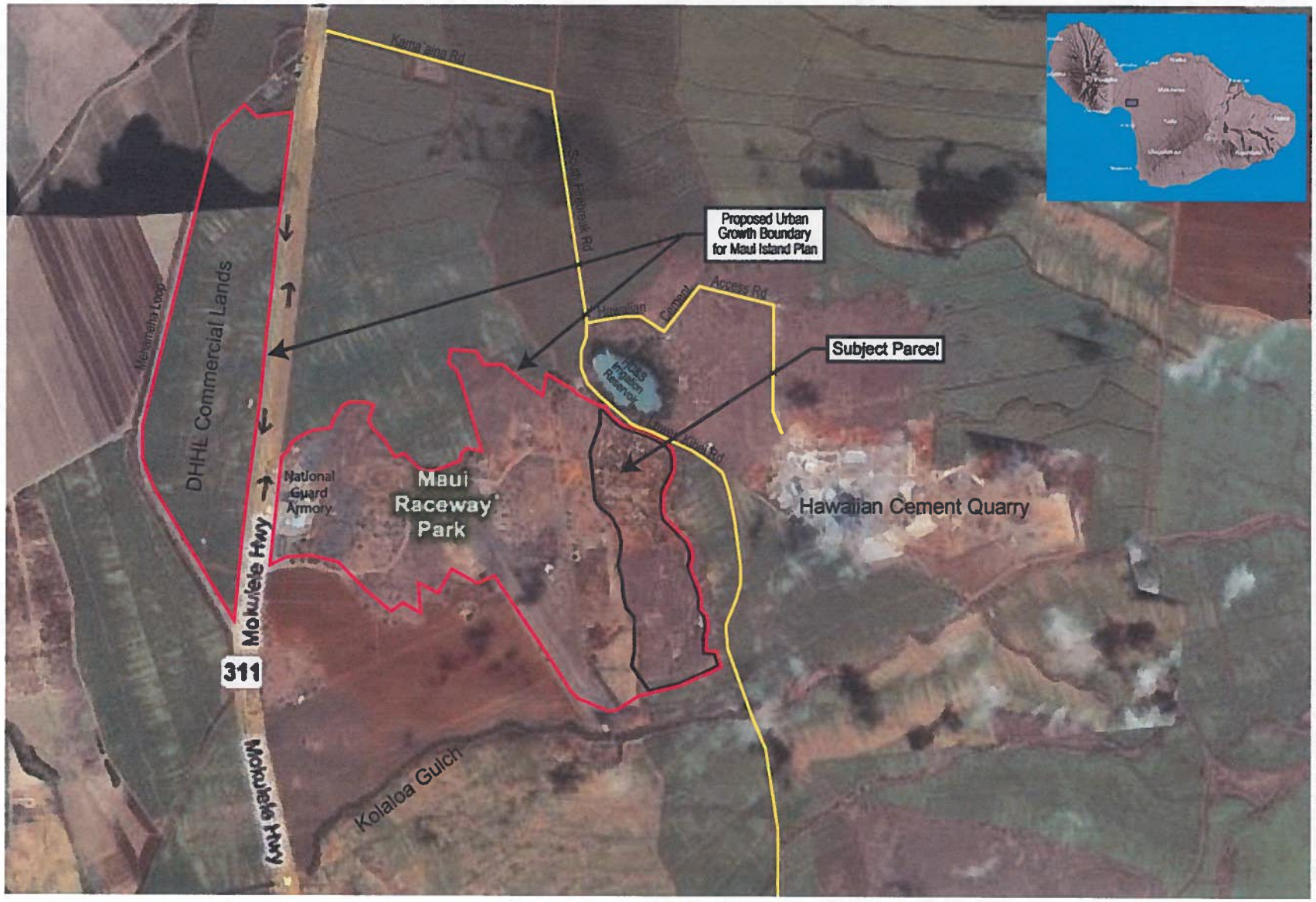

FIGURE 2

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Aerial Location Map
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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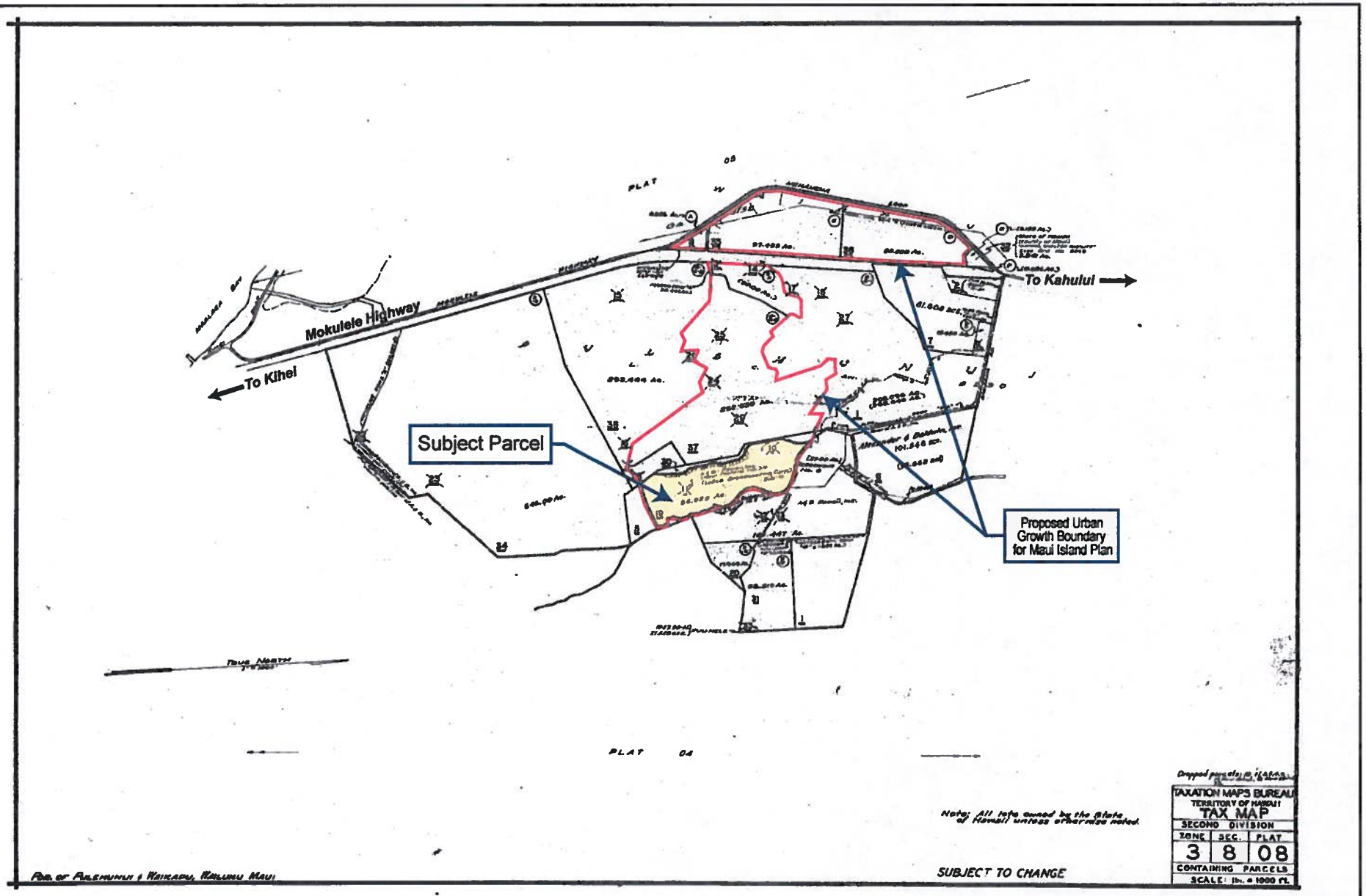

FIGURE 3

Not to Scale

Parcel Location Map

Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

Key to Photo Locations

A. Photos 1 through 5
B. Photos 6 and 7
C. Photos 8 and 9
D. Photos 10 and 11
E. Photo 12
F. Photo 13
G. Photo 14
H. Photo 15
I. Photos 16 and 17
J. Photos 18 and 19
K. Photos 20 through 22
L. Photo 23

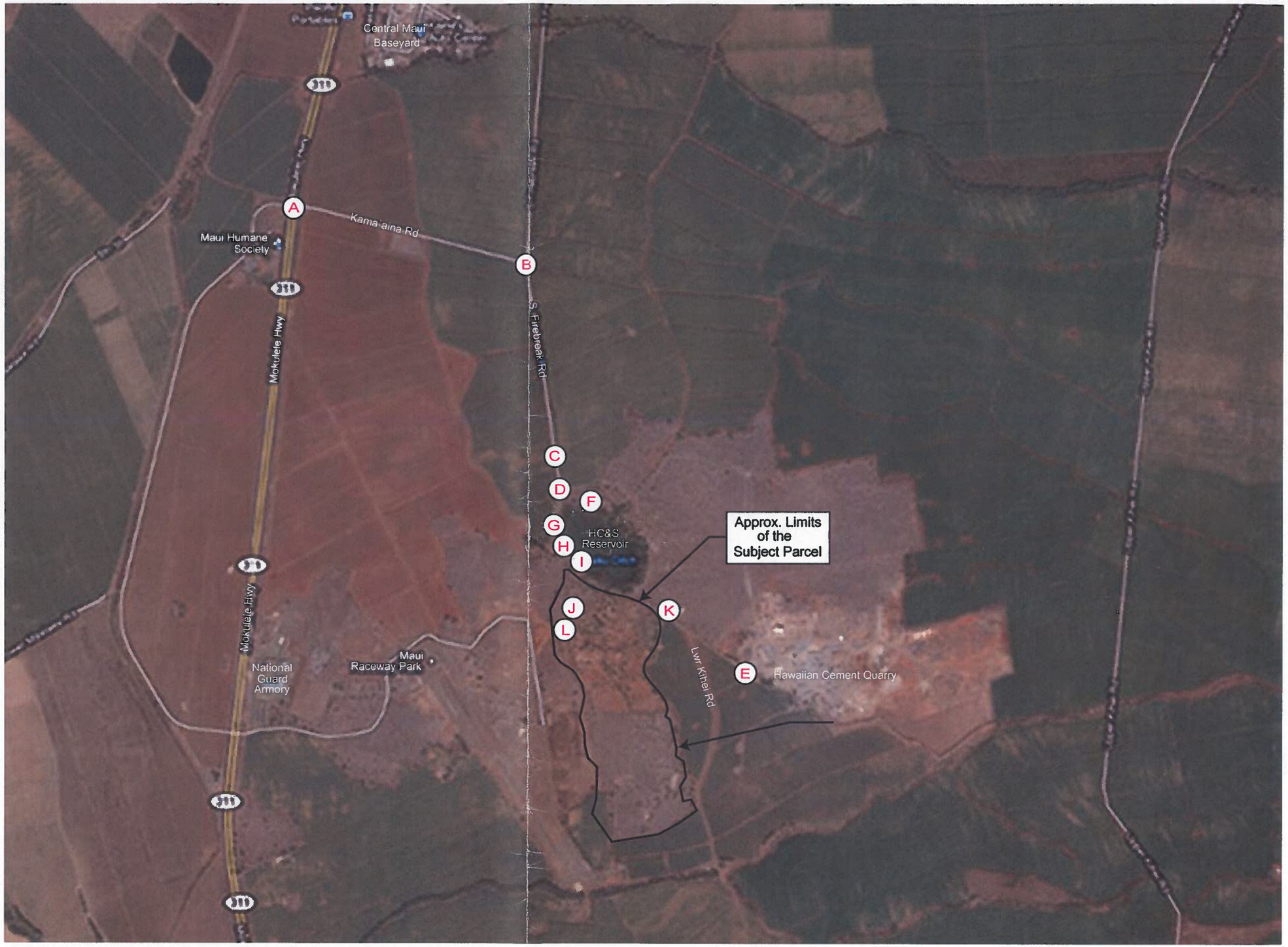

FIGURE 4

Photo Reference Map
Pu'unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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1. Camera facing North: Mokulele Highway at its intersection with Kama`aina Road (right) and Mehameha Loop. The Central Maui Baseyard lies in the background (right).

2. Camera facing West: The Mehameha Loop intersection with Mokulele Highway. The town of Wailuku lies in the background (right).

3. Camera facing South: Mokulele Highway at its intersection with Kama`aina Road and Mehameha Loop The Maui Humane Society lies in the background (center/right).

4. Camera facing East: View of Kama`aina Road from its intersection with Mokulele Highway.

FIGURE 4

Site Photographs
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

5. Camera facing Southeast: View toward the Subject Parcel (center/rear) from the intersection of Mokulele Highway, Kama`aina Road, and Mehameha Loop.

6. Camera facing West: Kama`aina Road looking toward Mokulele Highway. The town of Wailuku lies in the background (right).

7. Camera facing South: South Firebreak Road looking toward the Subject Parcel (left/rear).

8. Camera facing East: Location of the proposed Subdivision Access Road connection along South Firebreak Road.

FIGURE 4

Site Photographs
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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9. Camera facing Southwest: The National Guard Armory (left/rear) and a World War II-era concrete bunker (center/rear) along Mokulele Highway as seen from South Firebreak Road.

10. Camera facing North: South Firebreak Road near its intersection with the Hawaiian Cement Access Road.

11. Camera facing East: Intersection of the Hawaiian Cement Access Road and South Firebreak Road.

12. Camera facing East: Entrance to the Hawaiian Cement Quarry.

FIGURE 4

Site Photographs
Pu'unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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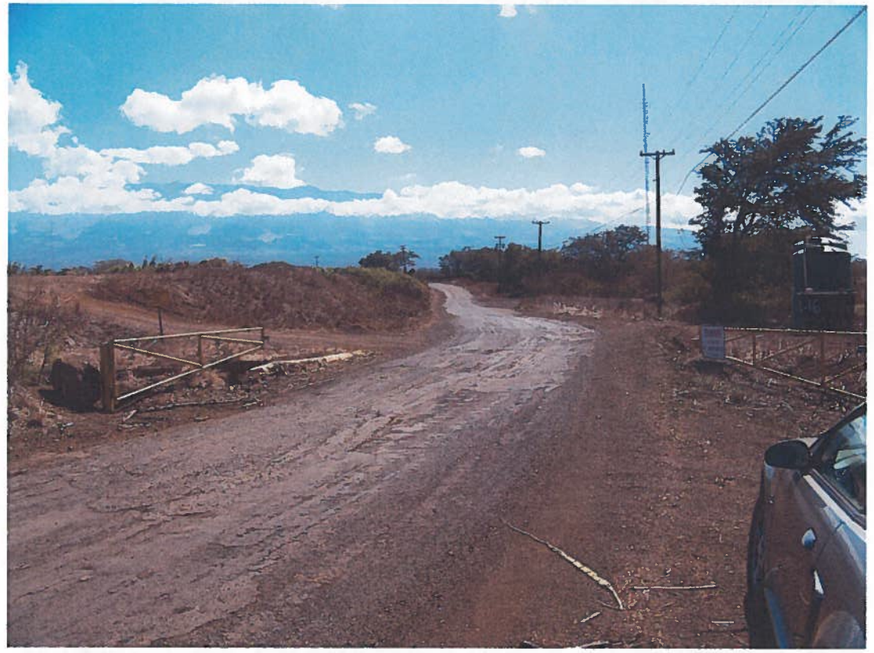
13. Camera facing Northwest: The westbound truck traveling along the Hawaiian Cement Access Road is in the approximate location of the proposed Subdivision Access Road crossing.

14. Camera facing North: South Firebreak Road looking toward its intersection with the Hawaiian Cement Road. An HC&S irrigation reservoir lies in the foreground (right).



15. Camera facing Southeast: A street-level view of the HC&S irrigation reservoir (left side of the road). The Subject Parcel lies in the background (right side of the road).

16. Camera facing North: The HC&S irrigation reservoir as seen from the berm along the south side of the reservoir.

FIGURE 4

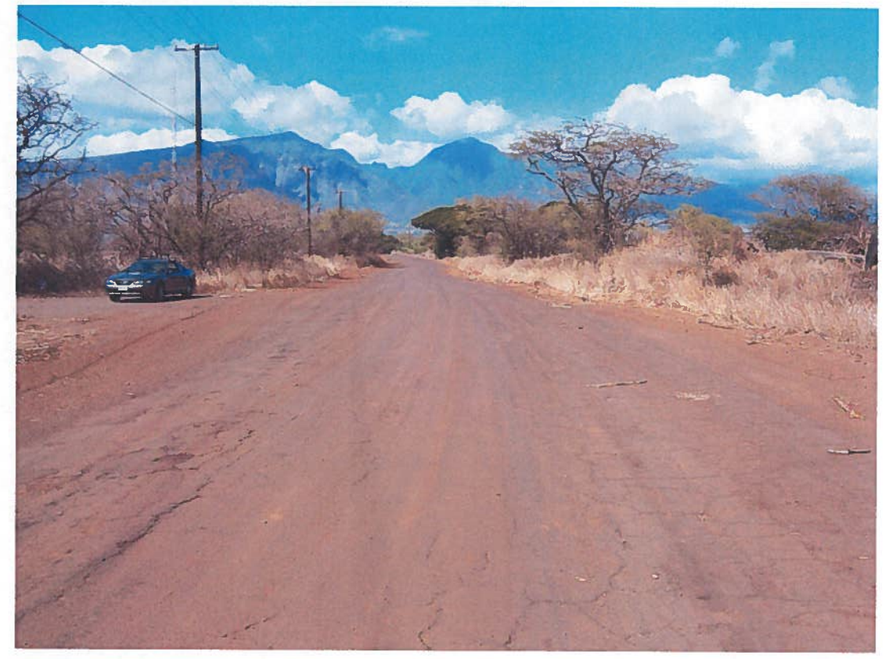
Site Photographs
Pu'unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

17. Camera facing Southeast: The Subject Parcel (left/center) as seen from the berm along the south side of the HC&S irrigation reservoir.

18. Camera facing Southeast: A typical scene on the Subject Parcel.

19. Camera facing Northeast: LeSea Broadcasting Corp. has a license agreement with Alexander & Baldwin, Inc. (the former land owner) to use a 2-acre portion of the Subject Parcel for broadcast and communications purposes. The license agreement expires on 12/21/13.



20. Camera facing West: Lower Kihei Road as seen from a point near the northeastern boundary of the Subject Parcel. The Subject Parcel is to the left of the road while the HC&S irrigation reservoir is further down the road to the right.

FIGURE 4

Site Photographs
Pu'unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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21. Camera facing North: Location of the proposed Subdivision Access Road connection along Lower Kihei Road.

22. Camera facing South: Lower Kihei Road (foreground) and an HC&S sugar cane field located east of and adjacent to the Subject Parcel.

23. Camera facing Southwest: Project District 10 (Old Pu`unene Aiport Area) as seen from the northern portion of the Subject Parcel. The Maui Raceway Park lies in the background.

FIGURE 4

Site Photographs
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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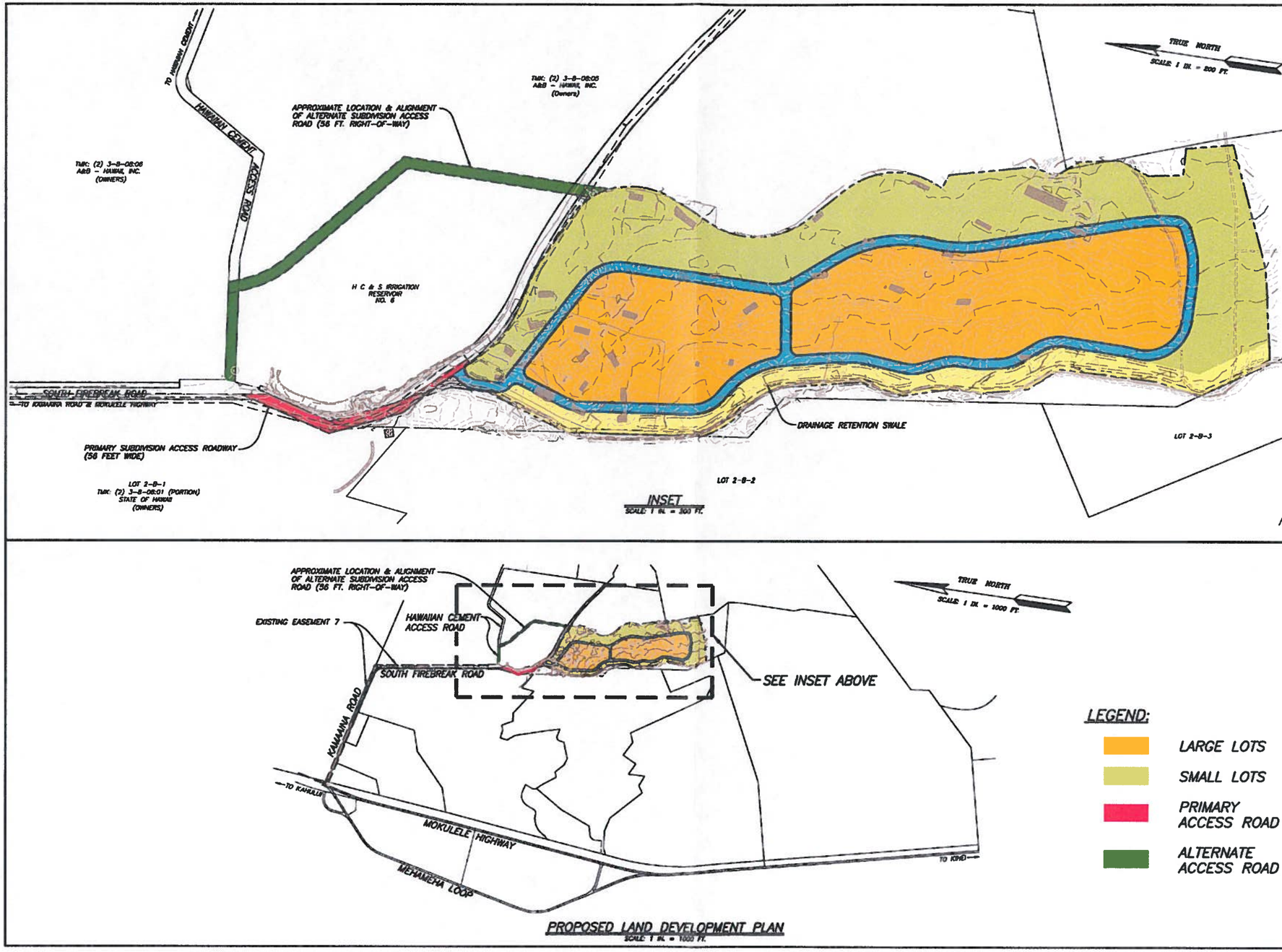

OTOMO ENGINEERING, INC.
CONSULTING CIVIL ENGINEERS
300 S. HIGH STREET, STE. 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-0332
FAX: (808) 242-5779

STACY A. OTOMO
LICENSED PROFESSIONAL ENGINEER
No. 5419-C
HAWAII, U.S.A.

SIGNATURE DATE

PUUNENE HEAVY INDUSTRIAL SUBDIVISION
T.M.K.: (2) 3-8-08: 19
PUUNENE, MAUI, HAWAII
PROPOSED LAND DEVELOPMENT PLAN

REVISION	DATE	NOTE
△		
△		
△		
△		
△		
△		
△		

DESIGNED BY: S.A.O.
DRAWN BY: L.C.D.
PROJECT NO.: 2011-48
DRAWING NAME: DWG/PLAN DEV PLAN
DATE: 2-8-12

SHEET NO.
LDP-1
OF SHEETS

FIGURE 5

Not to Scale

PROPOSED LAND DEVELOPMENT PLAN
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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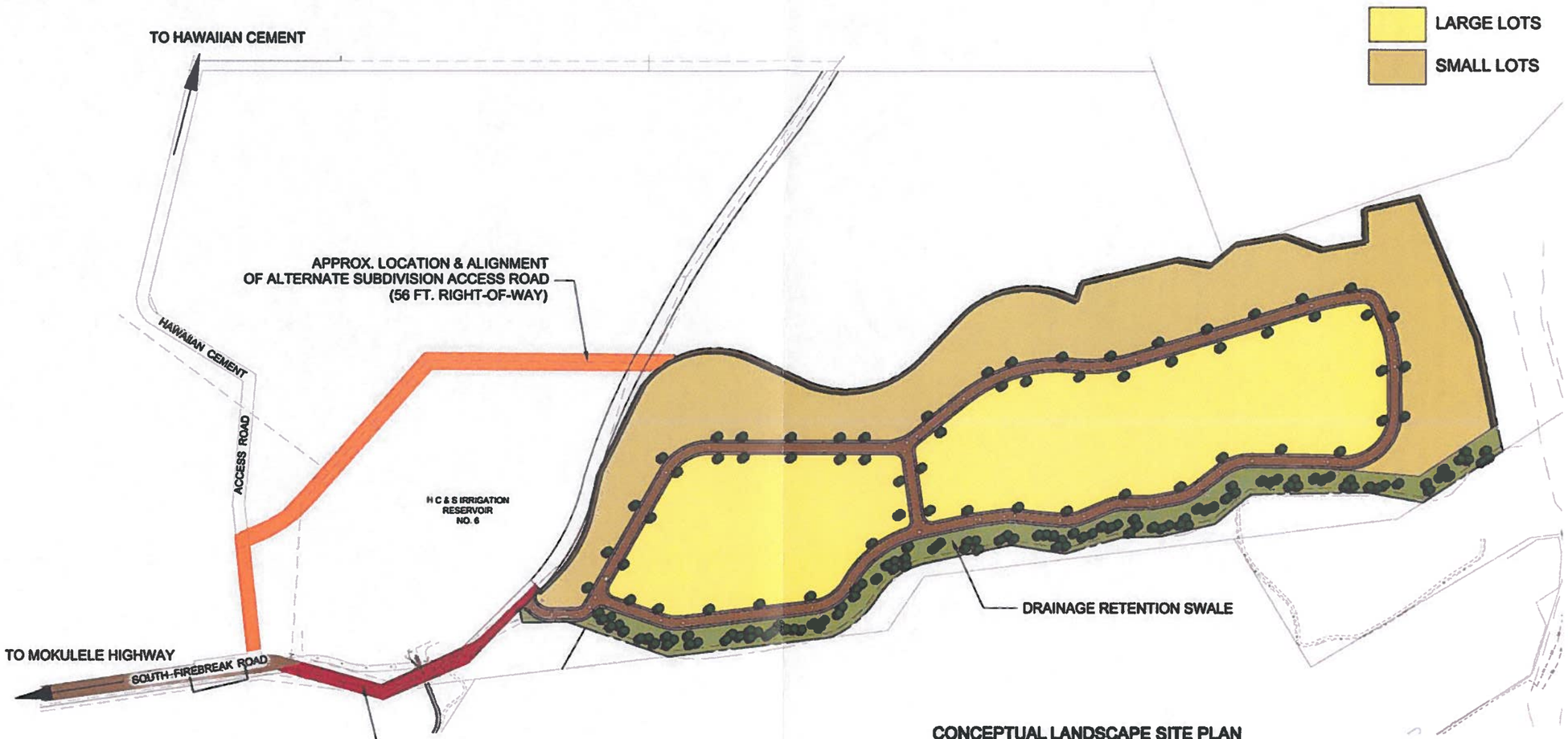

CONCEPTUAL LANDSCAPE SITE PLAN

Puunene Heavy Industrial Subdivision

PUUNENE, MAUI, HAWAII

TMK: 2-3-8-08:19 86.029 AC.

CHRIS HART & PARTNERS

SCALE: 1"=200'-0"
DATE: 10-7-10
REV. DATE: 04-20-11
REV. DATE: 04-05-12

FIGURE 5A

Not to Scale

CONCEPTUAL LANDSCAPE SITE PLAN
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

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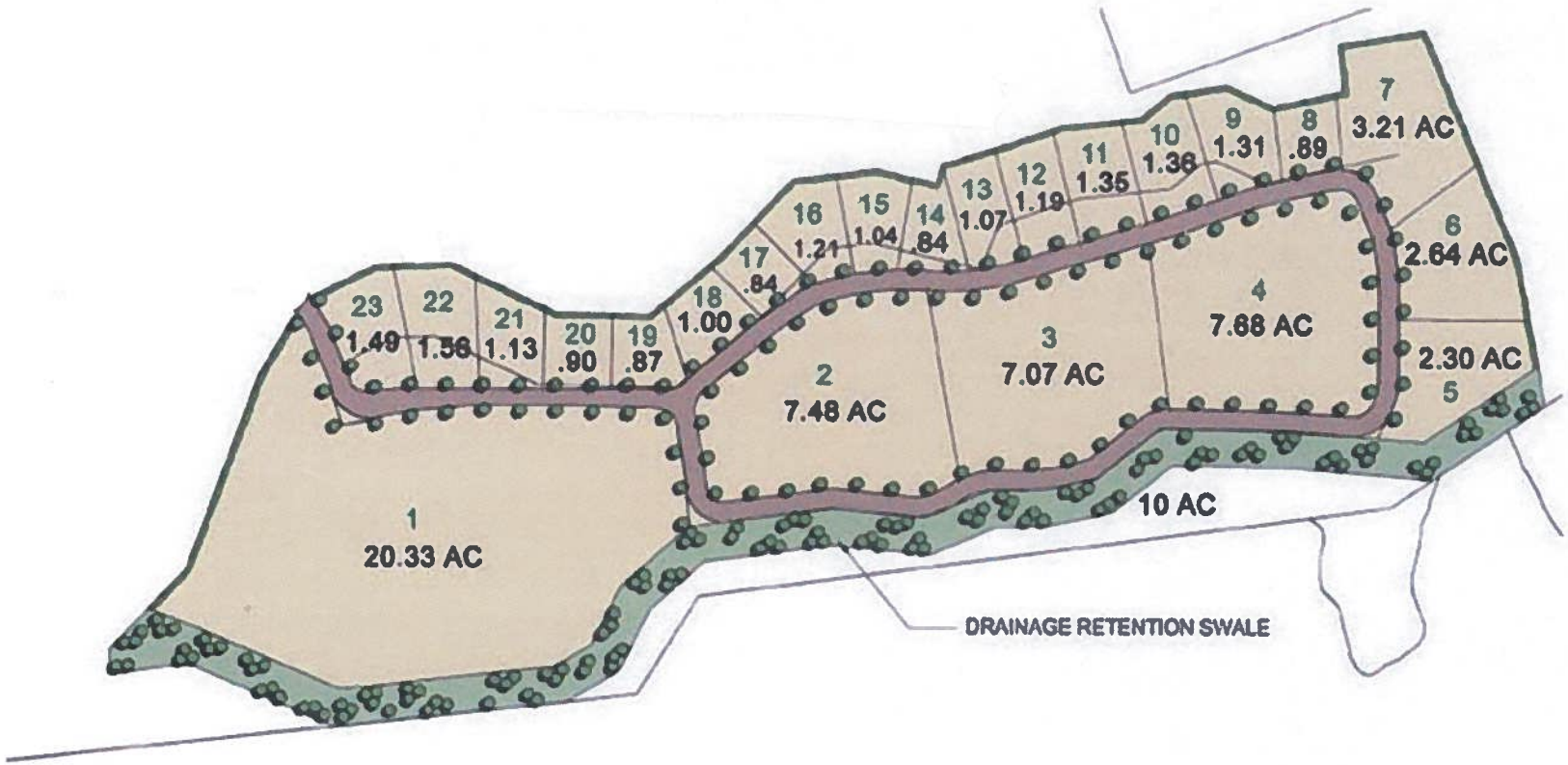

FIGURE 6

Not to Scale

Earlier Concept Land Plan
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

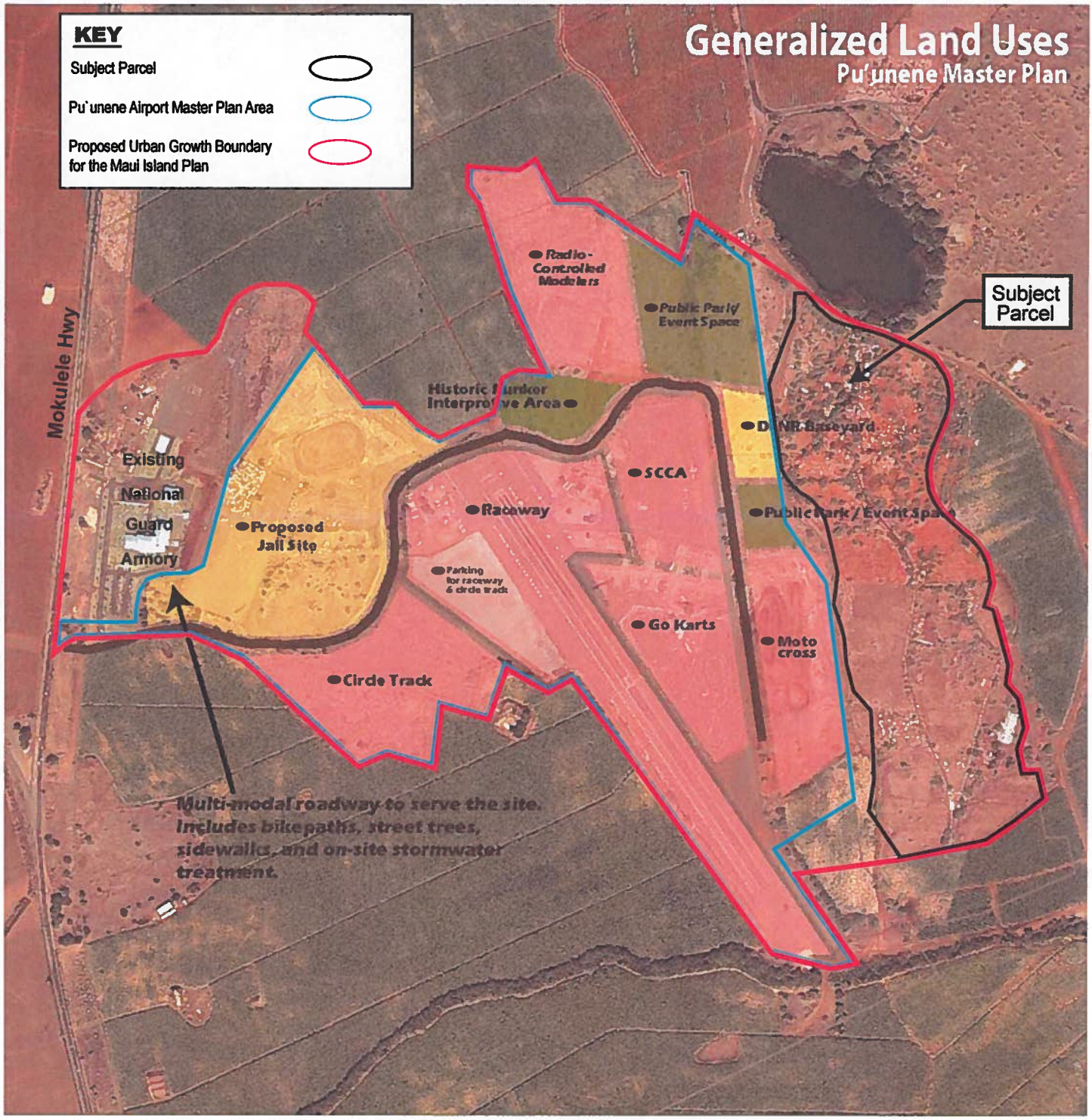

FIGURE 7

Not to Scale

Pu`unene Airport Master Plan - Concept Land Uses

Pu`unene Heavy Industrial Subdivision

TMK (2) 3-8-008: 019

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FIGURE 7A

Not to Scale

Areas of Potential Future Development

Pu`unene Heavy Industrial Subdivision

TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

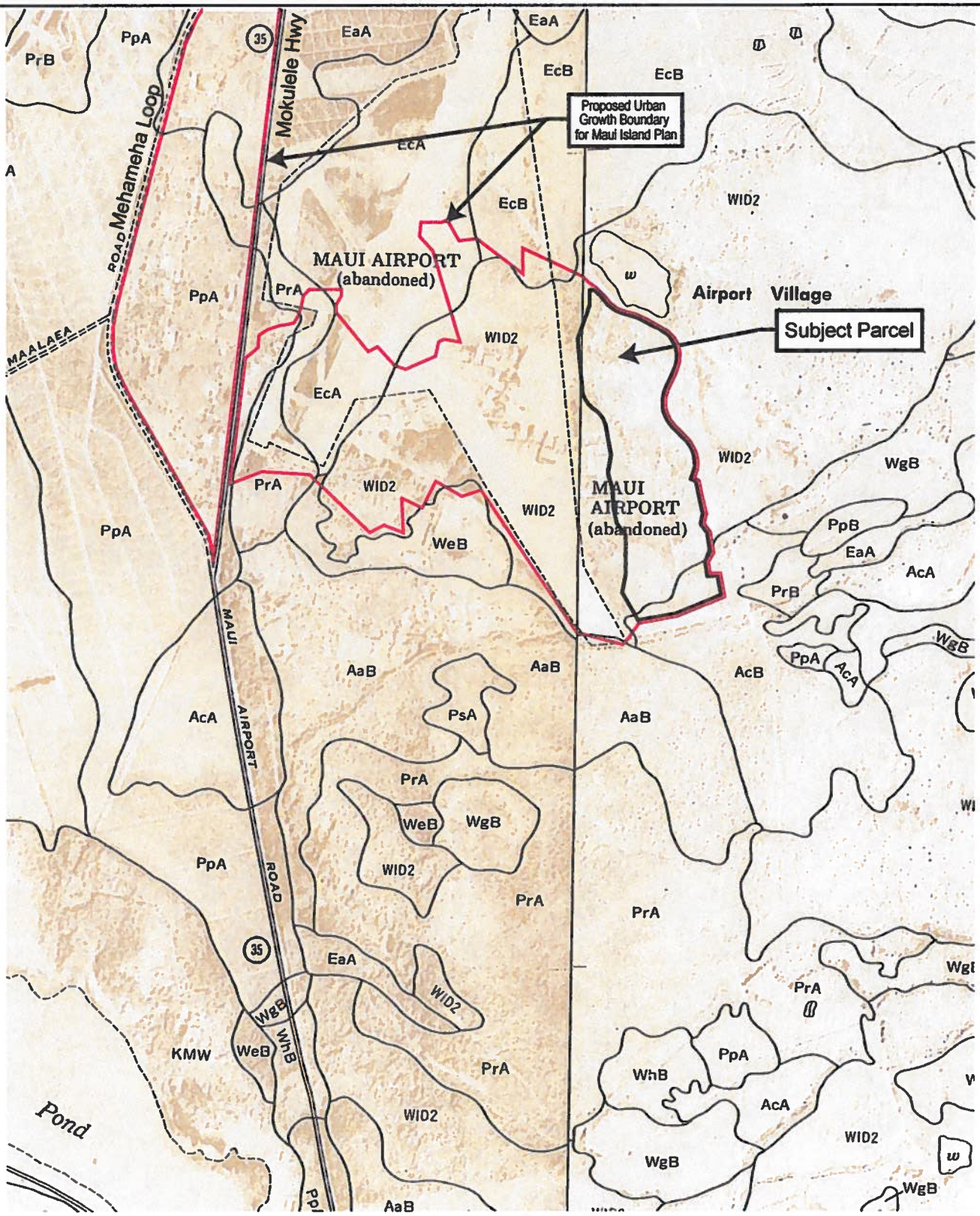


FIGURE 8

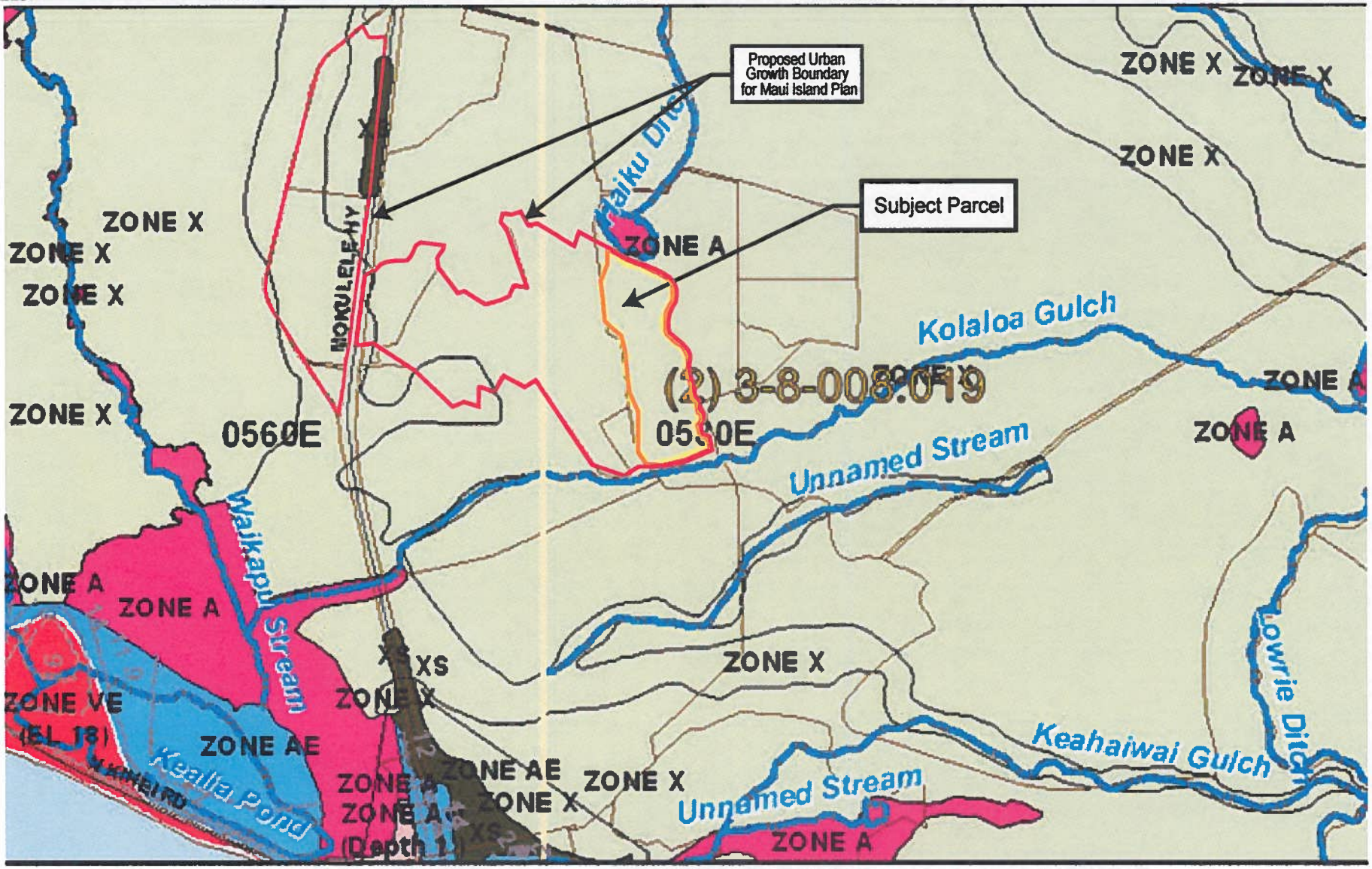
Not to Scale

Soil Classifications

Pu`unene Heavy Industrial Subdivision

TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS



County: **MAUI** TMK: **(2) 3-8-008-019** Address: **OFF MOKULELE HWY** LOMC: **NONE**

FIGURE 9

Not to Scale

Flood Insurance Rate Map
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

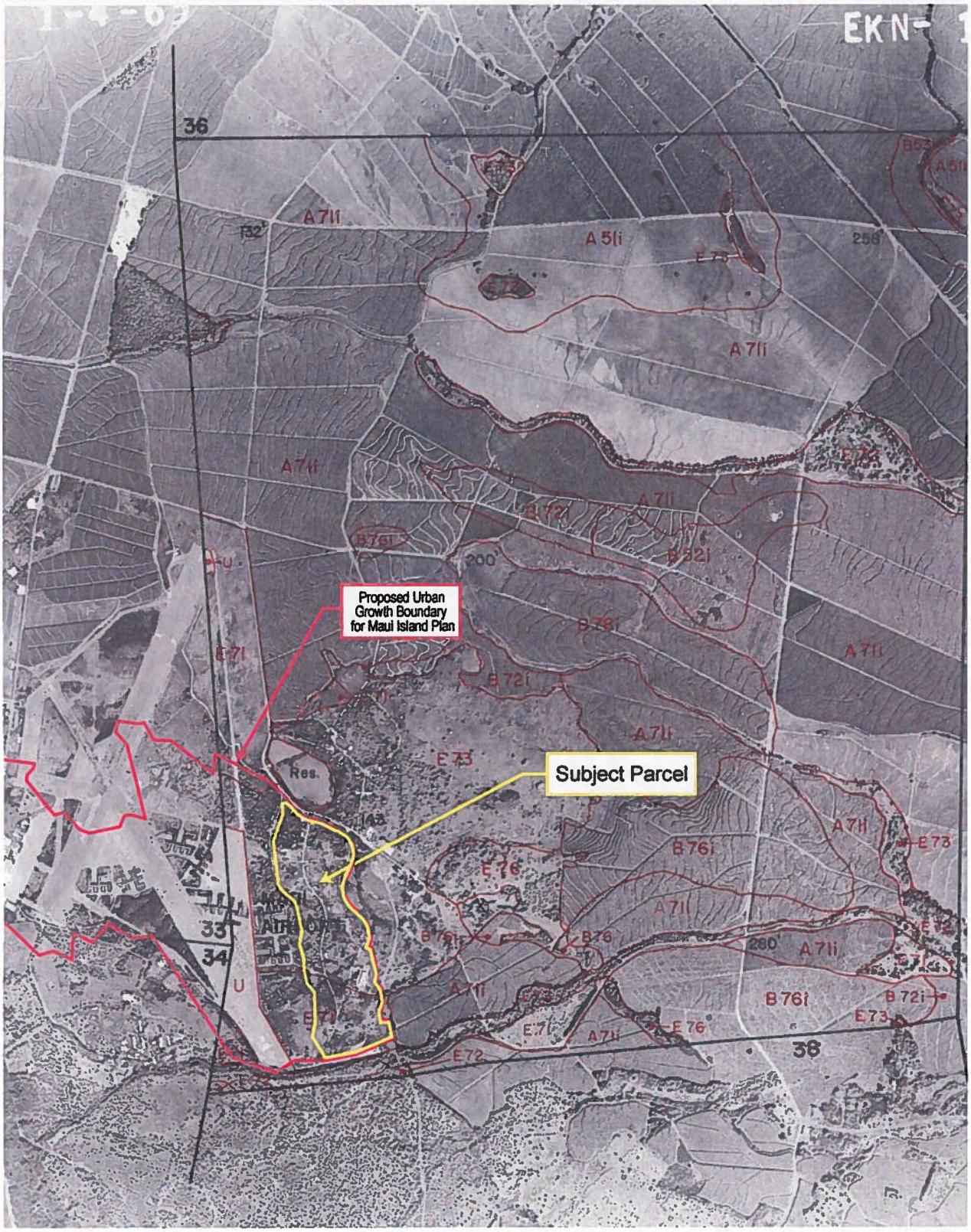


FIGURE 10

Not to Scale

Soil Productivity Ratings
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS

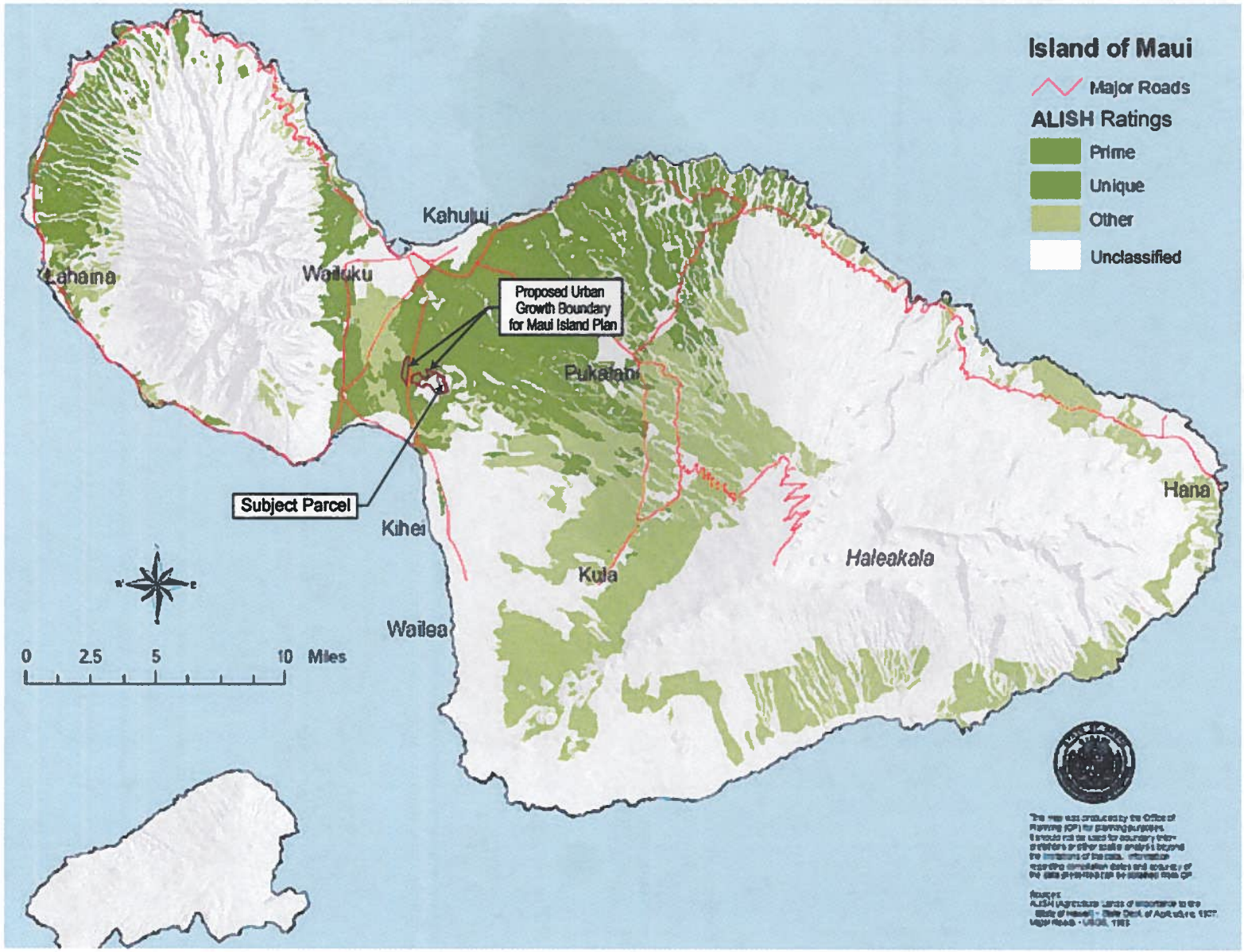


FIGURE 11

Not to Scale

Important Agricultural Lands

Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

FIGURE 12

Not to Scale

State Land Use Districts

Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

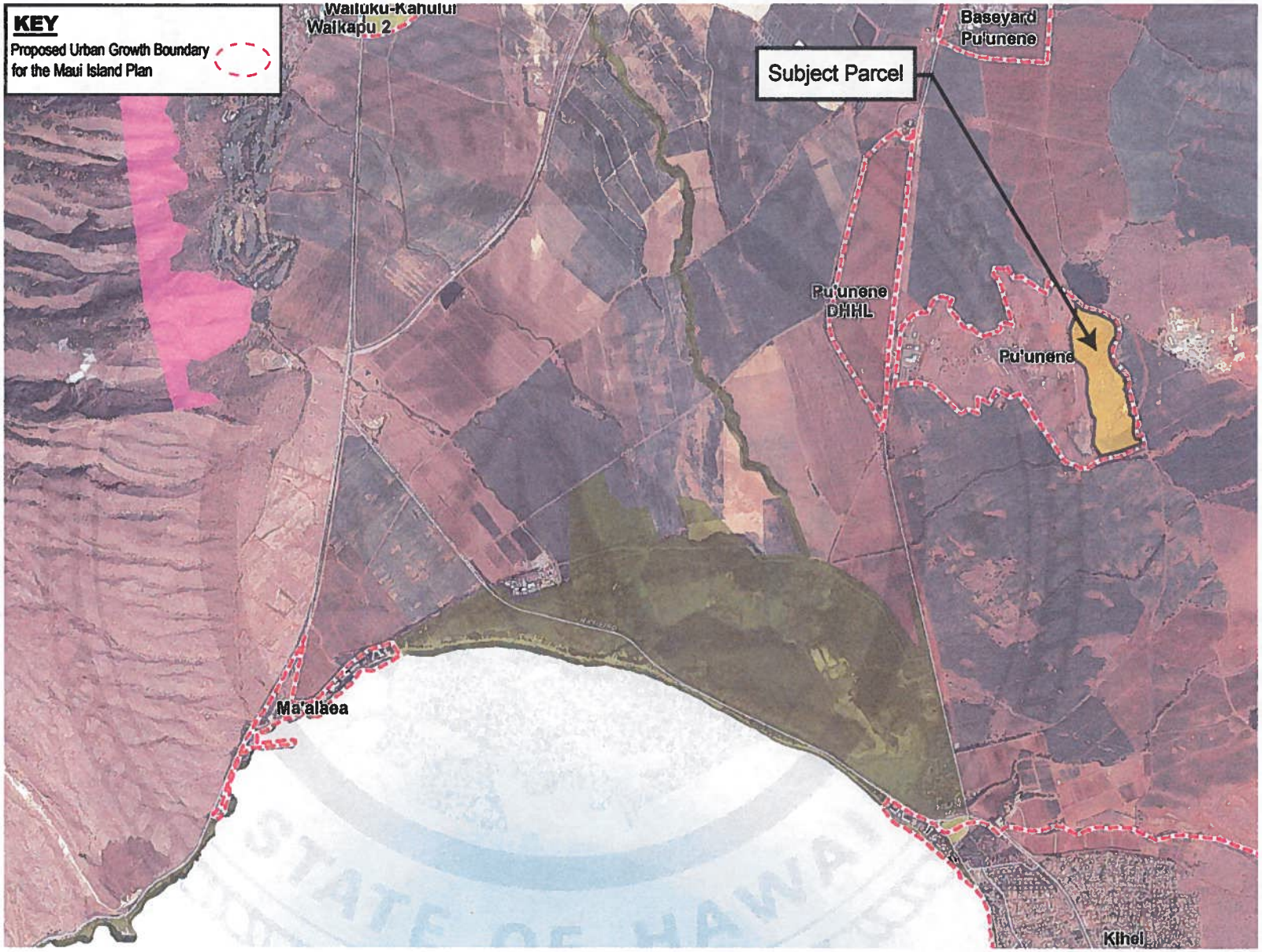


FIGURE 13

Not to Scale

Directed Growth Map

Pu`unene Heavy Industrial Subdivision

TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

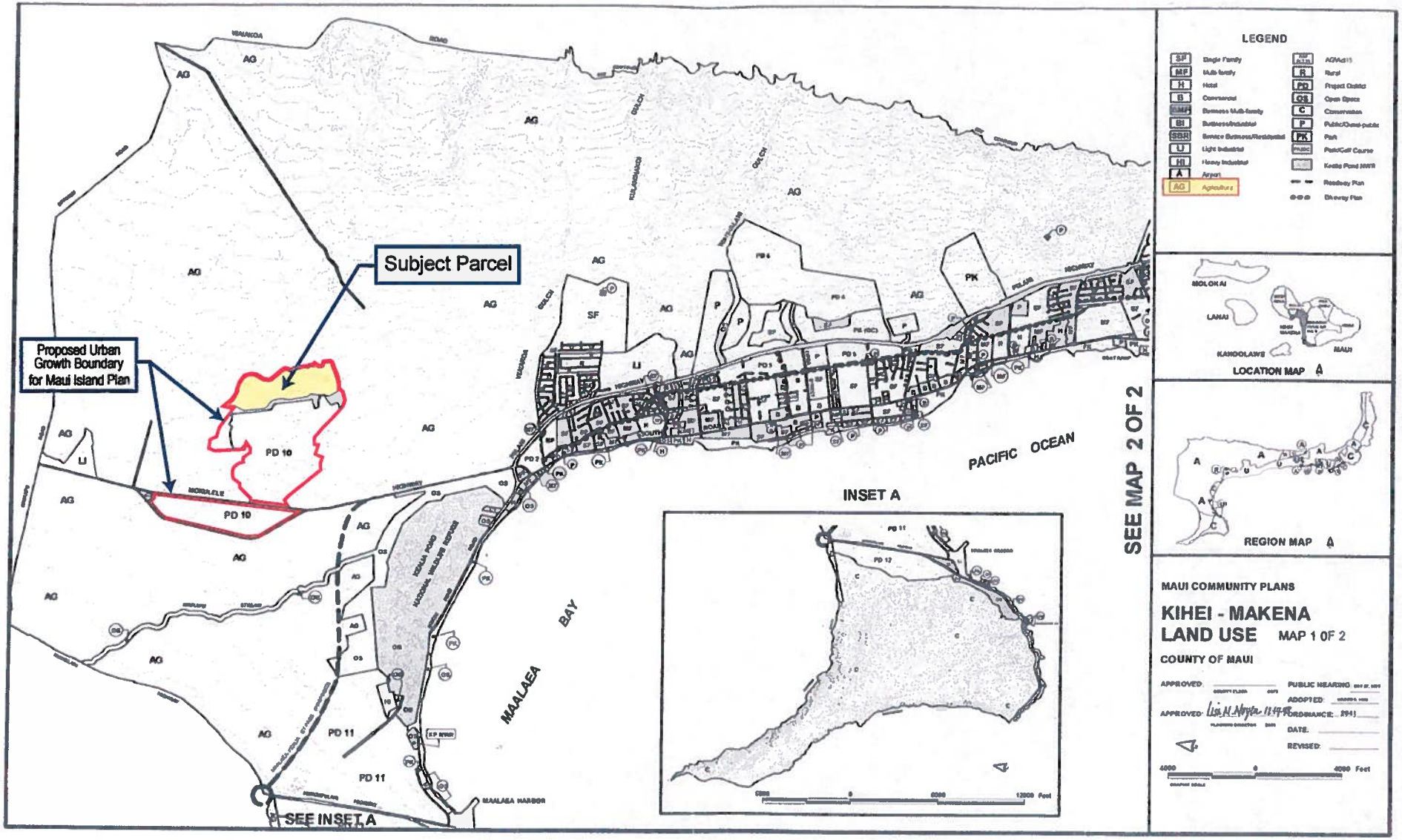


FIGURE 14

Not to Scale

Kihei-Makena Community Plan
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

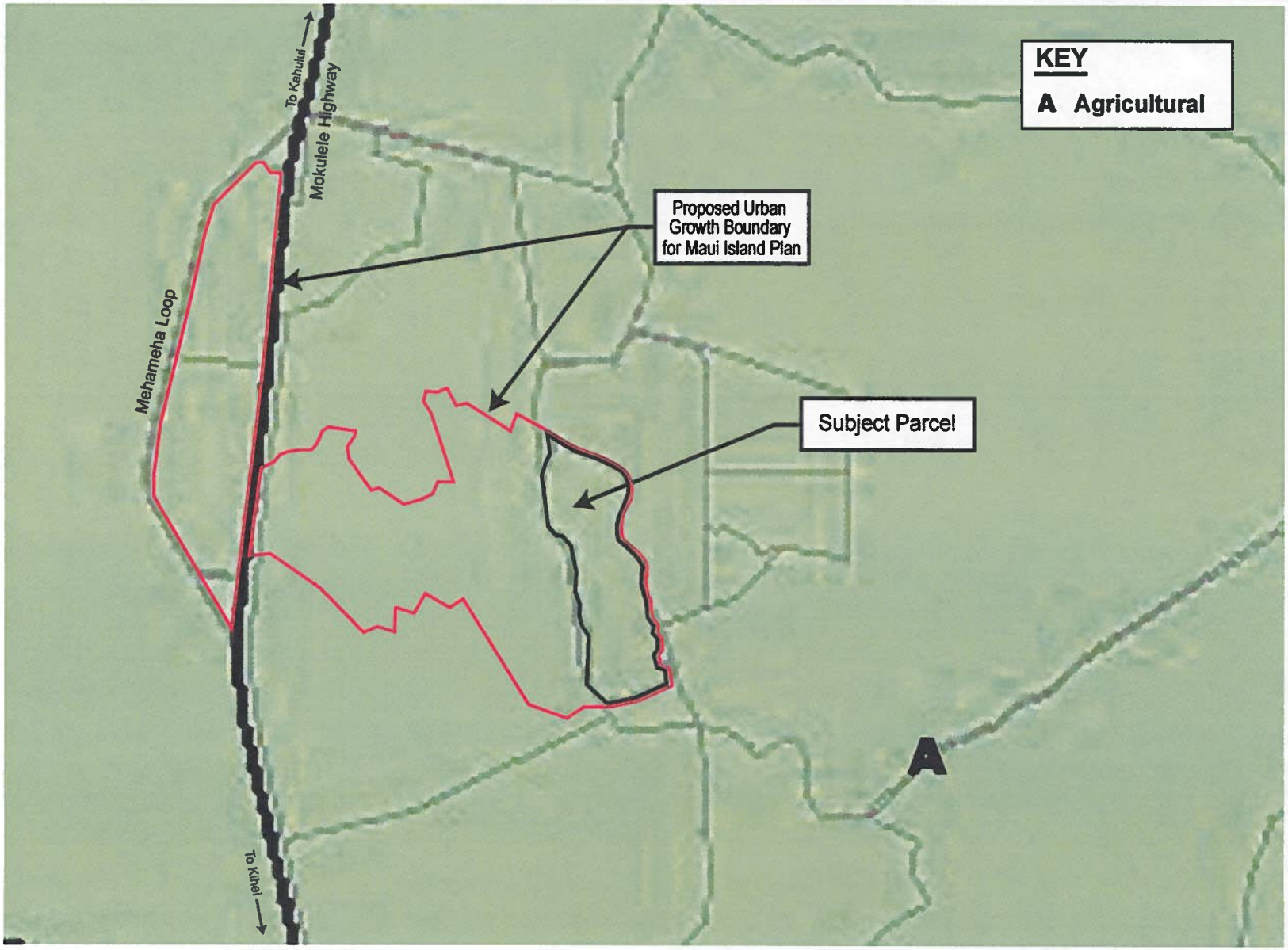


FIGURE 15

Not to Scale

Maui County Zoning
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

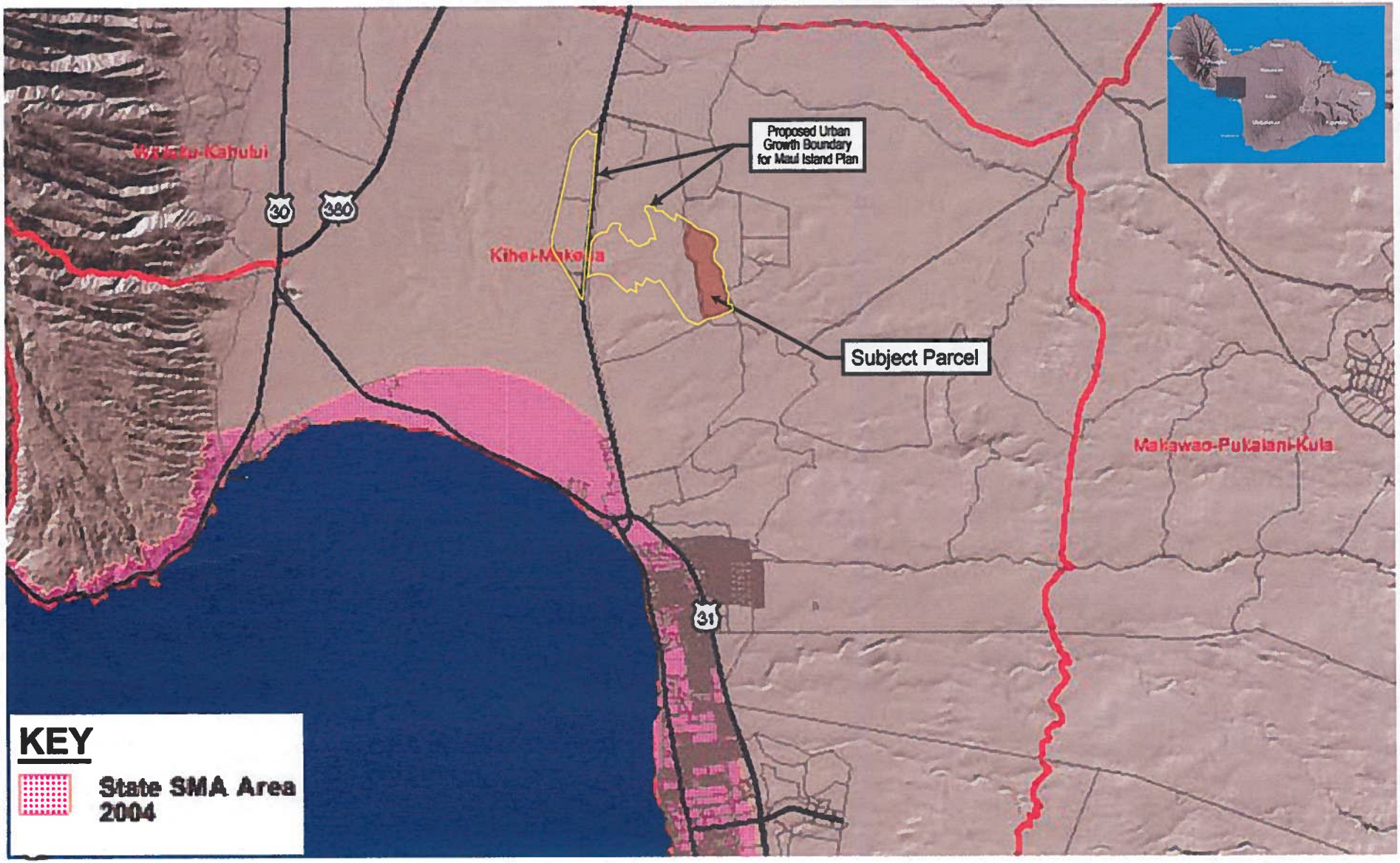


FIGURE 16

Not to Scale

Special Management Area
Pu`unene Heavy Industrial Subdivision
TMK (2) 3-8-008: 019

CHRIS HART & PARTNERS, INC.

APPENDICES

APPENDICES

Appendix A	Zoning and Flood Confirmation
Appendix B	Topographic Survey Map
Appendix C	Existing M-2, Heavy Industrial Zoning Regulations
Appendix C-1	Proposed M-1, M-2, and M-3 Industrial Zoning Regulations
Appendix D	Quitclaim Assignment of Partial Interest in Easement (Easement 7)
Appendix D-1	Request for Use of State Lands
Appendix E	Flora Survey
Appendix F	Faunal Survey
Appendix G	Noise Study
Appendix H	Air Quality Study
Appendix I	Archaeological Inventory Survey
Appendix J	Archaeological 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 P	Preliminary Engineering Report
Appendix Q	Traffic Impact Analysis Report
Appendix R	Early Consultation Letters

APPENDIX A

Zoning & Flood
Confirmation

11/0912

COUNTY OF MAUI
DEPARTMENT OF PLANNING
Kalana Pakui Building
250 South High Street
Wailuku, Hawaii 96793

Zoning Administration and
Enforcement Division (ZAED)
Telephone: (808) 270-7253
Facsimile: (808) 270-7634
E-mail: planning@mauicounty.gov

ZONING AND FLOOD CONFIRMATION FORM

APPLICANT INFORMATION *(To be completed by Applicant)*

APPLICANT NAME Glenn Tadaki (Chris Hart & Partners) TELEPHONE 242-1955 (Ext. 557)

PROJECT NAME Pu`unene Heavy Industrial Subdivision E-MAIL gtadaki@chpmaui.com

ADDRESS/LOCATION Off Kama`aina Road TAX MAP KEY (2) 3-8-008: 019

☐ 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:

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, zonings, and any subdistricts, 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)*

ZONING INFORMATION

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

☐ Yes ☒ No SPECIAL MANAGEMENT AREA (SMA)

☐ Yes ☒ No PLANNED DEVELOPMENT

☐ Yes ☒ No PROJECT DISTRICT

FLOOD INFORMATION

FLOOD HAZARD AREA ZONE(S) X For Flood Zone AO, FLOOD DEPTH N/A

BASE FLOOD ELEVATION(S) N/A feet mean sea level, Local Tidal Datum.

*FLOODWAY ☐ Yes ☒ No *FLOOD DEVELOPMENT PERMIT REQUIRED ☐ Yes ☒ No

*For flood hazard area zones X or XS, 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 XS) that involve streams, gulches, low areas, or any type of drainageway, a designation of the 100 year flood inundation limits or a drainage reserve may be required.

SUBDIVISION CONSISTENCY [*Section 18.04.030(D), Maui County Code*]

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

Except as permitted in Section 18.04.030(B) MCC, property containing any Interim Zoning shall NOT be subdivided.

Comments: _____

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

Comments: _____

** 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.

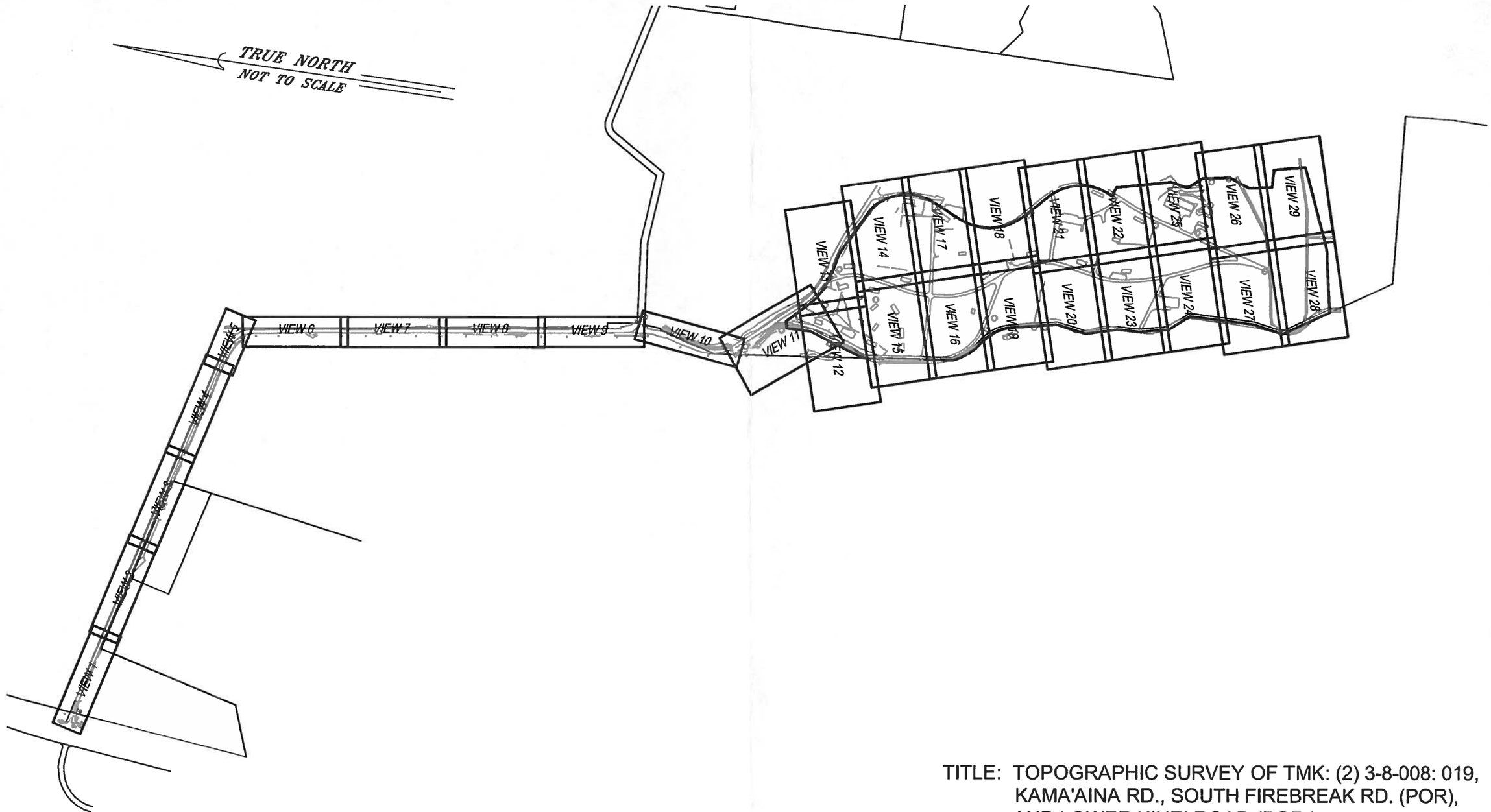
REVIEWED & CONFIRMED BY:

(Signature) 7/12/11 (Date)

For: AARON SHINMOTO, Planning Program Administrator, Zoning Administration and Enforcement Division

APPENDIX B

Topographic Survey Map



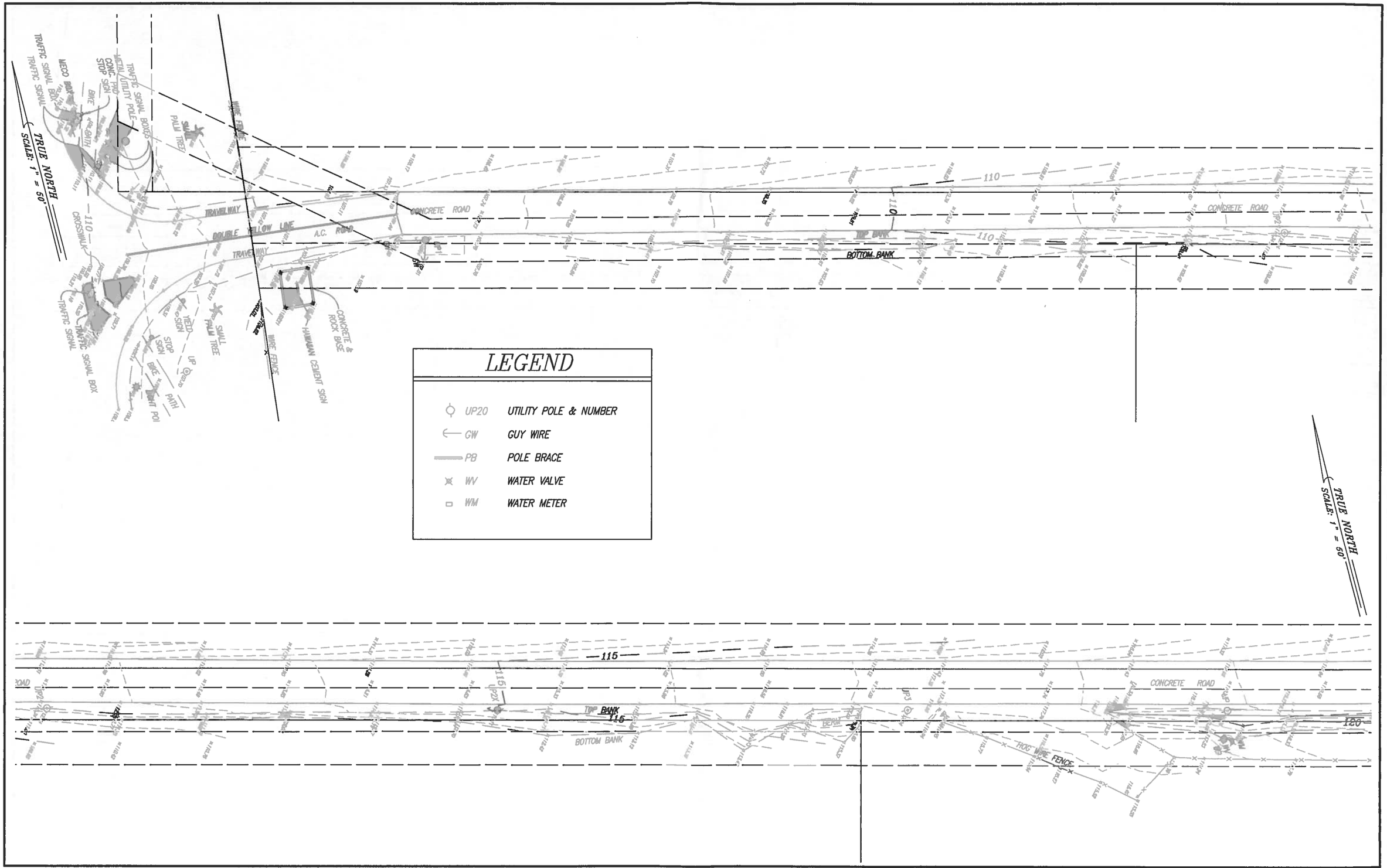
TITLE: TOPOGRAPHIC SURVEY OF TMK: (2) 3-8-008: 019, KAMA'AINA RD., SOUTH FIREBREAK RD. (POR), AND LOWER KIHEI ROAD (POR.)

TMK PARCEL SIZE: 86.030 ACRES

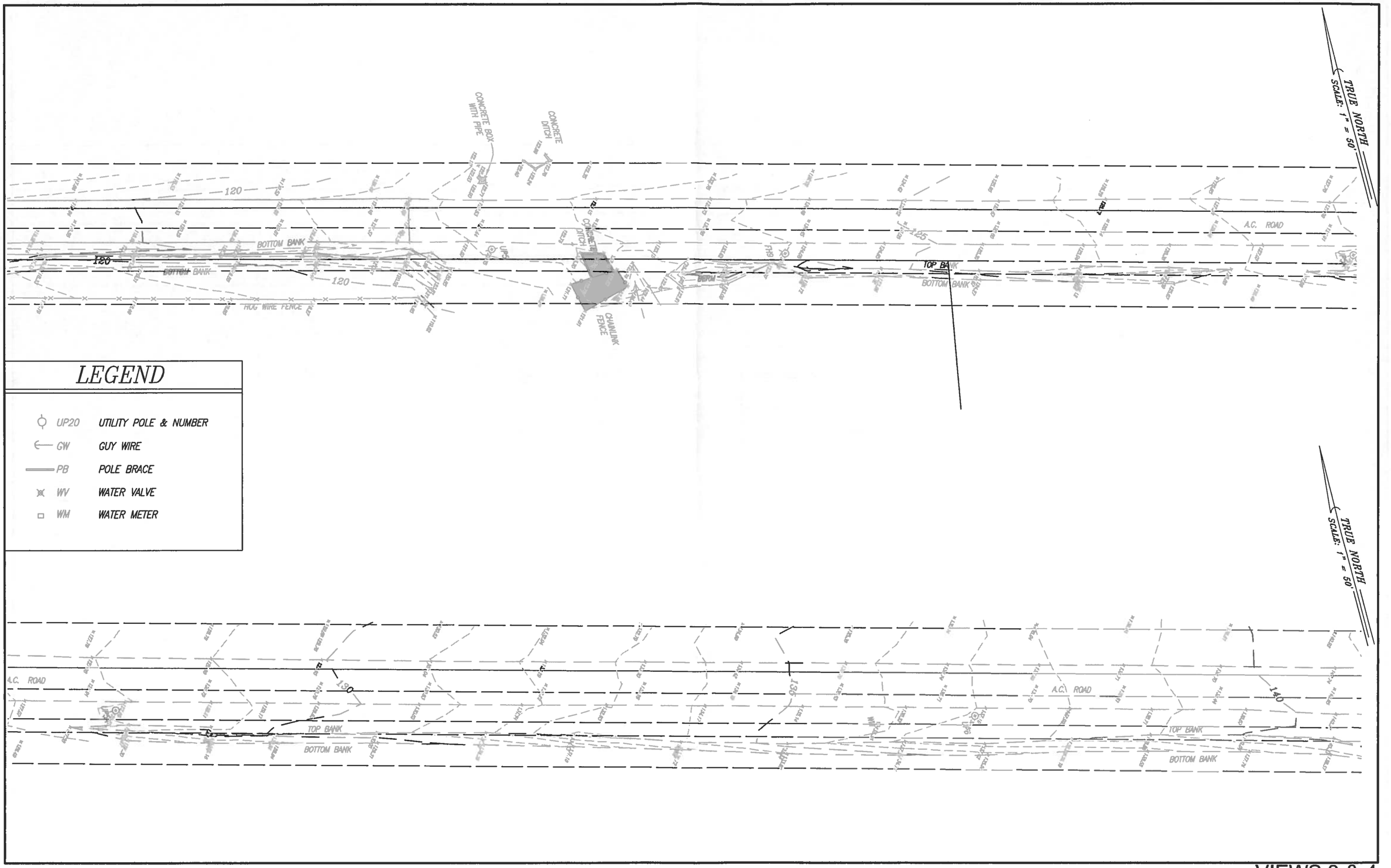
LOCATION: PULEHUNUI, WAILUKU, MAUI, HAWAII

PREPARED BY: AKAMAI LAND SURVEYING

INDEX


TRUE NORTH
SCALE: 1" = 50'
TRAFFIC SIGNAL BOX
TRAFFIC SIGNAL
MECO BOX
CONC. PAD
STOP SIGN
BIKE
PATH
TRAFFIC SIGNAL BOXES
METAL UTILITY POLE
SMALL PALM TREE
WIRE FENCE
TRAVELWAY
DOUBLE YELLOW LINE
A.C. ROAD
CROSSWALK
110
CONCRETE ROAD
TOP BANK
BOTTOM BANK
HAWAIIAN CEMENT SIGN
CONCRETE & ROCK BASE
YIELD SIGN
UP
LIGHT POI
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
115
BERM
HOG WIRE FENCE
120

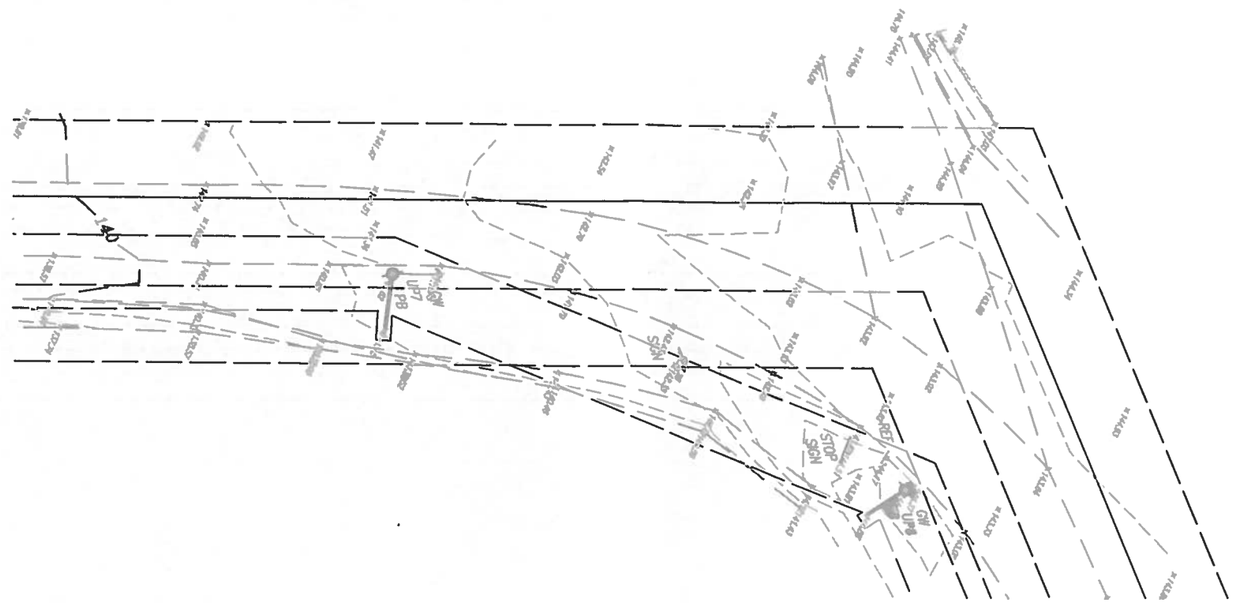
VIEWS 1 & 2

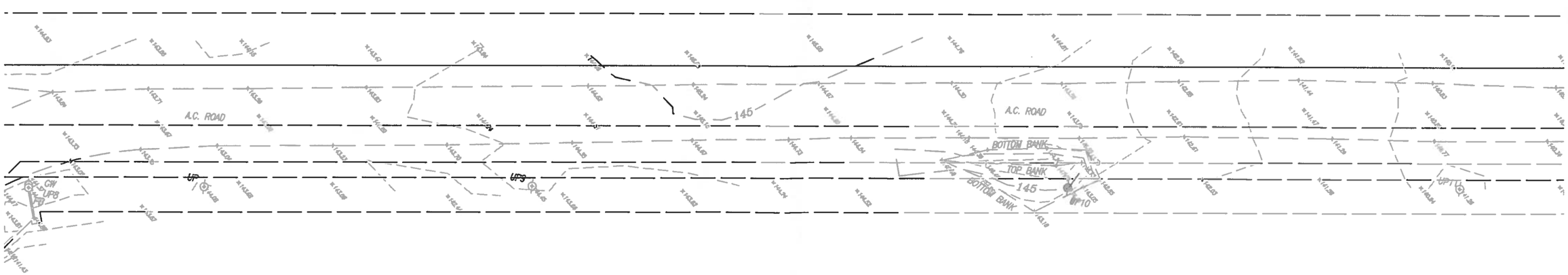

TRUE NORTH
SCALE: 1" = 50'
CONCRETE BOX WITH PIPE
CONCRETE DITCH
120
BOTTOM BANK
HOG WIRE FENCE
UP5
CONCRETE DITCH
CHAINLINK FENCE
BERM
PB
125
TOP BANK
BOTTOM BANK
A.C. ROAD
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
A.C. ROAD
130
TOP BANK
BOTTOM BANK
135
140

VIEWS 3 & 4

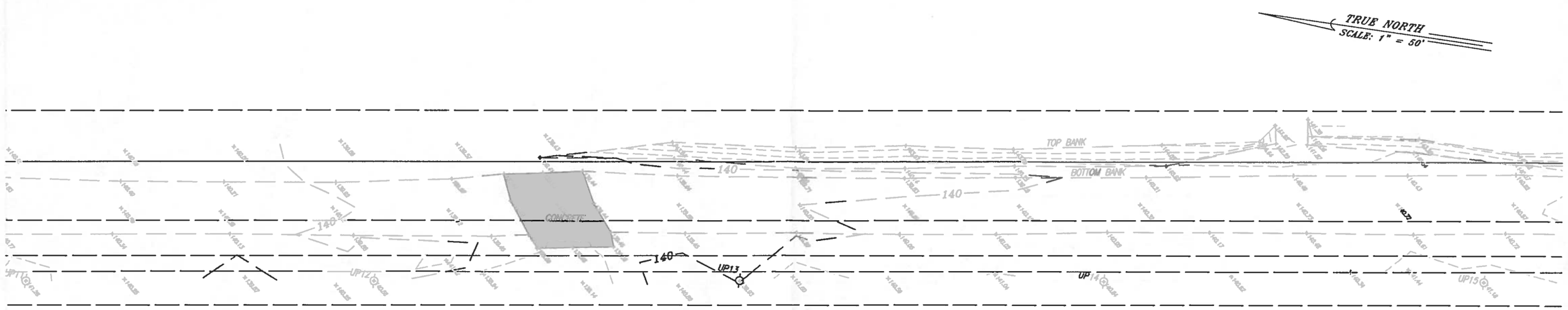
LEGEND

UP20	UTILITY POLE & NUMBER
GW	GUY WIRE
PB	POLE BRACE
WV	WATER VALVE
WM	WATER METER



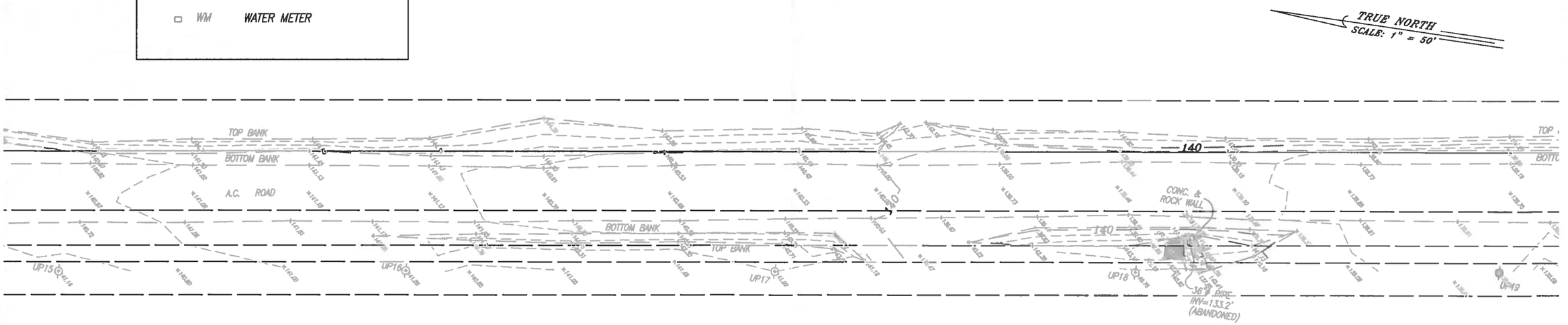


VIEWS 5 & 6

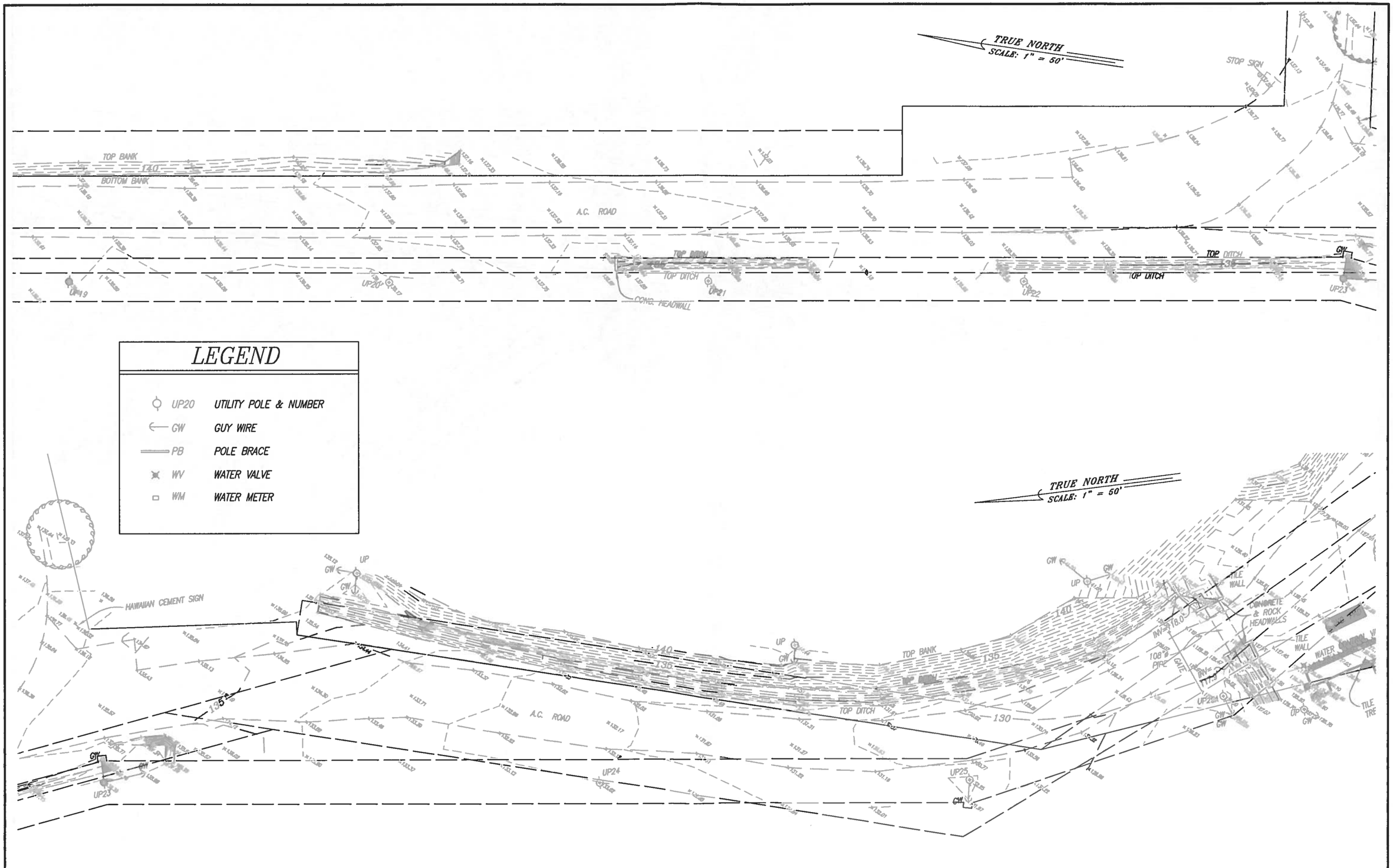


LEGEND

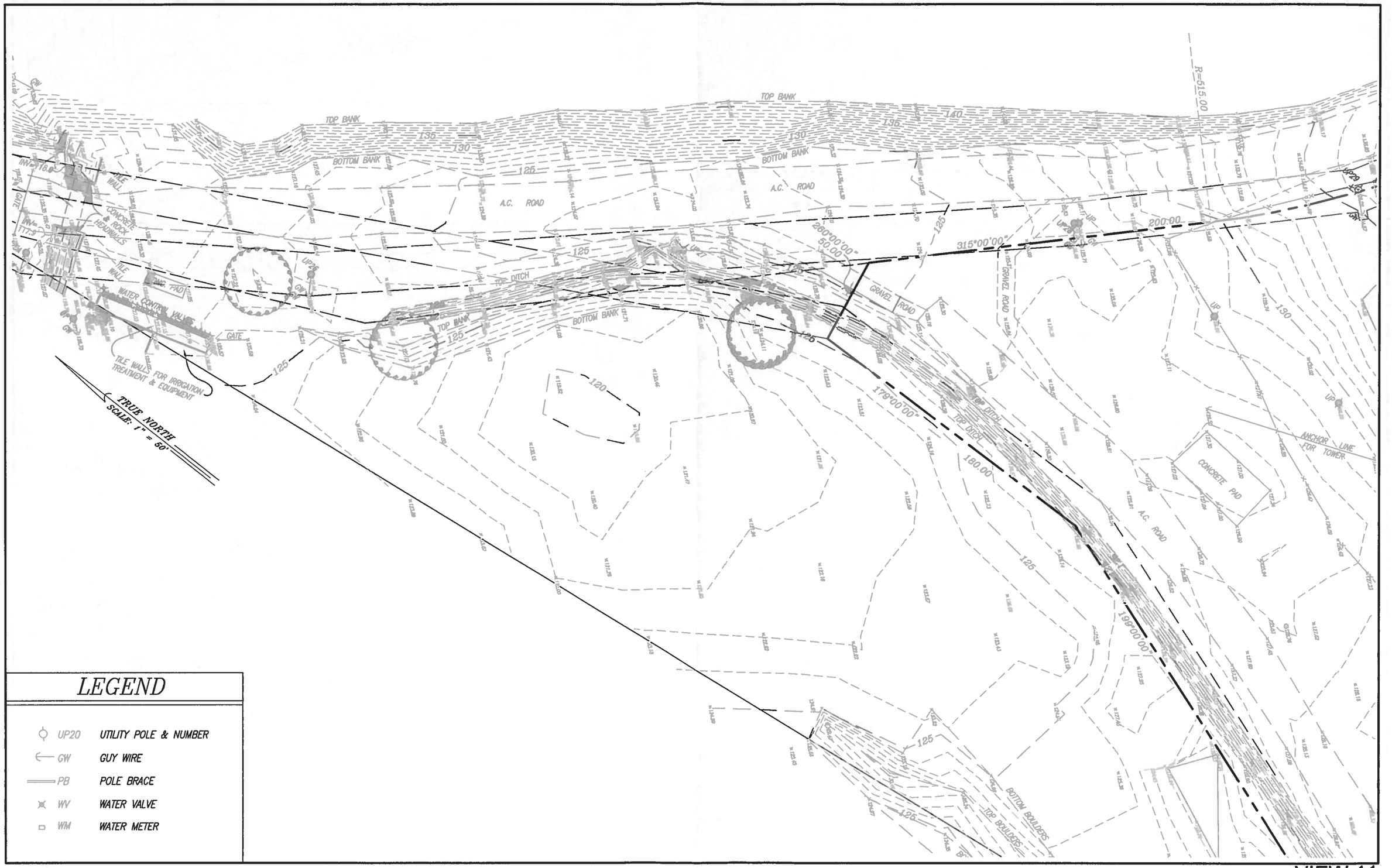
UP20	UTILITY POLE & NUMBER
GW	GUY WIRE
PB	POLE BRACE
WV	WATER VALVE
WM	WATER METER



VIEWS 7 & 8


TRUE NORTH
SCALE: 1" = 50'
STOP SIGN
TOP BANK
BOTTOM BANK
A.C. ROAD
TOP DITCH
CONC. HEADWALL
GW
UP19
UP20
UP21
UP22
UP23
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
HAWAIIAN CEMENT SIGN
UP
TOP BANK
TOP DITCH
A.C. ROAD
UP24
UP25
TILE WALL
CONCRETE & ROCK HEADWALLS
108" PIPE
GATE
WATER

VIEWS 9 & 10


TOP BANK
BOTTOM BANK
A.C. ROAD
TOP DITCH
GRAVEL ROAD
CONCRETE PAD
ANCHOR LINE FOR TOWER
TILE WALL
CONCRETE & ROCK HEADWALLS
WATER CONTROL VALVES
GATE
TILE WALLS FOR IRRIGATION TREATMENT & EQUIPMENT
TRUE NORTH
SCALE: 1" = 50'
R=515.00
315°00'00"
260°00'00"
50.00
200.00
179°00'00"
180.00
199°00'00"
BOTTOM BOULDERS
TOP BOULDERS
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 11

TRUE NORTH
SCALE: 1" = 50'
CONCRETE PAD
CONCRETE PAD
CONCRETE PAD
CONCRETE PAD
ANCHOR LINE FOR TOWER
ANCHOR LINE FOR TOWER
HOG WIRE FENCE
HOG WIRE FENCE
TOWER & CHAIN LINK FENCE
CONTAINER
BUILDING
A.C. ROAD
BOTTOM BOULDERS
TOP BOULDERS
BOTTOM BOULDERS
199°00'00"
200.00
428.45
130
125
135
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 12

LEGEND

UP20	UTILITY POLE & NUMBER
GW	GUY WIRE
PB	POLE BRACE
WV	WATER VALVE
WM	WATER METER

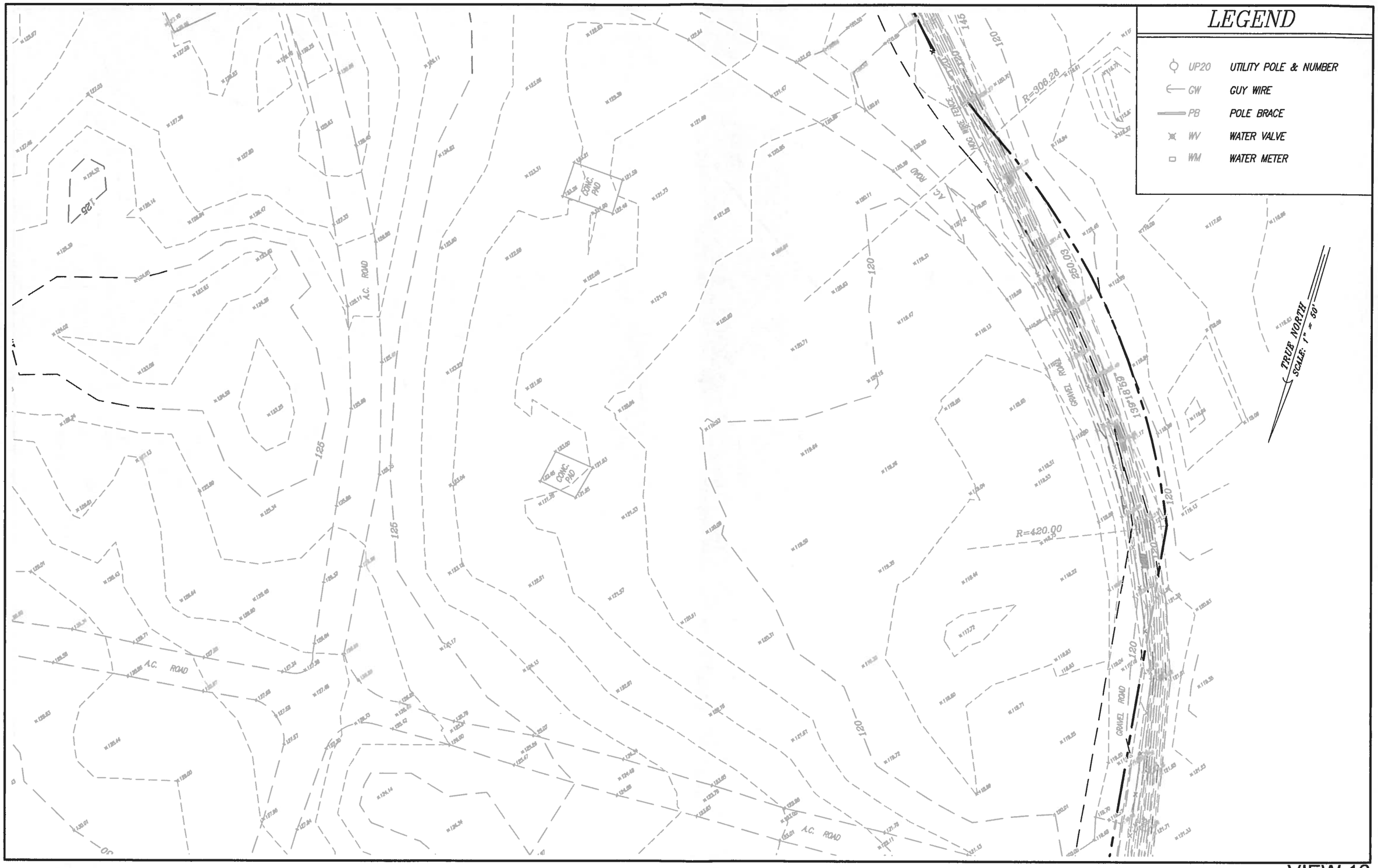
VIEW 13

TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
WOOD FENCES
CONCRETE
HOG WIRE FENCE
GATE
TILE WALLS
WOOD FENCE
345°00'00"
R=362.00
140
135
130
390.00
A.C. ROAD
CONCRETE PAD

VIEW 14

TRUE NORTH
SCALE: 1" = 50'
A.C. ROAD
CONCRETE PAD
HOG WIRE FENCE
TOP DITCH
GATE
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

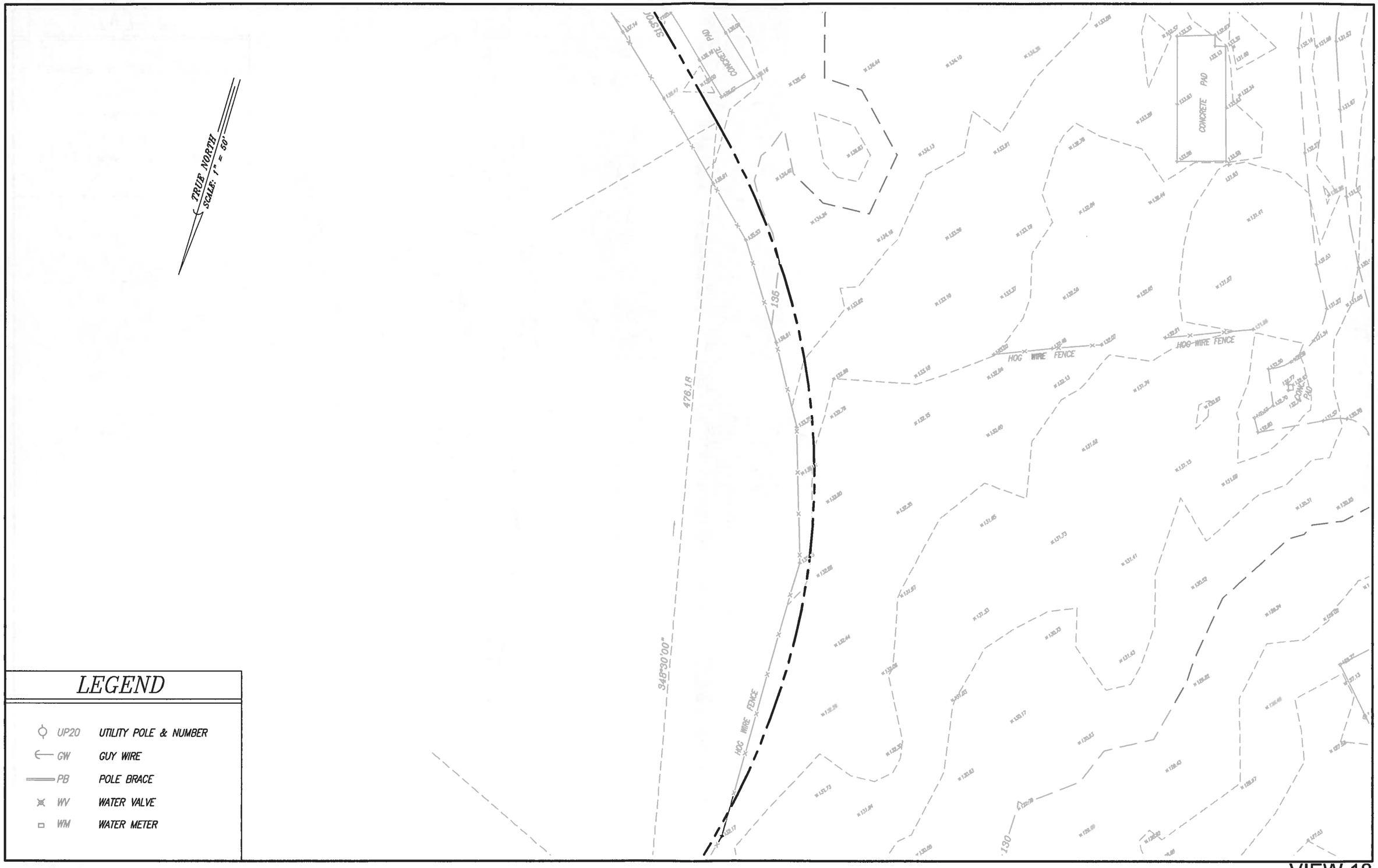
VIEW 15


LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
R=306.28
R=420.00
250.03
139°18'59"
A.C. ROAD
GRAVEL ROAD
CONC. PAD
HOG WIRE FENCE
125
120
145

VIEW 16

LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
CONCRETE PAD
CONCRETE PAD
CONCRETE PAD
HOG WIRE FENCE
WOOD FENCE
WOOD FENCE
WOOD FENCE
WOOD FENCES
TROUGH
A.C. ROAD
A.C. ROAD
TILE WALLS
TILE WALLS
240.00'
24°00'00"
455.63
130
135
140
125

VIEW 17


TRUE NORTH
SCALE: 1" = 50'
CONCRETE PAD
CONCRETE PAD
CONCRETE PAD
HOG WIRE FENCE
HOG WIRE FENCE
HOG WIRE FENCE
135
130
478.1ft
348°30'00"
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 18

LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
TOP DITCH
TOP DITCH
340.00
168°00'00"
120
HOG WIRE FENCE
BOTTOM MOUND
TOP MOUND
239.33
145°00'00"
R=306.26
A.C. ROAD
CONCRETE PAD
CONCRETE PAD
130
125

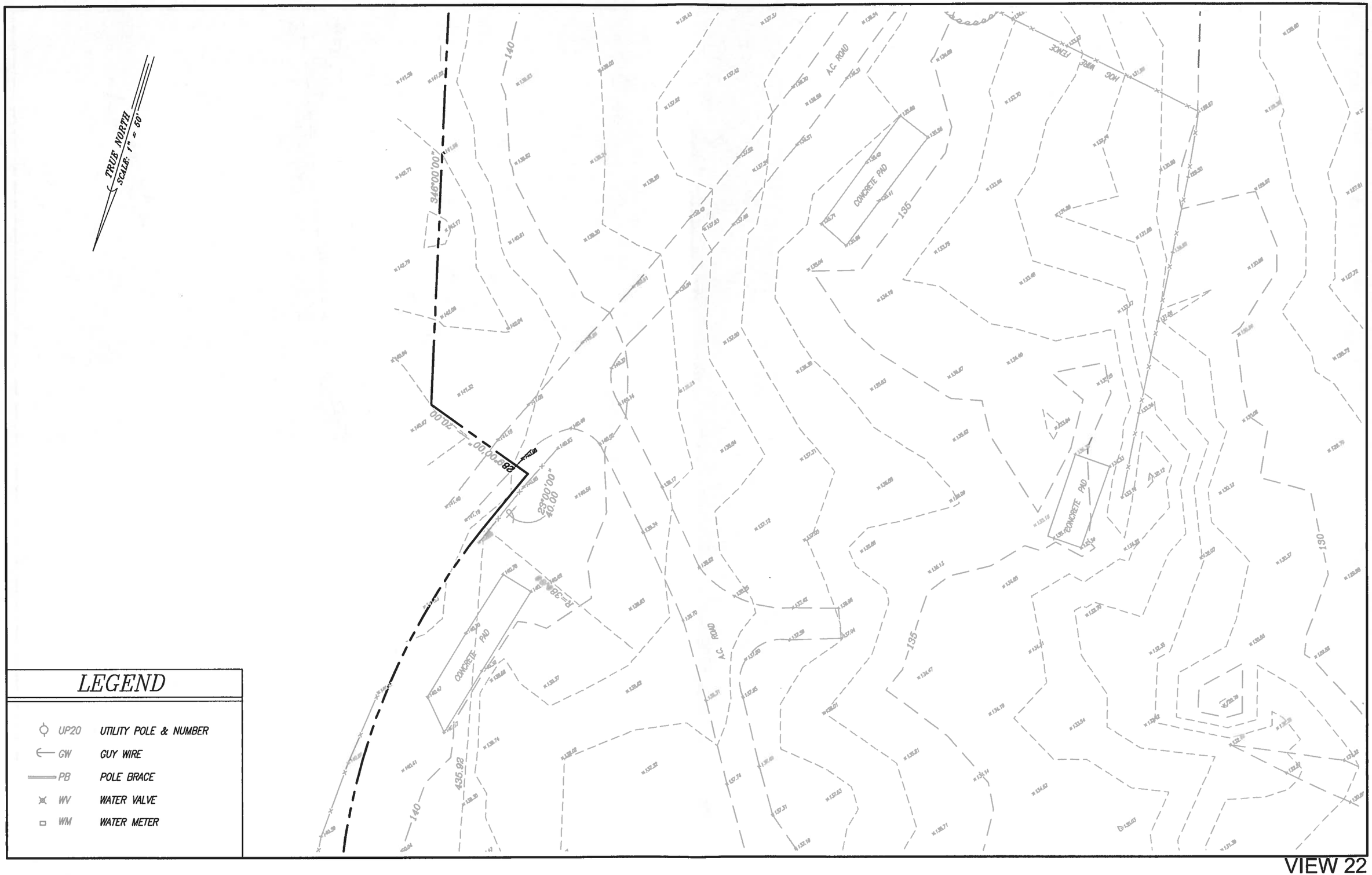
VIEW 19

CONCRETE PAD
A.C. ROAD
TOP DITCH
TOP DITCH
236.18
164°00'00"
220.00
189°00'00"
120
125
130
TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 20

TRUE NORTH
SCALE: 1" = 50'
HOG WIRE FENCE
348°00'00"
225.00
313°00'00"
A.C. ROAD
A.C. PAVEMENT
CONCRETE PAD
140
135
130
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 21


TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
A.C. ROAD
CONCRETE PAD
HOG WIRE FENCE
346°00'00"
20.00
28°00'00"
23°00'00"
40.00
435.92
140
135
130

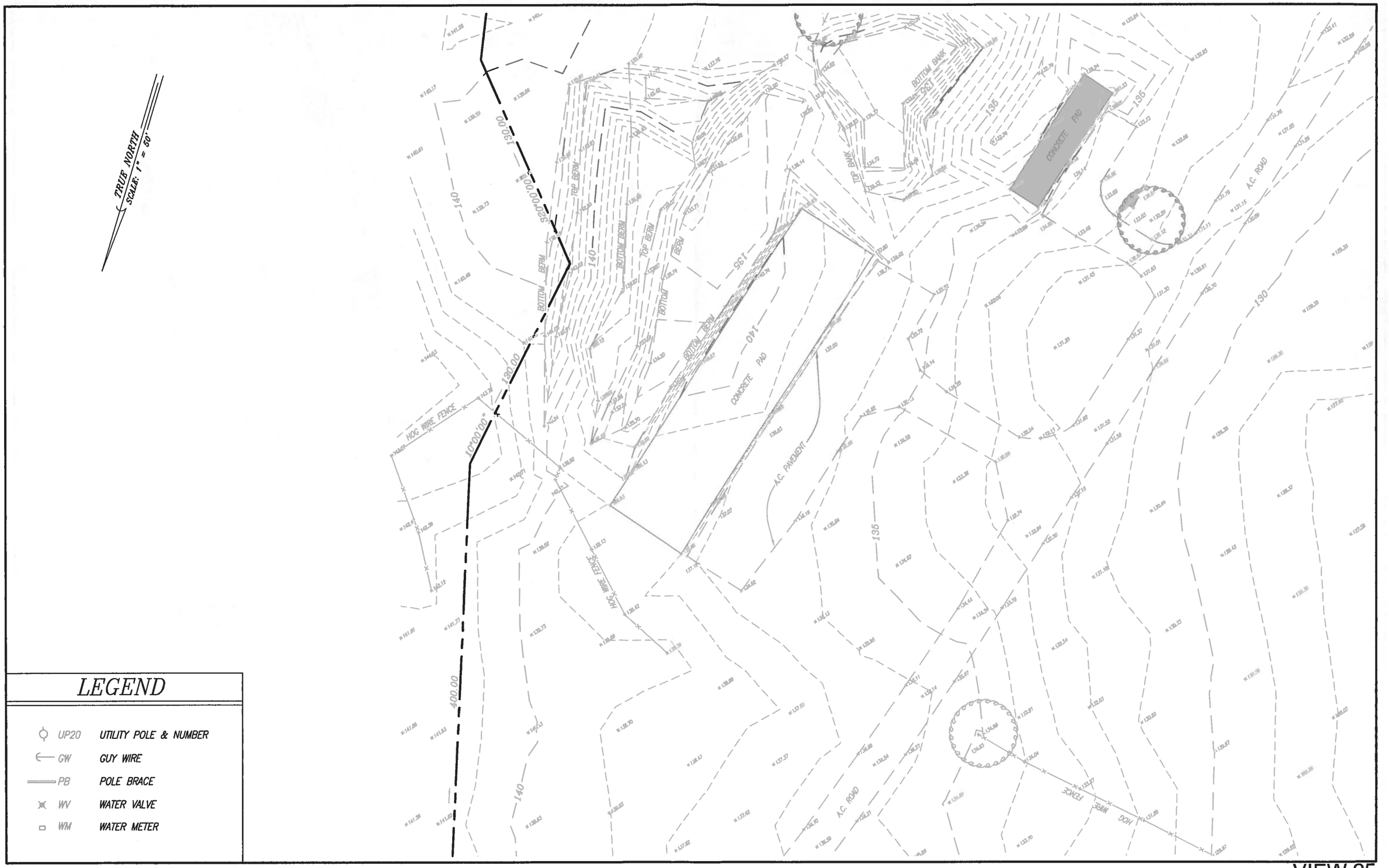
VIEW 22

TRUE NORTH
SCALE: 1" = 50'
CONCRETE PAD
A.C. PAVEMENT
A.C. ROAD
TOP DITCH
220.00
167°00'00"
157.00
178°00'00"
236.18
120
125
130
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 23

A.C. ROAD
130
A.C. ROAD
125
120
CONCRETE PAD
A.C. PAVEMENT
TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 24


TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
HOG WIRE FENCE
BOTTOM BERM
TOP BERM
CONCRETE PAD
A.C. PAVEMENT
A.C. ROAD
BOTTOM BANK
TOP BANK
130.00
400.00
140
135
130

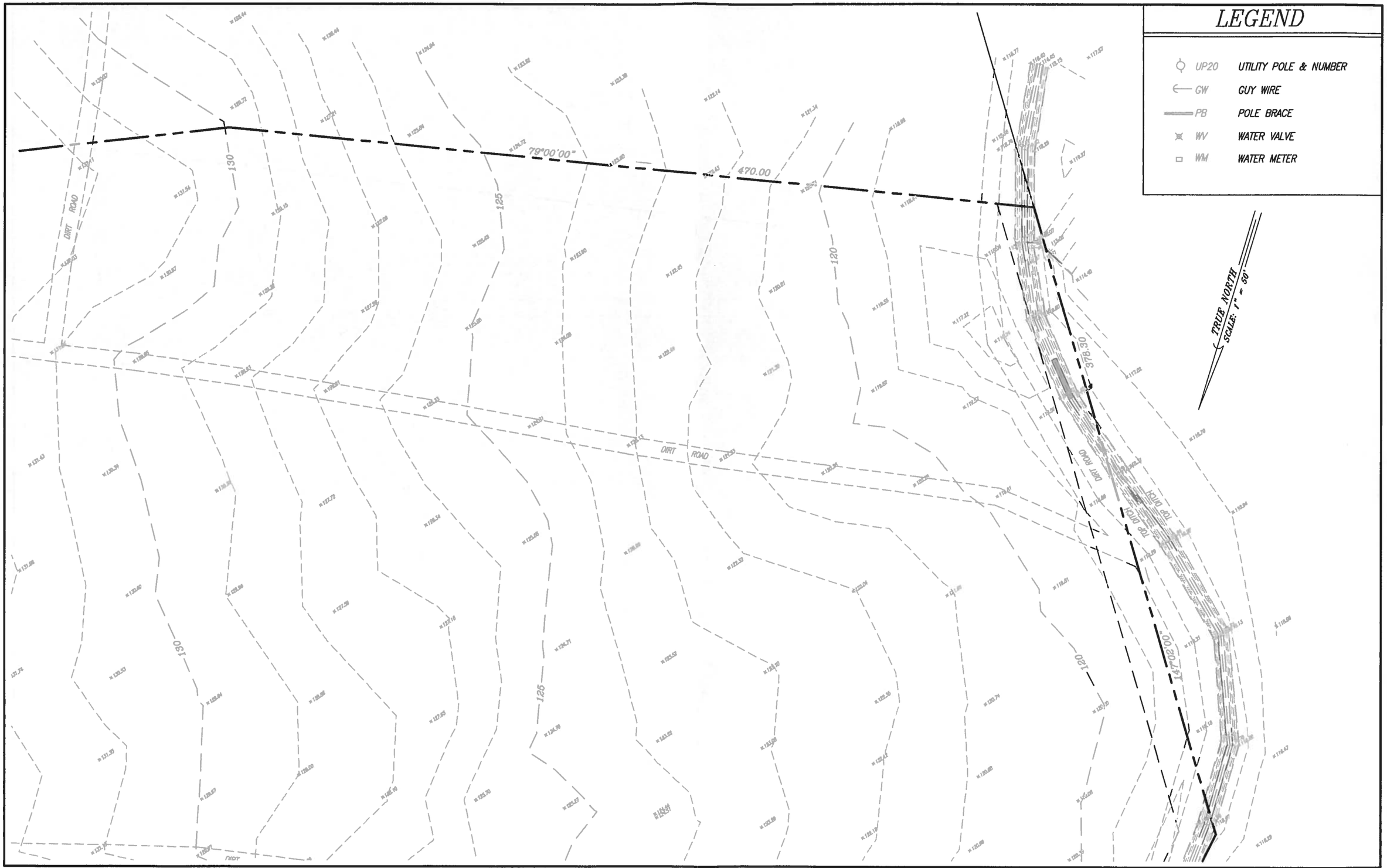
VIEW 25

TRUE NORTH
SCALE: 1" = 50'
350°00'00"
160.00
90°00'00"
200.00
350°00'00"
DIRT ROAD
HOG WIRE FENCE
140
135
130
BOTTOM BANK
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 26

DIRT ROAD
DIRT ROAD
A.C. ROAD
130
125
120
TOP DITCH
TOP DITCH
470.00
190°00'00"
223.01
TRUE NORTH
SCALE: 1" = 50'
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 27


LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER
TRUE NORTH
SCALE: 1" = 50'
79°00'00"
470.00
376.30
14°02'00"
DIRT ROAD
TOP DITCH
130
125
120

VIEW 28

TRUE NORTH
SCALE: 1" = 50'
67°00'00"
620.00
DIRT ROAD
DIRT ROAD
230.00
347°00'00"
190.00
266°00'00"
170.00
140
140
135
135
LEGEND
UP20 UTILITY POLE & NUMBER
GW GUY WIRE
PB POLE BRACE
WV WATER VALVE
WM WATER METER

VIEW 29

APPENDIX C

Existing M-2, Heavy Industrial Zoning Regulations

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(a))

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. Laundromats;

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 that 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. 2609 § 5, 1997: prior code § 8-1.8(b))
(Ord. No. 3622, § 5, 3-20-2009)

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))

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.
19.18.850 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 § 8-1.9(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 billiard 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 repairing; provided all auto repairing 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 masseurs;
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;
31. Haberdasheries and women's apparel shops;
32. Hardware and garden supply stores;
33. Ice cream and milk manufacturing plants employing not more than twenty-five persons;
34. Jewelry stores or fine art shops, including interior decorating;
35. Libraries;
36. Marinas;
37. Miniature golf courses;
38. Museums;
39. Music conservatories or music studios;
40. News and magazine stands;
41. Nurseries (flower or plants); provided, that all incidental equipment and supplies, including fertilizers and empty cans, are kept within enclosed buildings;
42. Nursing and convalescent homes;
43. Parcel delivery stations;
44. Pet shops, not involving the treatment or boarding of animals;
45. Photo studios;
46. Physical culture studios;
47. Plumbing shops within wholly enclosed buildings and employing not more than five persons;
48. Printing, lithography or publishing shops;
49. Private clubs or fraternal organizations;
50. Private schools or business colleges;
51. Professional and financial buildings;
52. Public parking areas;
53. Radio and television stations;
54. Religious, benevolent, and philanthropic societies;
55. Restaurants, cafes or bars, including drive-ins;
56. Sanitariums;
57. Shoe stores;
58. Sign-painting shops within wholly enclosed buildings and employing not more than five persons;
59. Skating shops;
60. Tailor shops;
61. Trade schools;
62. Used car lots; provided all repair and maintenance is conducted within a wholly enclosed building;
63. Mortuaries, subject to the approval of the commission;

64. 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 walls so erected;

65. Bed and breakfast homes, subject to the restrictions and standards of section 19.64.030 of this title;

66. 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 area; 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 19.20

B-3 CENTRAL BUSINESS DISTRICT

Sections:

19.20.010	Generally.
19.20.020	Permitted uses.
19.20.030	Area regulations.
19.20.040	Height 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 nuisance 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. Awning 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 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(c))

19.20.040 Height regulations.

The maximum height of any building in B-3 district shall be limited by the total floor area which shall not exceed in square feet three hundred percent of the total lot area upon which the building is to be built; and provided further, that no building shall be more than twelve stories in height. (Prior code § 8-1.10(d))

19.20.050 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-3 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, apartment-hotel or hotel shall provide yard space in accordance with the requirements of apartment and hotel districts. (Prior code § 8-1.10(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 § 8-1.12(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, toiletries, 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 stamps;
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 guys;
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 operation 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. Wearing 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 19.26

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.

19.26.010 Generally.

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.

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 wrecking, 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 for 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 linoleum manufacture;
18. Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;
19. Petroleum products manufacture or wholesale storage of petroleum;
20. Planing 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 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 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))

19.26.040 Area regulations.

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))

19.26.050 Yards.

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 § 8-1.12(c))

APPENDIX C-1

Proposed M-1, M-2, and M-3 Industrial Zoning Regulations

ORDINANCE NO. _____
DRAFT 11/15/10

BILL NO. _____ (2010)

A BILL FOR AN ORDINANCE ESTABLISHING TITLE 19.24, MAUI COUNTY CODE, RELATING TO M-1 LIGHT INDUSTRIAL DISTRICT

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

SECTION 1. Chapter 19.24, Maui County Code, is amended to read as follows:

"Chapter 19.24

M-1 LIGHT INDUSTRIAL DISTRICT

19.24.010 ~~General~~ Purpose and Intent
19.24.020 ~~Use regulations~~ Permitted uses.
19.24.030 ~~Height regulations~~ Accessory uses and structures
19.24.040 ~~Area regulation~~ Special Uses
19.24.050 ~~Yards~~ Development Standards
19.24.060 Rule making authority

19.24.010 ~~Generally~~. Purpose and Intent
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 § 8-1.12(a))

19.24.020 ~~Use regulations.~~ Permitted uses
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:

Use	Notes and exceptions
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 for dwelling units located above or below the first floor, ~~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, toiletries, 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 stamps;	
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 guys;	
23. Re-plating shop;	
24. Retail lumber yard including mill and sash work,	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 operation including recapping	

and re-treading;	
28. ~~Vocational and trade schools giving general instruction as prescribed by the State Department of Education;~~ Education, specialized. "Specialized education" means a facility that offers a specialized educational curriculum, such as, but not limited to, trade and vocational, language, music, dance, and art schools.	
29. Warehouse, storage and loft buildings;	
30. Wearing apparel manufacturing;	
31. Wholesale business, storage buildings, non-explosive goods and warehouses;	
32. ~~Apartment houses.~~	
Utility facilities, minor	
Production facility, multimedia	

(Prior code § 8-1.12(b))

~~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, toiletries, 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 stamps;~~

~~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 guys;~~

~~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 operation 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.Wearing 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.~~

19.24.030 Accessory uses and building

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:

Uses	Notes and exceptions
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. Security/watchman or custodian outbuildings	

~~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 Special Uses

Resevered

~~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 Development Standards

	M-1	Notes and exceptions
Minimum Lot Area (Square feet)	7,500	
Minimum Lot Width (in feet)	65	
Maximum Building Height (in feet)	60	Except that vent pipes, fans, chimneys, antennae, and equipment used for small scale energy systems on roofs shall not exceed 70 feet.
Minimum Yard Setback (in feet)		
Front	0 or the same as the adjoining zoning category which ever is greater.	Where the set back of the adjoining non-industrial zoned parcel is less than 10 feet, a minim set back of 10 feet shall be applied.
Side and Rear	0 or the same as the adjoining zoning category which ever is greater	
Side and Rear above one story or 15 feet	0 or the same as the adjoining zoning category which ever is greater	
Free standing antenna or wind turbine structures height and setback	Maximum height of 75 feet and shall be set back 1 foot for every foot In height from all property lines.	
Accessory structures within Setback Area	Boundary walls, parking area, trash enclosures, and ground signs	
Enclosure Requirement	All 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.	

~~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))

19.24.060 **Rule making authority.** The planning director may adopt rules to clarify and implement this chapter.

19.24.070 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 permit(s).

SECTION 2. Section 19.04.040, Maui County Code, is amended by adding new definitions to be appropriately inserted and to read as follows:

Production facility, multimedia " Space in an outdoor or indoor area, building, part of a building, for the staging or re-cording of video or audio productions such as, but not limited to, music, commercials, programs, motion pictures, multi-media or other related activities."

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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 regulation~~ Special Uses
19.26.050 ~~Yards~~ Development Standards
19.26.060 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.

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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:

Use	Notes and Exceptions
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 wrecking, 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;	such establishment shall not be nearer than eight feet from any other property line for 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 linoleum manufacture;	
18. Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;	
19. Petroleum products manufacture or wholesale storage of petroleum;	
20. Planing 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 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;	

~~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 wrecking, 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 for 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 linoleum manufacture;~~
~~18.Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;~~
~~19.Petroleum products manufacture or wholesale storage of petroleum;~~
~~20.Planing 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 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 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.~~

9.26.030 Accessory uses and structures ~~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))~~

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:

Uses	Notes and exceptions
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. Security/watchman or custodian outbuildings	

19.26.040 Special Uses ~~Area regulations.~~
~~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))

Special Uses	
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 deeding pens,	
u. Tannery or the curing or storage of raw hides.	

(Prior code § 8-1.13(b))

19.26.050 ~~Yards~~ Development Standards.

	M-2	Notes and exceptions
Minimum Lot Area (Square feet)	10,000	
Minimum Lot Width (in feet)	75	
Maximum Building Height (in feet)	90	Except that vent pipes, fans, chimneys, antennae, and equipment on roofs shall not exceed 149 feet.
Minimum Yard Setback (in feet)		
Front	0 or the same as the adjoining zoning category which ever is greater	Where the set back of the adjoining non-industrial zoned parcel is less than 15 feet, a minim set back of 15 feet shall be applied.
Side and Rear	0 or the same as the adjoining zoning category which ever is greater	
Side and Rear above 15 feet	0 or the same as the adjoining zoning category which ever is greater	
Free standing antenna or wind turbine structures height and setback	Maximum height of 90 feet and shall be set back 1 foot for every foot in height from all property lines.	

~~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 § 8-1.12(e))

19.26.060 **Rule making authority.** The planning director may adopt rules to clarify and implement this chapter.

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 permit(s).

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ORDINANCE NO. _____
DRAFT 3/3/11

BILL NO. _____ (2010)

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

19.25.010 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 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 hereafter erected, structurally altered, replaced, or enlarged except for one or more of the following uses:

Use	Notes and exceptions
Acetylene gas manufacture or bulk storage,	
Acid manufacture,	
Alcohol manufacture;	
Ammonia, bleaching powder or chlorine manufacture,	
Asphalt manufacture of refueling and asphaltic concrete plant,	
Automobile wrecking,	
Blast furnace or coke oven,	
Boiler and steel works;	
Brick, tile or terra cotta manufacture;	
Canneries,	
Cement, lime, gypsum, or plaster of paris manufacture,	
Chemical manufacture;	
Concrete or cement products manufacture;	
Crematories, morgues	
Energy systems, power plants, substations, and utility facilities, major	
Explosives manufacture or storage,	
Factories;	
Fertilizer manufacture,	
Fish canneries,	
Foundries;	
Freight classification yard (railroad);	
Garbage, offal or dead animals reduction or dumping,	
Gas manufacture,	
Glue manufacture,	
Heavy equipment storage, servicing, and sales	
Junk establishment used for storing, depositing, keeping junk or similar goods for business purposes,	
Land fill, solid waste processing and disposal	
Lime kilns	
Lumber yard and wood treatment facilities;	
Machine shops;	
Oil storage plants;	
Oilcloth or linoleum manufacture;	
Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;	
Petroleum or bio fuel product manufacturing or wholesale storage of petroleum or bio fuels;	
Petroleum refinery,	
Planing mill;	
Plastic manufacture;	
Quarry or stone mill,	
Railroad repair shops;	
Recycling processing facilities	
Rock, sand or gravel or earth excavation, crushing or distribution,	
Rolling mills;	
Saw mill,	
Ship works;	

Slaughter of animals,	
Soap manufacture;	
Stock yard or feeding pens,	
Sugar mills and refineries;	
Tannery or the curing or storage of raw hides.	
Telecommunication towers, antenna and equipment	
Wood treatment plants,	
In general those 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;

19.25.030 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:

Uses	Notes and exceptions
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	

19.25.040 Special uses.

Reserved

19.25.050 Development Standards

	M-3	Notes and exceptions
Minimum Lot Area (Square feet)	10,000	
Minimum Lot Width (in feet)	75	
Maximum Building Height (in feet)	90	Except that vent pipes, fans, chimneys, antennae, and equipment on roofs shall not exceed 199 feet.
Minimum Yard Setback (in feet)		
Front	none	
Side and Rear	0 or the same as the adjoining zoning category which ever is greater	
Side and Rear above 15 feet	0 or the same as the adjoining zoning category which ever is greater	
Free standing antenna or wind turbine structures height and setback	Maximum height of 199 feet and shall be set back 1 foot for every foot in height from all property lines.	
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.

APPENDIX D

Quitclaim
Assignment of
Partial Interest in
Easement
(Easement 7)

R-122 STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED
MAR 17, 2011 08:01 AM
Doc No(s) 2011-044567

/s/ NICKI ANN THOMPSON
REGISTRAR

20 2/4 Z12

Return by Mail ( ) Pickup ( ) To:

MS SUZANNE MCGUIGAN
ALEXANDER & BALDWIN INC
822 BISHOP ST
HONOLULU, HI 96813

TG: 201109069 - 3
TGES T1 2043154 WJC

This document contains 9 pages

Tax Map Key No.: (2) 3-8-008: 19

QUITCLAIM 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 consideration 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)-3-8-008-019 (the "**Property**"), hereinafter called the "Assignee", and its successors and assigns, **WITHOUT RECOURSE 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 17th 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 JSGNE Investments, Inc.,
a Washington corporation
Its Manager

By: _____
Name: _____
Title: _____

By: _____
Name: _____
Title: _____

"Assignee

IN WITNESS WHEREOF, the Assignor has executed this instrument this 17th 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 JSGNE Investments, Inc.,
a Washington corporation
Its Manager

By:_____
Name: JOHN ZAPOTOCKY
Title: Vice President

By:_____
Name:_____
Title:_____

"Assignee

STATE OF HAWAII)
) SS:
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 79-603 PUBLIC STATE OF HAWAII

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: 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

PAMELA SIMON NOTARY 79-603 PUBLIC STATE OF HAWAII

Pamela Simon
Printed Name of Notary

(Official Stamp or Seal)

STATE OF HAWAII)
) SS:
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 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 79-603 PUBLIC STATE OF HAWAII

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: 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 — March 11, 2011
Signature of Notary — Date of Notarization and Certification Statement

PAMELA SIMON NOTARY 79-603 PUBLIC STATE OF HAWAII

Pamela Simon
Printed Name of Notary

(Official Stamp or Seal)

STATE OF HAWAII)
) SS:
COUNTY OF MAUI)

On this 11 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 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.

MARY JO K. CABRAL NOTARY 93-698 PUBLIC STATE OF HAWAII

Mary Jo K Cabral
Notary Public, State of Hawaii

Printed Name: Mary Jo K. Cabral
Expiration Date: December 9, 2013

My commission expires:

(Official Stamp or Seal)

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: ~~First Circuit~~ Second Circuit (in which notarial act is performed)

Mary Jo K Cabral — March 11, 2011
Signature of Notary — Date of Notarization and Certification Statement

MARY JO K. CABRAL NOTARY 93-698 PUBLIC STATE OF HAWAII

Mary Jo K. Cabral
Printed Name of Notary

(Official Stamp or Seal)

EXHIBIT "A"

IN THE UNITED STATES DISTRICT COURT FOR THE

DISTRICT OF HAWAII

APRIL TERM 1945

United States of America,

Petitioner,

vs.

[illegible] Acres of land, more or less, situate at Pulehunui and Waikapu, Districts of Iula and Wailuku, Maui, Territory of Hawaii
Hawaiian Commercial & Sugar Company, Limited; et al.,

Defendants

CIVIL NO. 340

MAY - 8 1945

[illegible]

[illegible] E. C. Robinson

ORDER AND JUDGMENT ON

DECLARATION OF TAKING.

It appearing that on February 24, 1945, the United States of America filed a petition for condemnation of certain lands described and shown on Exhibits "A" and "B", attached to the Declaration of Taking; and

It further appearing that there was filed on the 9th day of May, 1945, a Declaration of Taking signed by James Forrestal, Secretary of the Navy, under and pursuant to provisions of the Act of Congress approved February 26, 1931 (46 Stat. 1421), declaring taken the following:

(1) As to Parcels 1-A, 2-D, 2-E, 2-F, 3-A, and 3-B, 4, and 7, title in fee simple subject, however, to the following reservations in behalf of the present landowner, his or its successors and assigns:

(a) The easement designated on Exhibit "B" as Easement 1-C lacefer as the same is located on Parcel 7 for the purpose of operating, maintaining and repairing a plantation railroad for so long as the easement is used for such purpose, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(b) The easement designated on Exhibit "B" as Easement No. 2 lacefer as the same is located on Parcels 2-D and 7 for the purpose of operating, maintaining and repairing a reservoir ditch for so long as said easement is used for said purpose, together with the right of ingress and egress for the purpose of inspecting, maintaining and repairing said ditch, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(c) The easement designated on Exhibit "B" as Easement No. 3 lacefer as the same is located on Parcel 3-A for the purpose of operating, maintaining and repairing a shore ditch for so long as the easement is used for said purpose, together with the right of ingress and egress for the purpose of inspecting, maintaining and repairing said ditch, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

EXHIBIT "A"
Page 1 of 3

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7

(d) The easement designated on Exhibit "C" as Easement No. 5 located on Parcels 3-A and 3-B for the exertion, operation, maintenance and repair of an electric power line for so long as the easement is used for said purpose, together with the right of ingress and egress for the purpose of inspecting, maintaining and repairing said power line, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(e) The easement designated on Exhibit "B" as Easement No. 6 located on Parcels 3-A and 3-B for the operation, maintenance and repair of a domestic water supply line for so long as the easement is used for said purpose, together with the right of ingress and egress for the purpose of maintaining, operating, and repairing said water line, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(f) An easement in common with the Government along, over and across the area designated on Exhibit "B" as Easement No. 7, being Parcel 7, for plantation road purposes, for so long as said parcel is used by the landowner and its successors and assigns for such purposes, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(g) An easement in common with the Government along, over and across Parcel 3-A for plantation road purposes for so long as said parcel is used by the landowner, its successors and assigns, for such purposes, subject to the promulgation of reasonable rules and regulations by the Government in respect to the use thereof as may be necessary for the security of its Naval Reservations;

(2) As to Parcel 3-D, a perpetual easement in and to said parcel for safety requirements, and a perpetual easement in and to the air space over said parcel for use in connection with the landing and taking off of aircraft, it being the purpose and intent of this taking that the air space over said parcel shall not be obstructed by the landowner, his assigns, or persons claiming through or under them, and that the landowner, his assigns, and persons claiming through or under them shall not construct, or permit construction of, any buildings, structures, or improvements upon said parcel 3-D except upon having first secured the written approval and consent of the Secretary of the Navy; provided, however, that growing crops and improvements necessary or desirable for the cultivation thereof shall not be considered as obstructions, structures, or improvements within the meaning and intent of this taking, but the phrase "necessary or desirable" shall not be construed to permit the construction of any buildings.

(3) As to Parcel 1-C, title in fee simple, subject, however, to all existing rights of the Territory of Hawaii and its political subdivisions.

(4) (a) Parcel 1-A, a term for years beginning April 1, 1942, and ending May 11, 1943.

(b) Parcels 2-A, 2-B and 2-C, a term for years beginning February 1, 1942, and ending December 31, 1944.

(c) Parcel 2-C, a term for years beginning April 1, 1942, and ending November 1, 1943.

(d) Parcel 3-D, a term for years beginning April 1, 1942, and ending November 1, 1943.

(e) Parcel 3, a term for years beginning January 22, 1942, and ending November 1, 1943.

(f) Parcel 4, a term for years beginning November 1, 1942, and ending November 1, 1943.

-2-

EXHIBIT "A"
Page 2 of 3

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That the meets of said land are those described in the Declaration of Taking and in the Petition and that the Declaration of Taking sets forth the estimate of just compensation made pursuant to law and that, contemporaneously with the filing of said declaration of taking, there was deposited in the Registry of this Court for the use of the persons entitled thereto the sum of Six Hundred Twenty Thousand and 00/100 Dollars ($620,000.00).

IT IS ORDERED, ADJUDGED AND DECREED that by virtue of the filing of the Declaration of Taking and the deposit of said money, the aforesaid described interests are indefeasibly vested in the United States of America; and

IT IS FURTHER ORDERED that a copy of this Order, be promptly served by the United States Marshal upon each of the defendants named and upon each and every person, company or corporation in possession of said land at the time possession was surrendered to the Petitioner. The Marshal is further ordered to post a copy hereof in a conspicuous place on the premises and to forthwith make due return of his said service to this Court.

DONE: Honolulu, T. H., this 9th day of May, 1968.

/s/ [illegible]
Judge of the United States District Court for the District of Hawaii.

EXHIBIT "A"
Page 3 of 3

ImanageDB:1664165.2

APPENDIX D-1

Request for Use of
State Lands

Request for Use of State Lands (Original)

PACIFIC RIM LAND, INC.

LETTER OF TRANSMITTAL

February 9, 2011

Mr. Daniel Ornellas
Land Agent
Dept. of Land and Natural Resources
Land Division
Maui District Branch
54 South High Street, Room 101
Wailuku, HI 96793

VIA HAND DELIVERY

RE: TMK (2) 3-8-08:019 (Lot 2), Pulehunui, Wailuku, Maui

Please find the following item(s) enclosed:

COPIES	DATE	DESCRIPTION
2 (orig)	2/7/11	Letter request from CMBY 2011 Investment, LLC
2 (orig)	2/4/11	Request for State Lands Application Form
2	1/31/11	Access Easement Plat Map
2		Preliminary concept plan and tax map location

Comments:
If any further information is required, please contact me at 270-5940 or blancal@pacificrimland.com

Thank you,

Blanca L. Lafolette
Project Coordinator

P.O. Box 220 • Kihei, HI • 96753 • 808.874.5263 • Fax 808.879.2557

CMBY 2011 INVESTMENT, LLC
C/O P.O. BOX 220
KIHEI, HAWAII 96753
808-874-5263

February 7, 2011

Mr. Daniel Ornellas, Land Agent
State of Hawaii
Department of Land and Natural Resources
Land Division
Maui District Branch
54 High Street, Room 101
Wailuku, HI 96793

Re. **TMK (2) 3-8-08:019 (Lot 2), Pulehunui, Wailuku, Maui**

Dear Mr. Ornellas:

CMBY 2011 Investment, LLC ("CMBY") is currently in the process of purchasing from Alexander & Baldwin, Inc. ("A&B") the above referenced property consisting of approximately 86 acres in Pulehunui, the Old Puunene Airport area (the "Property"). The Property is currently zoned agricultural, and has been included in the Maui Island Plan Urban Growth Boundary.

Upon completion of the purchase, CMBY will seek 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 for the development of the Property. CMBY will then apply to subdivide the Property into a 28-lot heavy industrial use subdivision. CMBY's proposed development for a portion of the Property is for Construction & Demolition Materials Recycling Facility (CDMRF) (see page 2 of Exhibit "2").

In order to access the Property from Mokulele Hwy., CMBY is requesting a 56-foot Grant of Easement for access and utility purposes from The Department of Land and Natural Resources. Attached is an Access Easement Plat Map (Exhibit "1") indicating our request for access. Also included is our Request For State Lands Application Form; and a preliminary concept plan of our proposed project and location in relation to the tax maps (Exhibit"2").

If you would like to discuss the request further, I can be contacted at 270-5940 or blancal@pacificrimland.com

Sincerely,

Blanca Lafolette
Project Coordinator

Encls. Access Easement Plat Map (Exh. "1")
Request For State Lands Application Form
Preliminary concept plan and tax map location (Exh. "2)

STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES

REQUEST FOR STATE LANDS
APPLICATION FORM

For DLNR use only:
Date of request: _____
Date request recvd: _____
Date request no. issued _____
Request number _____
Land Code: _____
Unit Code: _____
Status: Future
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)663-5263 ( ) ( )
Work Home Cellular

( ) (509) 662-2621
Pager Fax E-mail address

JSGNE Investments, Inc., Its Manager
Signature: _____ Date: 2/4/11
J. Stephen Goodfellow, Its President

Applicant intends to hold title as:
( ) Individual ( ) Corporation ( ) Partnership
( ) Husband and Wife (x) Limited Liability Corporation ( ) Limited Partnership
( ) Trust ( ) Non-Profit Corporation ( ) Association
( ) 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

For individual, marital status:
( ) Single ( ) Widow/widower ( ) Married – spouse of: _____

For partnership or corporation, state of incorporation: Washington

II. AGENT

If you have an attorney, consultant or other person processing this request for you, please include the following information.

Agent name: Lafolette Blanca (Pacific Rim Land, Inc.)
Last name First Name

Agent address: P.O. Box 220
No. and Street

Kihei HI 96753
City State Zip Code

Phone numbers: (808) 874-5263 (808) 270-5940 (direct) (808) 357-0085
Work Home Cellular

( ) (808) 879-2557 blancal@pacificrimland.com
Pager Fax E-mail address

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 (eleemosynary organizations, public utilities, government, renewable energy producers, 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 ( ) Kauai ( ) Molokai
( ) Hawaii (x) Maui

Town: Pulehunui (Puunene) Tax Map Key: (2)3-8-08:019

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
( ) Business/Commercial
( ) Industrial
( ) Pasture
( ) Other (specify): _____

(x) Easement - Access
(x) Easement - Utility
( ) Easement – Seawall

A. Fully describe your proposed use of the public lands: _____

An approximate 7,333 foot long paved right of way to access (2)3-8-08:019-Lot 2 (the "Property") will be designed and constructed per State and County requirements. The 56-foot requested access is from Mokulele Hwy. and Kamaaina 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: _____

If yes, describe completion of EA: **Use of State lands, and the Community Plan Amendment from Agriculture to Heavy Industrial will generate the EA**

F. Describe what other permits or approvals are required for this use and whether you have obtained such permits or approvals:
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

I/We hereby certify that the statements and information contained in this application, including all attachments, are true and accurate to the best of my/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 Lafolette
Printed Name

x Blanca Lafolette
Signature

_____
Printed Name

x _____
Signature

2/7/11
Date

For DLNR Use Only: **TO CLOSE FUTURE TENANT:**

Reason for closing: _____

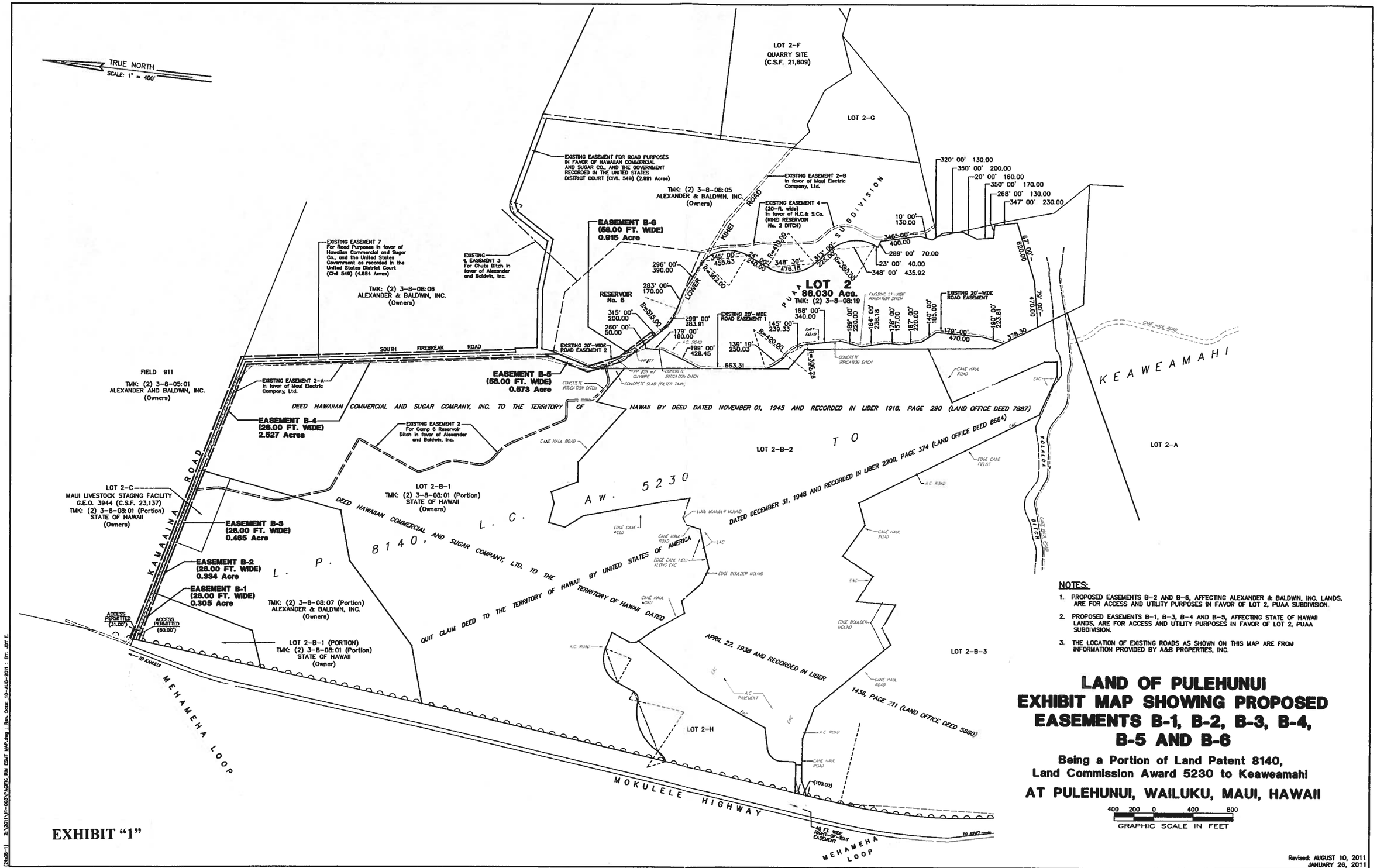
_____

_____

_____

Approved by DLA: _____

Date request closed: _____



NOTES:

1. PROPOSED EASEMENTS B-2 AND B-6, AFFECTING ALEXANDER & BALDWIN, INC. LANDS, ARE FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF LOT 2, PUAA SUBDIVISION.
2. PROPOSED EASEMENTS B-1, B-3, B-4 AND B-5, AFFECTING STATE OF HAWAII LANDS, ARE FOR ACCESS AND UTILITY PURPOSES IN FAVOR OF LOT 2, PUAA SUBDIVISION.
3. THE LOCATION OF EXISTING ROADS AS SHOWN ON THIS MAP ARE FROM INFORMATION PROVIDED BY A&B PROPERTIES, INC.

LAND OF PULEHUNUI EXHIBIT MAP SHOWING PROPOSED EASEMENTS B-1, B-2, B-3, B-4, B-5 AND B-6

Being a Portion of Land Patent 8140, Land Commission Award 5230 to Keaweamahi

AT PULEHUNUI, WAILUKU, MAUI, HAWAII

400 200 0 400 800
GRAPHIC SCALE IN FEET

EXHIBIT "1"

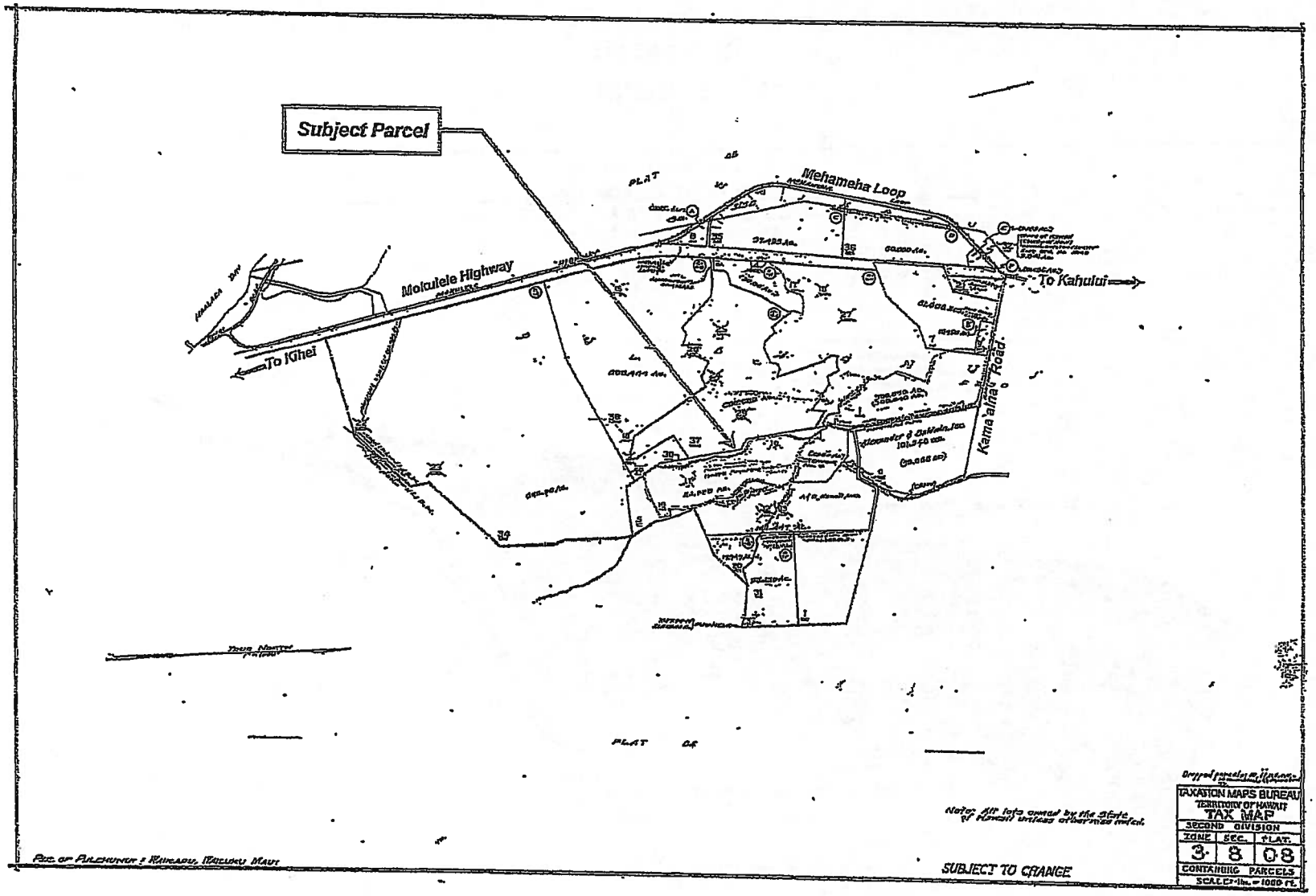
Revised: AUGUST 10, 2011
JANUARY 26, 2011
JOB NO. 11-003

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS – CIVIL & STRUCTURAL ENGINEERS

[36x36(L)] Z:\2011\11-003\PUAPHU ROW EXHIT MAP.dwg , Rev. Date: 10-AUG-2011 , BY: JOY E.

326

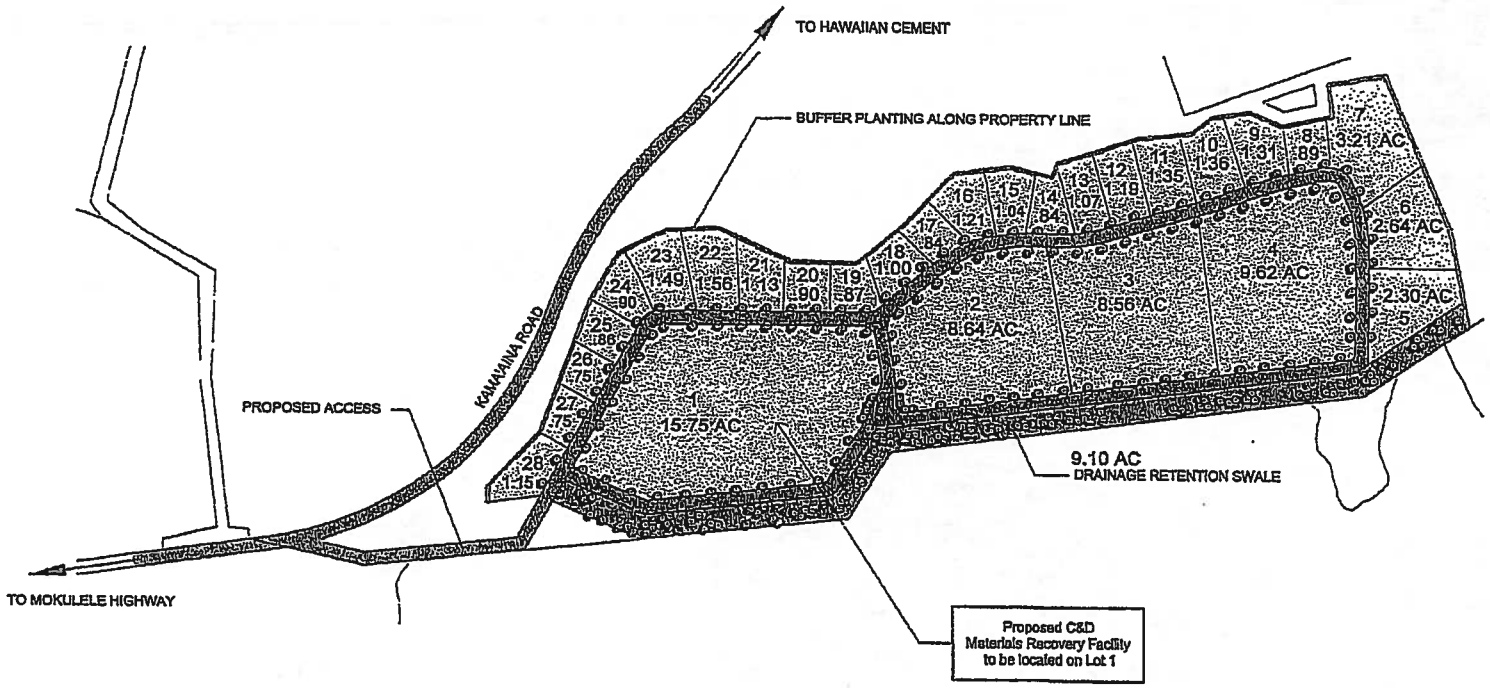


PU'UNENE
86-ACRE PARCEL

Not to Scale

TMK PARCEL
LOCATION MAP

EXHIBIT "2"
(page 1 of 2)



CHRIS HART & PARTNERS

CONCEPT SITE PLAN

PUUNENE HEAVY INDUSTRIAL SUBDIVISION

PUUNENE, MAUI, HAWAII

TMK: 2-3-8-08:19 86.020 AC.

BAR SCALE

24x36 SCALE: 1"=200'-0"

DATE: 10-7-10

EXHIBIT "2"
(page 2 of 2)

Request for Use of State Lands (Amended)

PACIFIC RIM LAND, INC.

February 8, 2012

Mr. Daniel Ornellas
District land Agent, State of Hawaii
Department of Land and Natural Resources
Land Division
54 High Street, Room 101
Wailuku, HI 96793

VIA HAND DELIVERY

Subject: Ref. No. 11MD-101
Author: D-DO/dy
CMBY 2011 Investment, LLC; TMK (2) 3-8-08:019
Land of Pulehunui

Dear Mr. Ornellas:

Thank you for meeting with Clay Sutherland and me on January 12, 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 Mokulele 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, 2011), 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 8 as Option 2; (2) Easement A and B plat map, and metes and bounds description for both options ; and (3) photographs of Option 1 and Option 2 access roadways. 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 over lands owned by A&B, land which A&B will grant access rights to CMBY to

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 that would help support your recommendation to the Board of Land and Natural Resources, please contact me at 874-5263 or on my direct line at 270-5940, or by email at blancal@pacificrimland.com. We look forward to hearing from you.

Sincerely,

Blanca Lafolette
Project Coordinator for
CMBY 2011 Investment, LLC

Encl.: *Easement Map*
Plat map
Metes and Bounds descriptions
Photographs of access roadways

EASEMENT A

THE LAND OF PULEHUNUI

SITUATED AT PULEHUNUI, WAILUKU, MAUI, HAWAII

BEING A PORTION OF LAND PATENT 8140,

LAND COMMISSION AWARD 5230 TO KEAWEAMAHI

Beginning at the Southeast corner of this Easement, being 353° 11' 30" 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.

KIRK T. TANAKA LICENSED PROFESSIONAL LAND SURVEYOR No. 7223-LS HAWAII, U.S.A.

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 KEAWEAMAHI

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.	185° 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.

KIRK T. TANAKA LICENSED PROFESSIONAL LAND SURVEYOR No. 7223-LS HAWAII, U.S.A.

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

OPTION 1: EASEMENT A (1 of 2 pages)

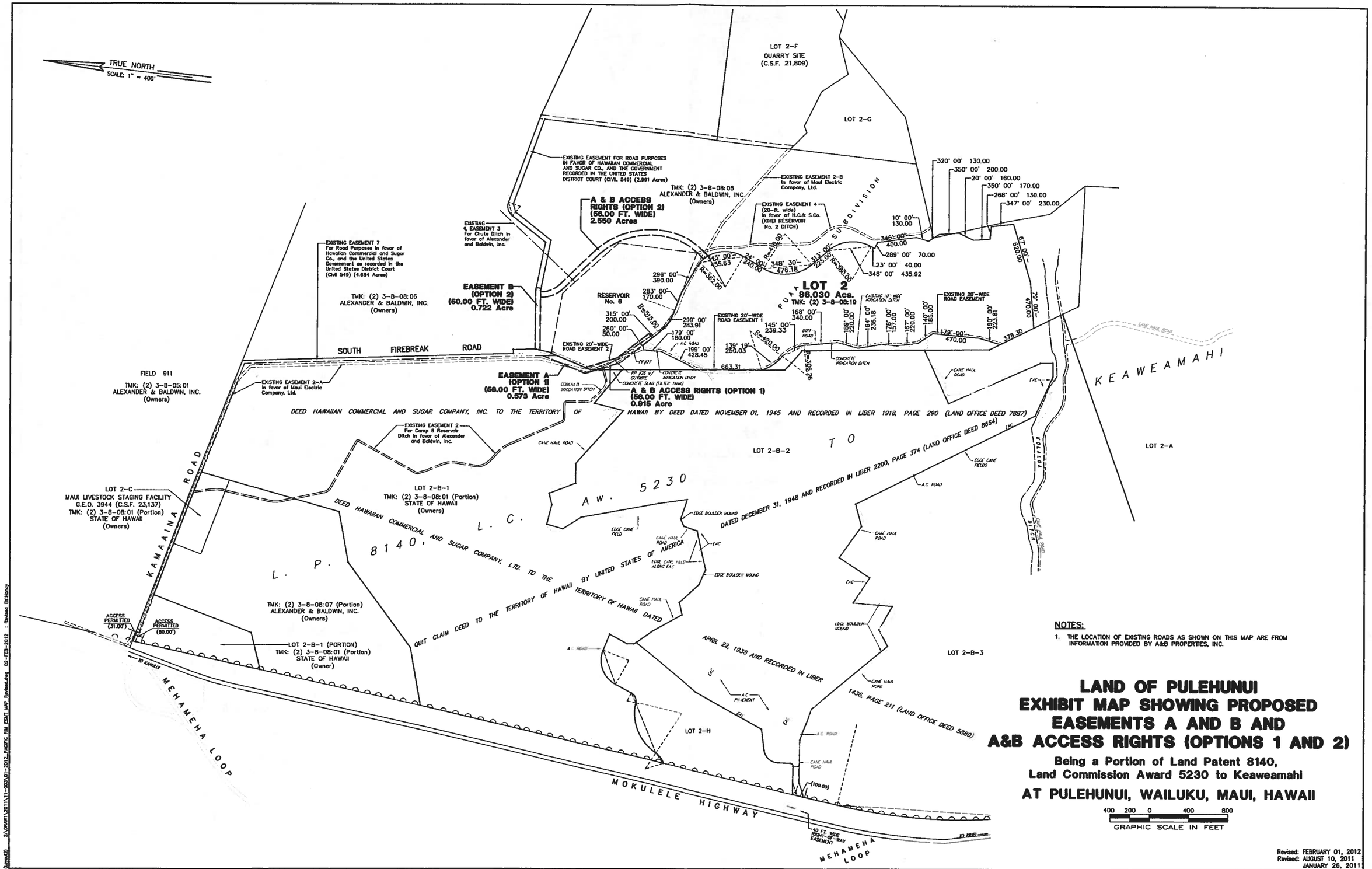
Camera facing South from intersection of South Firebreak Road and the Hawaiian Cement road. To the right is the beginning of the requested Easement A

Camera facing Southwest on the requested Easement A. Street level view of the HC&S irrigation reservoir on left side of road.

OPTION 1: EASEMENT A (2 of 2 pages)

Camera facing Southwest on requested Easement A

Camera facing North on requested Easement A looking toward intersection with the Hawaiian Cement road. HC&S irrigation lies on the foreground (right)



NOTES:

1. THE LOCATION OF EXISTING ROADS AS SHOWN ON THIS MAP ARE FROM INFORMATION PROVIDED BY A&B PROPERTIES, INC.

LAND OF PULEHUNUI
EXHIBIT MAP SHOWING PROPOSED EASEMENTS A AND B AND A&B ACCESS RIGHTS (OPTIONS 1 AND 2)

Being a Portion of Land Patent 8140, Land Commission Award 5230 to Keaweamahi

AT PULEHUNUI, WAILUKU, MAUI, HAWAII

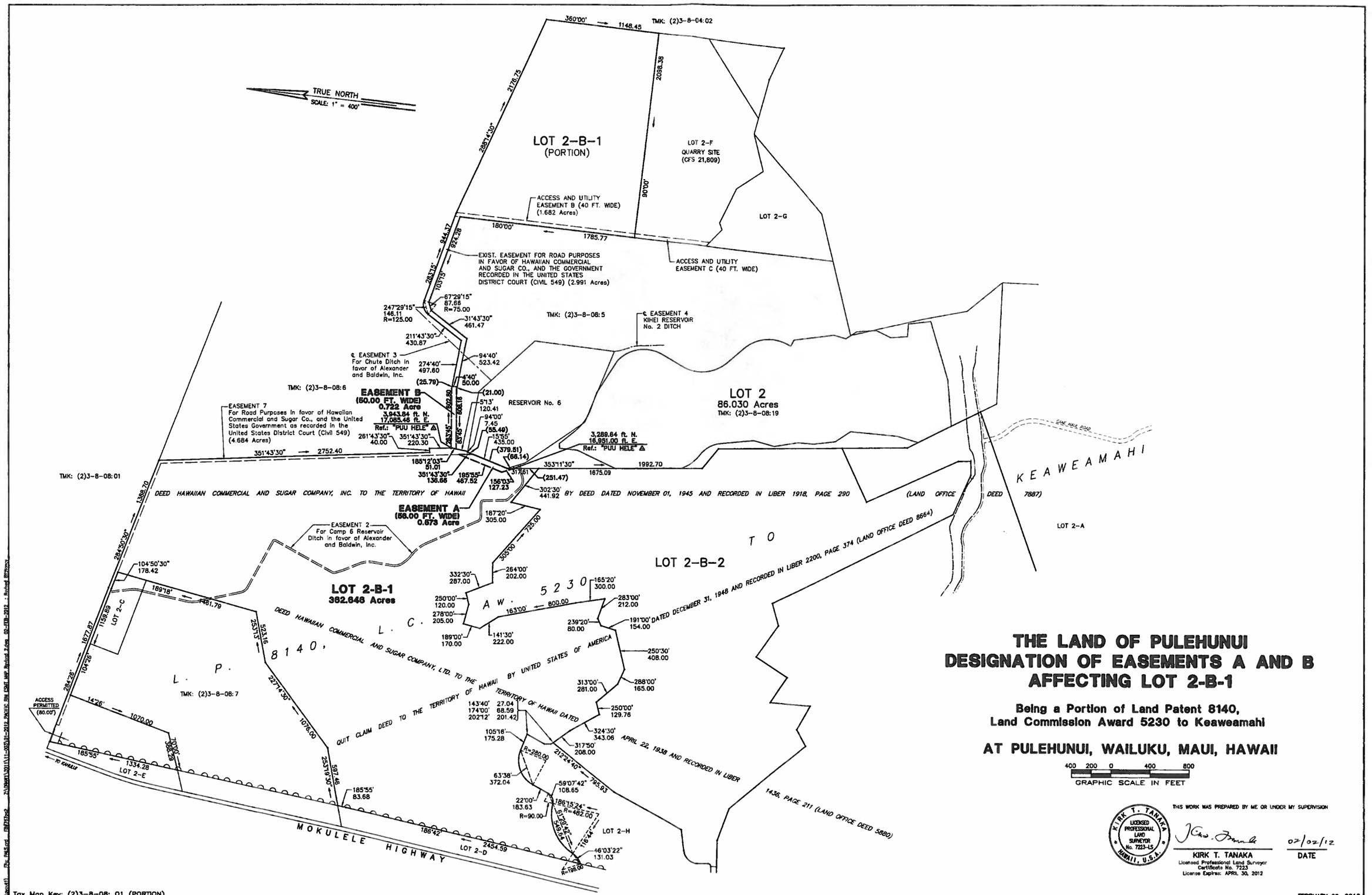
400 200 0 400 800
GRAPHIC SCALE IN FEET

Revised: FEBRUARY 01, 2012
Revised: AUGUST 10, 2011
JANUARY 26, 2011
JOB NO. 11-003

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS - CIVIL & STRUCTURAL ENGINEERS

(Layout2) Z:\DRAWT\2011\11-003\01-2012_PACIFIC RIM ESMT MAP Revised.dwg 02-FEB-2012 : Revised BY:Nancy



THE LAND OF PULEHUNUI
DESIGNATION OF EASEMENTS A AND B
AFFECTING LOT 2-B-1

Being a Portion of Land Patent 8140, Land Commission Award 5230 to Keaweamahi

AT PULEHUNUI, WAILUKU, MAUI, HAWAII

400 200 0 400 800
GRAPHIC SCALE IN FEET

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

KIRK T. TANAKA LICENSED PROFESSIONAL LAND SURVEYOR No. 7223-13 HAWAII, U.S.A.

KIRK T. TANAKA
Licensed Professional Land Surveyor
Certificate No. 7223
License Expires: APRIL 30, 2012

07/02/12
DATE

Tax Map Key: (2)3-8-08: 01 (PORTION)

FEBRUARY 02, 2012
JOB NO. 11-003

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS — CIVIL & STRUCTURAL ENGINEERS

APPENDIX E

Flora Survey

BOTANICAL RESOURCE ASSESSMENT FOR THE
PROPOSED PU'UNENE HEAVY INDUSTRIAL SUBDIVISION
PU'UNENE, MAUI, HAWAII

Prepared by:

Maya LeGrande
LeGrande Biological Surveys Inc
68-310 Kikou Street
Waialua HI 96791

Prepared for:
CMBY 2011 Investment, LLC
1300 N. Holopono St., Suite 201
P.O. Box 220
Kihei, HI 96753

August 2011

TABLE OF CONTENTS

INTRODUCTION 3

GENERAL SITE DESCRIPTION 3

METHODS 3

VEGETATION 3

DISCUSSION & RECOMMENDATIONS 5

LITERATURE CITED 6

TABLES
Table 1. Plant Species List 7

Appendix
Site photographs 11

INTRODUCTION

This report includes the findings of a plant inventory conducted in Pulehunui on the island of Maui including portions of a parcel owned by CMBY2011 Investment, LLC [TMK (2) 3-8-08:19] and various easements required for access to the proposed subdivision. LeGrande Biological Surveys Inc. carried out a botanical field survey of the above location 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.

Federal and State of Hawaii listed species status follows U.S. Fish and Wildlife Listed and Candidate Species (USFWS 2008) and Federal Register (2002).

GENERAL SITE DESCRIPTION

The 86-acre subject parcel is located in Pulehunui to the south of Pu`unene town proper. The subject property lies to the east of the Old Pu`unene Airport (Maui Airport). Currently the area to the west is being used for recreational motor sports, the areas to the east and south are in crop cultivation, and to the north bordered by Lower Kihei 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`aina Road, and an alternative 56-wide easement which travels around the existing Reservoir No. 6 to the north of 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 and 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 no 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 Kiawe/Buffelgrass 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 Mokulele 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 WID2: Waiakoa 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 dominate vegetation of the subject parcel is a kiawe (*Prosopis pallida*)/buffelgrass (*Cenchrus ciliaris*) grassland with a koa hoale (*Leucaena leucocephala*) scrub transition between the southern boundary of the property. The northern section appears to have had relatively recent grading with large boulder piles near the gate entrance. Several other weedy native species were observed 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*). Few native species were observed within the survey area. They include three indigenous species, ilima (*Sida fallax*), popolo (*Solanum americanum*), and uhaloa (*Waltheria indica*).

The northeast corner of the subject property appeared to be in cattle operation historically. Several water troughs and barbed wire fencing are still evident in the area and other concrete structures that may be associated with ranching.

State Easement

The "lower 56' easement" follows Kama`aina Road (State owned), South Firebreak Road (State & privately owned), and Lower Kihei Road (privately owned) with current sugar cane cultivation to the west and a reservoir bank to the east. Dominate roadside weeds are buffel grass and koa haole shrubs. Others species scattered along roadsides and the 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

The "Upper 56' easement" borders the existing reservoir to the north and east. 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 northern 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 our survey we observed `auku`u (Black-crowned night heron) roosting 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 Hawaii Cement 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`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*).

DISCUSSION & RECOMMENDATIONS

The vegetation on the project site is dominated by introduced species such as buffel grass, koa haole, 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, `uhaloa, popolo, hala, milo, 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`unene 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 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, 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.

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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'unene Heavy Industrial Subdivision [TMK (2) 3-8-08:19] and various easements 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 (Evehuis and Eldredge, eds., 1999-2002) 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 mauka 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 = Endemic species found only in the Hawaiian Islands.

SCIENTIFIC NAME	COMMON NAME	STATUS
MONOCOTS		
ARACEAE		
Colocasia esculenta (L.) Schott	Kalo, taro	A
MUSACEAE		
Musa sp. L.	banana	A
PANDANACEAE		
Pandanus tectorius Parkinson ex Z	hala, screwpine	I
POACEAE		
Cenchrus ciliaris L.	buffel grass	A
Chloris barbata (L.) Sw	swollen finger grass	A
Cynodon dactylon (L.) Pers	manienie	A
Eragrostis amabilis (L.) Wight&Arn. Ex Nees	love grass	A
Panicum maximum L.	guinea grass	A

SCIENTIFIC NAME	COMMON NAME	STATUS
POACEAE		
Paspalum urvillei Steud.	vasey grass	A
Saccharum officinarum L.	ko, sugar cane	A
DICOTS		
AMARANTHACEAE		
Amaranthus spinosus L.	pakai kuku, spiny amaranth	A
Amaranthus viridis L.	ahcahea, pakapakai, slender amaranth	A
ASTERACEAE		
Eclipta prostrata (L.) L.	false daisy	A
Eschscholzia californica	california poppy	A
Pluchea indica (L.) Less	sourbush, marsh fleabane	A
Tridax procumbens L.	coat buttons	A
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown beard	A
CHENOPODIACEAE		
Chenopodium murale L.	Lamb's quarters	A
CONVOLVULACEAE		
Ipomoea aquatica Forssk.	Water morning glory	A
Ipomoea obscura (L.) Ker-Gawl.	Obscure morning glory	A
Merremia aegyptia (L.) Urb.	Hairy merremia	A
CUCURBITACEAE		
Momordica charantia L.	bitter melon	A
EUPHORBIACEAE		
Chamaesyce hirta (L.) Millsp.	hairy spurge, garden spurge	A
Chamaesyce hypericifolia (L.) Millsp.	graceful spurge	A
Euphorbia heterophylla L.	kaliko	A

APPENDIX F

Faunal Survey

AVIFAUNAL AND FERAL MAMMAL SURVEY FOR THE

PROPOSED PU'UNENE HEAVY INDUSTRIAL SUBDIVISION

PU'UNENE, MAUI, TMK: (2)3-8-888:019

Report prepared for:

CMBY 2011 Investment, LLC

Survey and Report by:

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Report (third revision)

8 August 2011

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) 3-8-008: 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 DESCSRIPTION

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 Kiawe 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 AB 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.

Scientific and common vernacular names used in this report follow Honacki et al. (1982) and Pyle (2002).

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 Auku'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 (*Anas wyvilliana*) 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

Society 2005). An average of 31 Hawaiian Coot or Alae Ke'oke'o (*Fulica alai*) 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 (Pratt 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 (Bruner 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 muscullus*) 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 solitarily 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, Jacobs 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 (Koloa, Alaeke'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 86 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 PacificGolden-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. Bonaccorso (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 ONE

Alien (Introduced Birds) found on a 6, 7 July 2011 field survey of TMK (2) 3-8-008: 019 at Pu'unene, Maui.

Common Name	Scientific Name
Cattle Egret	*Bubulcus ibis*
Gray Francolin	*Francolinus pondicerianus*
Black Francolin	*Francolinus francolinus*
Ring-necked Pheasant	*Phasianus colchicus*
Spotted Dove	*Streptopelis chinensis*
Zebra Dove	*Geopelia striata*
Barn Owl	*Tyto alba*
Japanese White-eye	*Zosterops japonicus*
Common Myna	*Acridotheres tristis*
Northern Cardinal	*Cardinalis cardinalis*
House Finch	*Carpodacus mexicanus*
Nutmeg Mannikin	*Lonchura punctulata*

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SCIENTIFIC NAME	COMMON NAME	STATUS
EUPHORBIACEAE		
Ricinus communis L.	castor bean	A
FABACEAE		
Albizia lebbeck (L.) Benth.	Siris tree	A
Chamaecrista nictitans subsp. *patellaria* var. *glabrata* (Vogel) H.S.Irwin & Barneby	Partridge pea	A
Crotalaria incana L.	fuzzy rattlepod	A
Crotalaria pallida Aiton	smooth rattlepod	A
Desmanthus pernambucanus (L.) Thell.	Slender or virgate mimosa	A
Leucaena leucocephala (Lam.) de Wit	Koa hoale	A
Prosopis pallid (Humb. & Bonpl. ex Willd.) Kunth	Kiawe, mesquite	A
Samanea saman (Jacq.) Merr.	Monkey pod	A
LAMIACEAE		
Leonotis nepetifolia (L.) R. Br.	Lion's ear	A
MALVACEAE		
Abutilon grandifolium (Willd.) Sweet	Hairy abutilon	A
Malva parvifolia L.	Cheese weed	A
Malvastrum coromandelianum subsp. *coromandelianum* (L.) Garcke	False mallow	A
Sida fallax Walp.	Ilima	I
Sida spinosa L.		A
Thespesia populnea (L.) Sol. ex Correa	milo	I
MYRTACEAE		
Syzygium cumini (L.) Skeels	Java plum	A
NYCTAGINACEAE		
Boerhavia coccinea L.	boerhavia	A

SCIENTIFIC NAME	COMMON NAME	STATUS
PLANTAGINACEAE		
Bacopa monnieri (L.) Pennell	'Ae'ae	I
SOLANACEAE		
Datura stramonium L.	Jimson weed	A
Nicotiana tabacum L.	tobacco	A
Physalis angulata L.	Husk tomato	A
Solanum americanum Mill.	popolo	I
Solanum lycopersicum var. *cerasiforme* (Dunal) D.M.Spooner, G.J. Anderson & R.K.Jansen	tomato, cherry tomato	A
STERCULIACEAE		
Waltheria indica L.	uhaloa	I

Appendix: Site Photographs

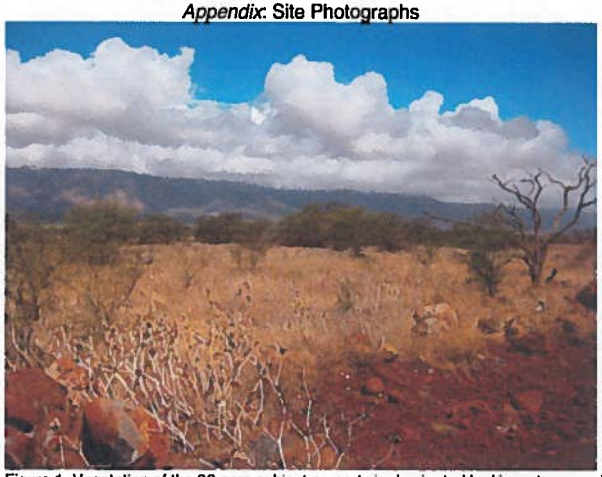

Figure 1. Vegetation of the 86-acre subject property is dominated by kiawe trees and buffelgrassland.

Figure 2. Lands adjacent to the southern section of the subject property are currently cultivated in sugar cane.

Figure 3. Vegetation along the Reservoir easement.

Figure 4. Roadside vegetation along portion of State Roadway Easement.

APPENDIX G

Noise Study

ACOUSTIC STUDY FOR THE PUUNENE HEAVY INDUSTRIAL SUBDIVISION PUUNENE, MAUI, HAWAII

Prepared for:

CMBY 2011 INVESTMENT, LLC

Prepared by:

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NOVEMBER 2011

TABLE OF CONTENTS

CHAPTER	CHAPTER TITLE	PAGE NO.
	List of Figures	ii
	List of Tables	iii
I	SUMMARY	1
II	PURPOSE	3
III	NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY	4
IV	GENERAL STUDY METHODOLOGY	9
V	EXISTING ACOUSTICAL ENVIRONMENT	13
VI	FUTURE NOISE ENVIRONMENT	16
VII	DISCUSSION OF PROJECT-RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES	19
APPENDICES		
A	REFERENCES	24
B	EXCERPTS FROM EPA'S ACOUSTICAL TERMINOLOGY GUIDE	25
C	SUMMARY OF BASE YEAR AND YEAR 2015 TRAFFIC VOLUMES	28

LIST OF FIGURES

NUMBER	FIGURE TITLE	PAGE NO.
1	PROJECT LOCATION MAP AND NOISE MEASUREMENT LOCATIONS	2
2	LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED	7
3	HOURLY VARIATIONS OF TRAFFIC NOISE AT 96 FT SETBACK DISTANCE FROM THE CENTERLINE OF MOKULELE HIGHWAY NEAR MAUI RACEWAY PARK (STA. B74031100336; MAY 13, 2009)	11
4	LOCATION OF PROJECT SITE IN RELATIONSHIP TO CLOSEST RESIDENTIAL COMMUNITIES	20
5	ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE	22
6	AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE	23

LIST OF TABLES

NUMBER	TABLE TITLE	PAGE NO.
1	EXTERIOR NOISE EXPOSURE CLASSIFICATION (RESIDENTIAL LAND USE)	5
2	EFFECTS OF NOISE ON PEOPLE (RESIDENTIAL LAND USES ONLY)	6
3	TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS	10
4	EXISTING (CY 2011) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (AM OR PM PEAK HOUR)	14
5	EXISTING AND CY 2015 DISTANCES TO 65 AND 70 DNL CONTOURS	15
6	FUTURE (CY 2015) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (AM OR PM PEAK HOUR, BUILD)	17
7	CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2015) (DNL)	18

CHAPTER I. 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 Mokulele 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 Mokulele Highway.

Along Mokulele 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 Mokulele 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 are 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 office 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.

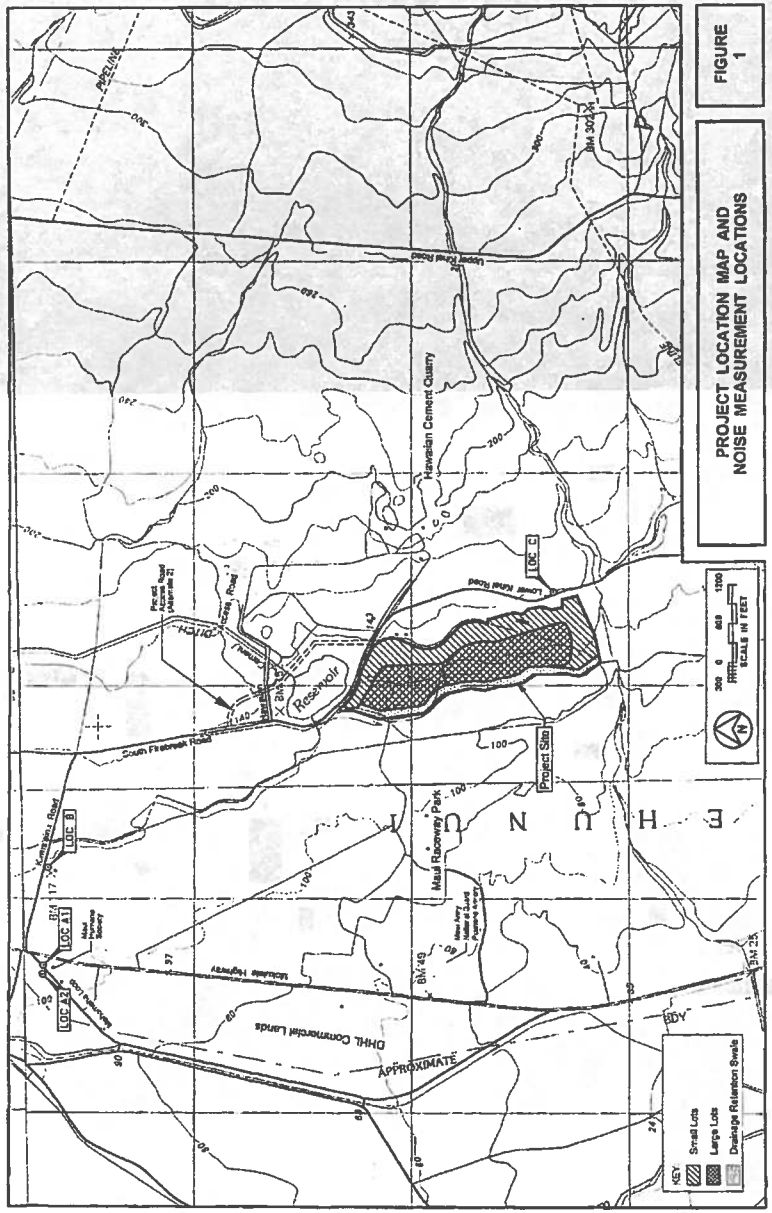


FIGURE 1

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 Mokulele Highway are typically greater than 65 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/HUD 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/HUD 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)

NOISE EXPOSURE CLASS	DAY–NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

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.

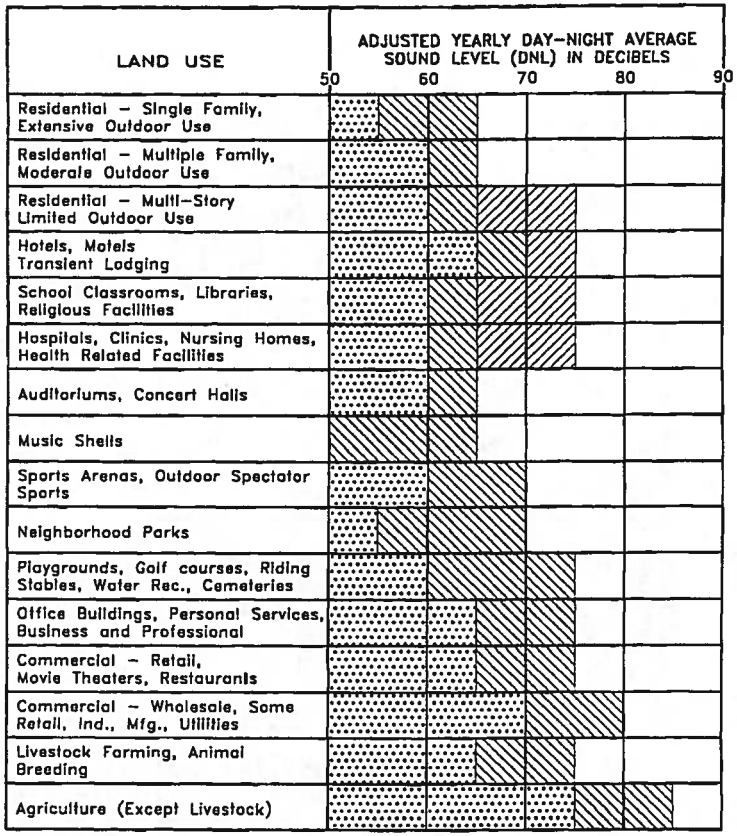
TABLE 2

EFFECTS OF NOISE ON PEOPLE (Residential Land Uses Only)

EFFECTS[1] / DAY-NIGHT AVERAGE SOUND LEVEL IN DECIBELS	Hearing Loss	Speech Interference		Annoyance[2]		Average Community Reaction[4]	General Community Attitude Towards Area
		Indoor	Outdoor				
	Qualitative Description	%Sentence Intelligibility	Distance in Meters for 95% Sentence Intelligibility	% of Population Highly Annoyed[3]			
75 and above	May Begin to Occur	98%	0.5	37%		Very Severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will Not Likely Occur	99%	0.9	25%		Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will Not Occur	100%	1.5	15%		Significant	Noise is one of the important adverse aspects of the community environment.
60	Will Not Occur	100%	2.0	9%		Moderate	Noise may be considered an adverse aspect of the community environment.
55 and below	Will Not Occur	100%	3.5	4%		to Slight	Noise considered no more important than various other environmental factors.

1. "Speech Interference" data are drawn from the following tables in EPA's "Levels Document": Table 3, Fig. D-1, Fig. D-2, Fig. D-3. All other data from National Academy of Science 1977 report "Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise."
2. Depends on attitudes and other factors.
3. The percentages of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time.
4. Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

NOTE: Research implicates noise as a factor producing stress-related health effects such as heart disease, high-blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been quantified.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9-1998/Part 5)

FIGURE 2

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 equate 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 Mokulele 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.

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 Kihei (2.3 miles), Pukalani (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

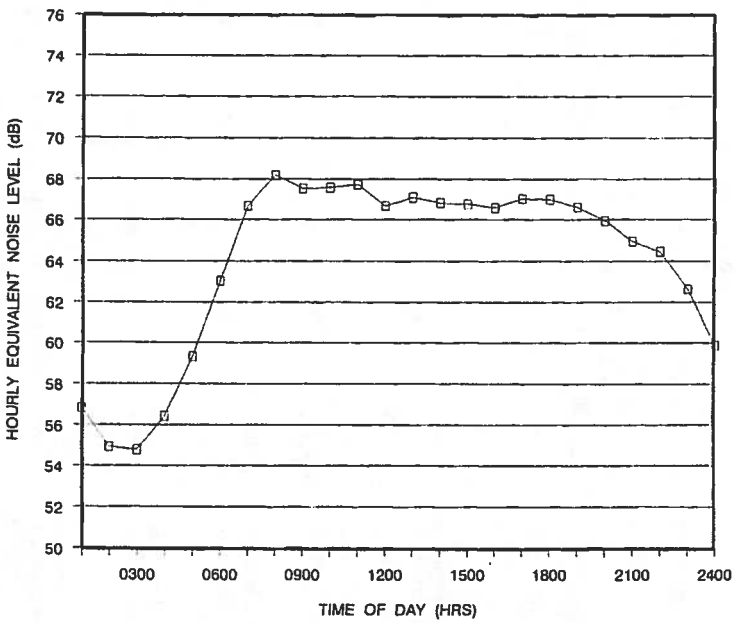
TABLE 3

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
A1. 96 FT from the center-line of Mokulele Hwy. (10/24/11)	0656 TO 0756	55	2,123	38	27	69.9	69.9
A2. 196 FT from the center-line of Mokulele Hwy. (10/24/11)	0656 TO 0756	55	2,123	38	27	61.9	62.0
B. 50 FT from the center-line of Kamaaina Rd. (10/24/11)	0821 TO 1021	35	58	7	32	58.9	58.9
C. 44 FT from the center-line of Firebreak Rd. (10/24/11)	1035 TO 1135	35	3	9	10	60.1	60.1
A1. 96 FT from the center-line of Mokulele Hwy. (10/24/11)	1539 TO 1639	50	2,384	14	7	66.6	66.9
A2. 196 FT from the center-line of Mokulele Hwy. (10/24/11)	1539 TO 1639	50	2,384	14	7	56.9	58.7

FIGURE 3

HOURLY VARIATIONS OF TRAFFIC NOISE AT 96 FT SETBACK DISTANCE FROM THE CENTERLINE OF MOKULELE HIGHWAY NEAR MAUI RACEWAY PARK (STA. B74031100336; MAY 13, 2009)



□ 96 FT from Roadway Centerline (69.0 DNL)

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 66 DNL, which is considered to be acceptable for office buildings. Existing traffic noise levels at the Maui Army National Guard Puunene Armory is approximately 56 DNL, which is also considered to be acceptable for office buildings. Existing traffic noise levels at the industrial subdivision south of Wahlee 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 4

EXISTING (CY 2011) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (AM OR PM PEAK HOUR)

LOCATION	SPEED (MPH)	TOTAL VPH	***** VOLUMES (VPH) ******* AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq	200' Leq
Mokulele Hwy. North of Kamaaina Rd. (AM)	55	2,197	2,129	37	31	76.5	69.6	62.6
Mokulele Hwy. North of Kamaaina Rd. (PM)	50	2,390	2,370	14	6	73.2	66.2	59.1
Mokulele Hwy. South of Kamaaina Rd. (AM)	55	2,147	2,085	36	26	76.3	69.4	62.5
Mokulele Hwy. South of Kamaaina Rd. (PM)	50	2,373	2,352	14	7	73.1	66.2	59.1
Kamaaina Rd. At Mokulele Hwy. (AM)	35	57	27	5	25	60.8	55.6	51.1
Kamaaina Rd. At Mokulele Hwy. (PM)	35	36	20	3	13	58.2	52.9	48.3
Mehameha Lp. At Mokulele Hwy. (AM)	25	35	35	0	0	44.3	38.0	32.0
Mehameha Lp. At Mokulele Hwy. (PM)	25	41	41	0	0	45.0	38.7	32.7
<u>Under Project Access Alternative 1:</u>								
South Firebreak Rd. N. of Quarry Access Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
South Firebreak Rd. N. of Quarry Access Rd. (PM)	35	36	20	3	13	58.2	52.9	48.3
Quarry Access Rd. At South Firebreak Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
Quarry Access Rd. At South Firebreak Rd. (PM)	35	36	20	3	13	58.2	52.9	48.3
South Firebreak Rd. S. of Quarry Access Rd. (AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
South Firebreak Rd. S. of Quarry Access Rd. (PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<u>Under Project Access Alternative 2:</u>								
South Firebreak Rd. N. of Project Access Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
South Firebreak Rd. N. of Project Access Rd. (PM)	35	36	20	3	13	58.2	52.9	48.3
South Firebreak Rd. S. of Project Access Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
South Firebreak Rd. S. of Project Access Rd. (PM)	35	36	20	3	13	58.2	52.9	48.3
Quarry Access Rd. At South Firebreak Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
Quarry Access Rd. At South Firebreak Rd. (PM)	35	36	20	3	13	58.2	52.9	48.3
Project Access Rd. At South Firebreak Rd. (AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Project Access Rd. At South Firebreak Rd. (PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

TABLE 5

EXISTING AND CY 2015 DISTANCES TO 65 AND 70 DNL CONTOURS

STREET SECTION	65 DNL SETBACK (FT) EXISTING	65 DNL SETBACK (FT) CY 2015	70 DNL SETBACK (FT) EXISTING	70 DNL SETBACK (FT) CY 2015
Mokulele Hwy. North of Kamaaina Rd.	174	202	106	122
Mokulele Hwy. South of Kamaaina Rd.	172	194	104	118
Kamaaina Rd. At Mokulele Hwy.	33	67	17	44
Mehameha Lp. At Mokulele Hwy.	6	6	3	3
Under Project Access Alternative 1:				
South Firebreak Rd. N. of Quarry Access Rd.	33	78	17	41
Quarry Access Rd. At South Firebreak Rd.	33	33	17	17
South Firebreak Rd. S. of Quarry Access Rd.	N/A	68	N/A	36
Under Project Access Alternative 2:				
South Firebreak Rd. N. of Project Access Rd.	33	78	17	41
South Firebreak Rd. S. of Project Access Rd.	33	33	17	17
Quarry Access Rd. At South Firebreak Rd.	33	33	17	17
Project Access Rd. At South Firebreak Rd.	N/A	68	N/A	36

Notes:

(1) All setback distances are from the roadways' centerlines.
(2) See TABLES 4 and 6 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 these 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 Molulele 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 6

FUTURE (CY 2015) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (AM OR PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	****** VOLUMES (VPH) ******** AUTOS	M.TRUCKS	H.TRUCKS	50' Leq	100' Leq	200' Leq
Mokulele Hwy. North of Kamaaina Rd. (AM)	55	3,035	2,941	52	42	77.9	71.0	64.1
Mokulele Hwy. North of Kamaaina Rd. (PM)	50	3,397	3,369	20	8	74.7	67.7	60.6
Mokulele Hwy. South of Kamaaina Rd. (AM)	55	2,873	2,790	49	34	77.6	70.7	63.7
Mokulele Hwy. South of Kamaaina Rd. (PM)	50	3,266	3,236	20	10	74.5	67.6	60.5
Kamaaina Rd. At Mokulele Hwy. (AM)	35	529	381	64	84	67.5	59.3	57.2
Kamaaina Rd. At Mokulele Hwy. (PM)	35	508	374	62	72	67.1	58.8	56.7
Mehameha Lp. At Mokulele Hwy. (AM)	25	35	35	0	0	44.3	38.0	32.0
Mehameha Lp. At Mokulele Hwy. (PM)	25	41	41	0	0	45.0	38.7	32.7
Under Project Access Alternative 1:								
South Firebreak Rd. N. of Quarry Access Rd. (AM)	35	529	381	64	84	67.5	62.0	57.2
South Firebreak Rd. N. of Quarry Access Rd. (PM)	35	508	374	62	72	67.1	61.6	56.7
Quarry Access Rd. At South Firebreak Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
Quarry Access Rd. At South Firebreak Rd. (PM)	35	36	28	1	7	55.9	50.5	45.8
South Firebreak Rd. S. of Quarry Access Rd. (AM)	35	472	354	59	59	66.4	60.9	56.0
South Firebreak Rd. S. of Quarry Access Rd. (PM)	35	472	352	60	60	66.5	61.0	56.1
Under Project Access Alternative 2:								
South Firebreak Rd. N. of Project Access Rd. (AM)	35	529	381	64	84	67.5	62.0	57.2
South Firebreak Rd. N. of Project Access Rd. (PM)	35	508	374	62	72	67.1	61.6	56.7
South Firebreak Rd. S. of Project Access Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
South Firebreak Rd. S. of Project Access Rd. (PM)	35	36	28	1	7	55.9	50.5	45.8
Quarry Access Rd. At South Firebreak Rd. (AM)	35	57	27	5	25	60.8	55.6	51.1
Quarry Access Rd. At South Firebreak Rd. (PM)	35	36	28	1	7	55.9	50.5	45.8
Project Access Rd. At South Firebreak Rd. (AM)	35	472	354	59	59	66.4	60.9	56.0
Project Access Rd. At South Firebreak Rd. (PM)	35	472	352	60	60	66.5	61.0	56.1

TABLE 7

CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2015) (DNL)

STREET SECTION	NOISE LEVEL INCREASE DUE TO: NON-PROJECT TRAFFIC	PROJECT TRAFFIC
Mokulele Hwy. North of Kamaaina Rd.	1.0	0.4
Mokulele Hwy. South of Kamaaina Rd.	1.0	0.3
Kamaaina Rd. At Mokulele Hwy.	0.0	3.7
Mehameha Lp. At Mokulele Hwy.	0.0	0.0
Under Project Access Alternative 1:		
South Firebreak Rd. N. of Quarry Access Rd.	0.0	6.4
Quarry Access Rd. At South Firebreak Rd.	0.0	0.0
South Firebreak Rd. S. of Quarry Access Rd.	N/A *	60.9
Under Project Access Alternative 2:		
South Firebreak Rd. N. of Project Access Rd.	0.0	6.4
South Firebreak Rd. S. of Project Access Rd.	0.0	0.0
Quarry Access Rd. At South Firebreak Rd.	0.0	0.0
Project Access Rd. At South Firebreak Rd.	N/A *	60.9

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.

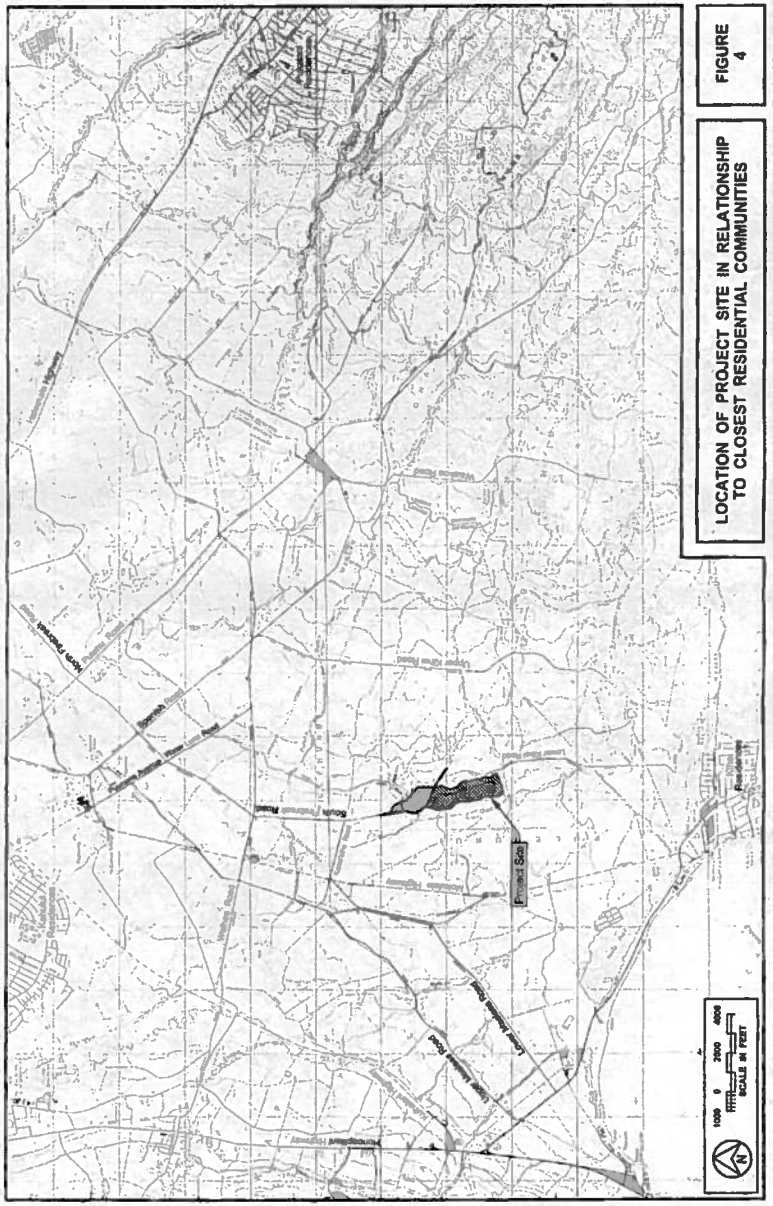
Project related traffic along Mokulele Highway is not expected to cause measurable increases in future traffic noise levels. The predicted increases of 0.3 to 0.4 DNL in project related traffic noise are small compared to the 1.0 DNL increase expected from non-project traffic. For these reasons, traffic 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 4,900 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 Kihei at Kaiolohia Street; 3 dBA in Pukalani at Opalipali Place; 19 dBA at Puunene near the Sugar Museum; and 17 dBA in Kahului at Makalii 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



LOCATION OF PROJECT SITE IN RELATIONSHIP TO CLOSEST RESIDENTIAL COMMUNITIES

FIGURE 4

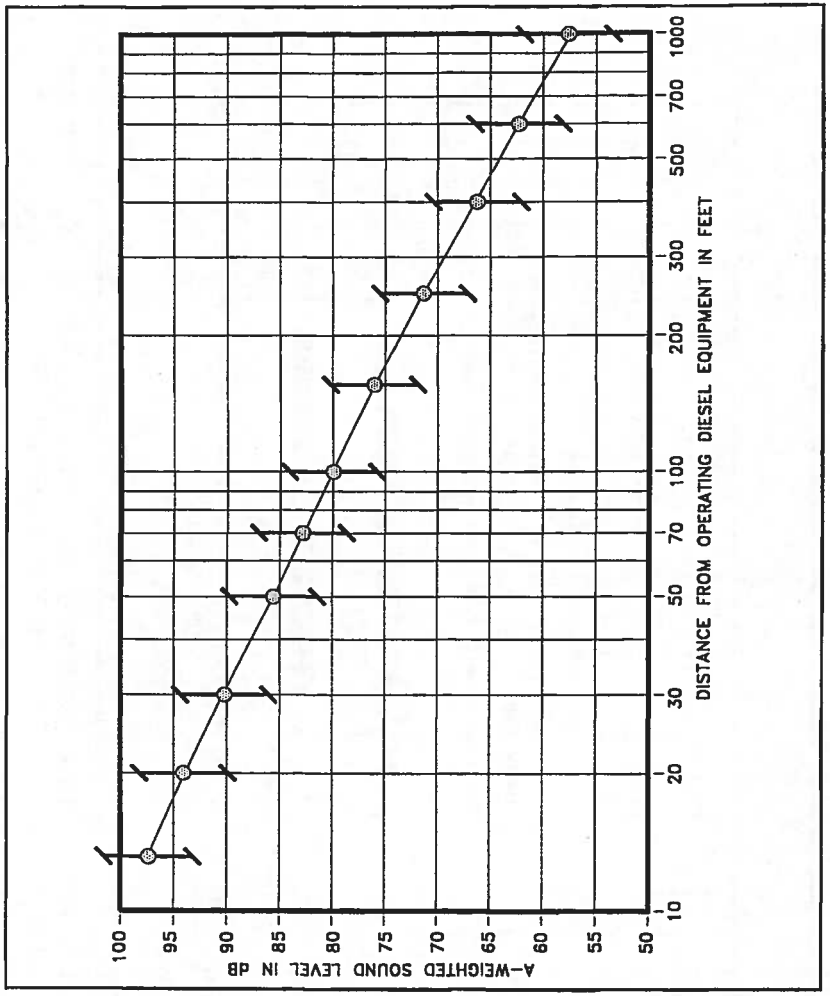
to construction noise at any receptor location will probably be less than the total construction period for the entire project. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job site are shown in Figure 5. The impulsive noise 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 diving 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 tenants 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 53 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 muffled 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 6 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.



ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE 5

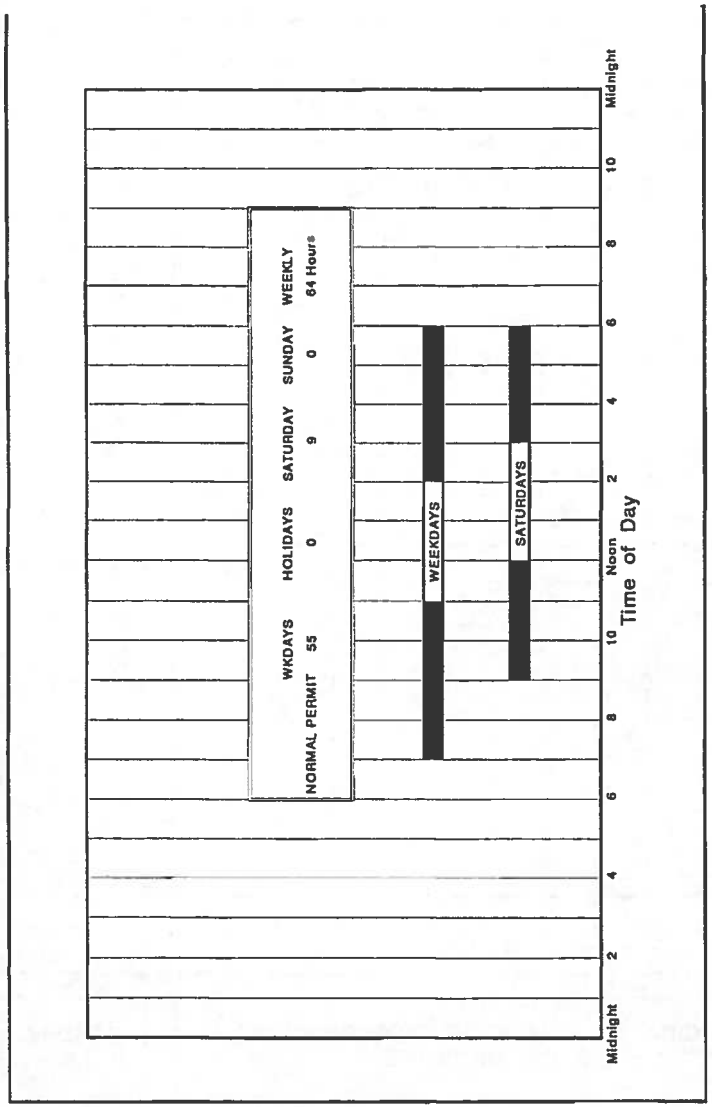


FIGURE 6

AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.

(2) American National Standard, "Sound Level Descriptors for Determination of Compatible Land Use," ANSI S12.9-1998/ Part 5; Acoustical Society of America.

(3) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.

(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.

(6) "FHWA Highway Traffic Noise Model User's Guide;" FHWA-PD-96-009, Federal Highway Administration; Washington, D.C.; January 1998 and Version 2.5 Upgrade (April 14, 2004).

(7) "Traffic Impact Analysis Report for Puunene Heavy Industrial Subdivison;" Phillip Rowell 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

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is 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-symbol scheme 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 situations 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 "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" 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, such terms 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 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night 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", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

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 Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I

A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

TERM	SYMBOL
1. A-Weighted Sound Level	L_A
2. A-Weighted Sound Power Level	L_{WA}
3. Maximum A-Weighted Sound Level	L_{max}
4. Peak A-Weighted Sound Level	L_{Apk}
5. Level Exceeded x% of the Time	L_x
6. Equivalent Sound Level	L_{eq}
7. Equivalent Sound Level over Time (T) (1)	$L_{eq(T)}$
8. Day Sound Level	L_d
9. Night Sound Level	L_n
10. Day-Night Sound Level	L_{dn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$
12. Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified a $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

APPENDIX B (CONTINUED)

TABLE II

RECOMMENDED DESCRIPTOR LIST

TERM	A-WEIGHTING	ALTERNATIVE[1] A-WEIGHTING	OTHER[2] WEIGHTING	UNWEIGHTED
1. Sound (Pressure)[3] Level	L_A	L_{pA}	L_B, L_{pB}	L_p
2. Sound Power Level	L_{WA}		L_{WB}	L_W
3. Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4. Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5. Level Exceeded x% of the Time	L_x	L_{Ax}	L_{Bx}	L_{px}
6. Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7. Equivalent Sound Level[4] Over Time(T)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8. Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9. Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10. Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12. Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13. Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15. Average L_x Value	L_x	L_{Ax}	L_{Bx}	L_{px}

(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(1). Time 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

ROADWAY LANES	**** CY 2011 ***** AM VPH	PM VPH	CY 2015 (NO BUILD) AM VPH	PM VPH	CY 2015 (BUILD) AM VPH	PM VPH
Mokulele Hwy. N. of Kamaaina Rd. (NB)	1,104	1,218	1,389	1,557	1,438	1,788
Mokulele Hwy. N. of Kamaaina Rd. (SB)	1,093	1,172	1,354	1,547	1,597	1,609
Two-Way	2,197	2,390	2,743	3,104	3,035	3,397
Mokulele Hwy. S. of Kamaaina Rd. (NB)	1,101	1,190	1,386	1,529	1,535	1,567
Mokulele Hwy. S. of Kamaaina Rd. (SB)	1,046	1,183	1,307	1,558	1,338	1,699
Two-Way	2,147	2,373	2,693	3,087	2,873	3,266
Kamaaina Rd. At Mokulele Hwy. (EB)	37	8	37	8	429	108
Kamaaina Rd. At Mokulele Hwy. (WB)	20	28	20	28	100	400
Two-Way	57	36	57	36	529	508
Mehameha Lp. At Mokulele Hwy. (EB)	4	30	4	30	4	30
Mehameha Lp. At Mokulele Hwy. (WB)	31	11	31	11	31	11
Two-Way	35	41	35	41	35	41
South Firebreak Rd. N. of Quarry Access Rd.(NB) Alt. 1	20	28	20	28	100	400
South Firebreak Rd. N. of Quarry Access Rd.(SB) Alt. 1	37	8	37	8	429	108
Two-Way	57	36	57	36	529	508
Quarry Access Rd. At S. Firebreak Rd. (EB) Alt 1	37	8	37	8	37	8
Quarry Access Rd. At S. Firebreak Rd. (WB) Alt 1	20	28	20	28	20	28
Two-Way	57	36	57	36	57	36
South Firebreak Rd. S. of Quarry Access Rd.(NB) Alt. 1	N/A	N/A	N/A	N/A	80	372
South Firebreak Rd. S. of Quarry Access Rd.(SB) Alt. 1	N/A	N/A	N/A	N/A	392	100
Two-Way	N/A	N/A	N/A	N/A	472	472
South Firebreak Rd. N. of Project Access Rd.(NB) Alt. 2	20	28	20	28	100	400
South Firebreak Rd. N. of Project Access Rd.(SB) Alt. 2	37	8	37	8	429	108
Two-Way	57	36	57	36	529	508
South Firebreak Rd. S. of Project Access Rd.(NB) Alt. 2	20	28	20	28	20	28
South Firebreak Rd. S. of Project Access Rd.(SB) Alt. 2	37	8	37	8	37	8
Two-Way	57	36	57	36	57	36
Quarry Access Rd. At S. Firebreak Rd. (EB) Alt 2	37	8	37	8	37	39
Quarry Access Rd. At S. Firebreak Rd. (WB) Alt 2	20	28	20	28	20	28
Two-Way	57	36	57	36	57	67
Project Access Rd. At S. Firebreak Rd. (EB) Alt 2	N/A	N/A	N/A	N/A	392	100
Project Access Rd. At S. Firebreak Rd. (WB) Alt 2	N/A	N/A	N/A	N/A	80	372
Two-Way	N/A	N/A	N/A	N/A	472	472

APPENDIX H

Air Quality Study

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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CONTENTS

Section		Page
1.0	Summary	1
2.0	Introduction	4
3.0	Ambient Air Quality Standards	5
4.0	Regional and Local Climatology	8
5.0	Present Air Quality	11
6.0	Short-Term Impacts of Project	13
7.0	Long-Term Impacts of Project	15
	7.1 Roadway Traffic	15
	7.2 Industrial Sources	24
8.0	Conclusions and Recommendations	26
References		29

FIGURES

Figure	
1	Project Location

TABLES

Table	
1	Summary of State of Hawaii and National Ambient Air Quality Standards
2	Mean Wind Speed and Prevailing Direction for Kahului Airport
3	Air Pollution Emissions Inventory for Island of Maui, 1993

TABLES (cont.)

Table

4 Annual Summaries of Ambient Air Quality Measurements for Monitoring Stations Nearest Puunene Heavy Industrial Subdivision Project

5 Estimated Worst-Case 1-Hour Carbon Monoxide Concentrations Along Roadways Near Puunene Heavy Industrial Subdivision Project

6 Estimated Worst-Case 8-Hour Carbon Monoxide Concentrations Along Roadways Near Puunene Heavy Industrial Subdivision Project

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

CMBY 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 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/downslope 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 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 63°F and 86°F, respectively [1].

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 mechan-

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 affect 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. There 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 ($\mu g/m^3$) between 2005 and 2008. Average annual concentrations ranged from 20 to 26 $\mu g/m^3$. 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 2009.

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 $\mu g/m^3$ between 2005 and 2009. Average annual concentrations ranged from 4 to 6 $\mu g/m^3$. 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 contaminates.

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 the 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 AAQS.

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 locating 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.

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Figure 1 - Project Location

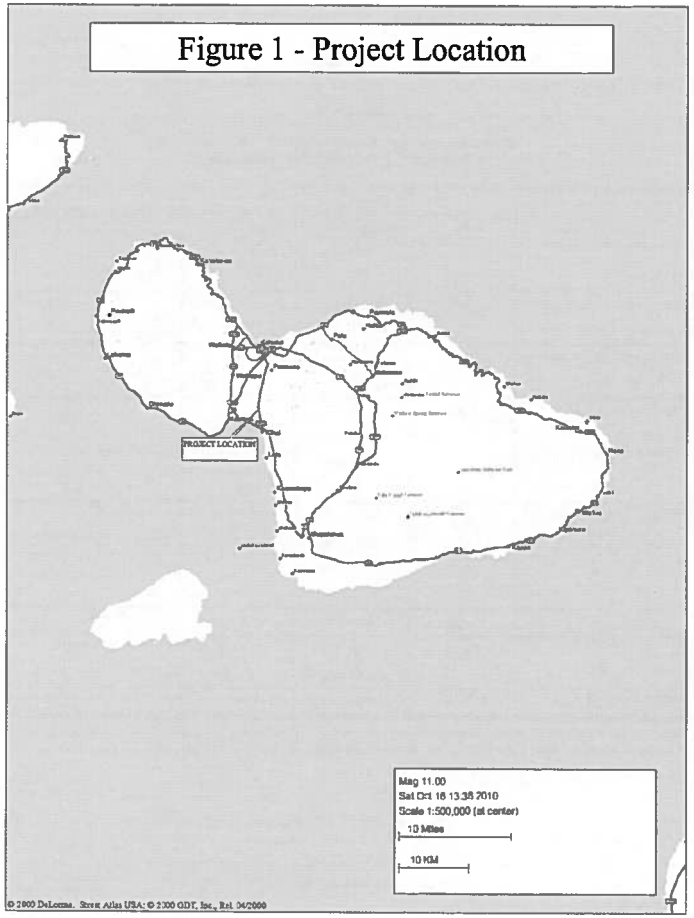

Table 1

SUMMARY OF STATE OF HAWAII AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration		
			National Primary	National Secondary	State of Hawaii
Particulate Matter (<10 microns)	$\mu g/m^3$	Annual	-	-	50
		24 Hours	150[a]	150[a]	150[b]
Particulate Matter (<2.5 microns)	$\mu g/m^3$	Annual	15[c]	15[c]	-
		24 Hours	35[d]	35[d]	-
Sulfur Dioxide	ppm	Annual	-	-	0.03
		24 Hours	-	-	0.14[b]
		3 Hours	-	0.5[b]	0.5[b]
		1 Hour	0.075[e]	-	-
Nitrogen Dioxide	ppm	Annual	0.053	0.053	0.04
		1 Hour	0.100[f]	-	-
Carbon Monoxide	ppm	8 Hours	9[b]	-	4.4[b]
		1 Hour	35[b]	-	9[b]
Ozone	ppm	8 Hours	0.075[g]	0.075[g]	0.08[g]
Lead	$\mu g/m^3$	3 Months	0.15[h]	0.15[h]	-
		Quarter	1.5[i]	1.5[i]	1.5[i]
Hydrogen Sulfide	ppm	1 Hour	-	-	35[b]

[a] Not to be exceeded more than once per year on average over three years.
[b] Not to be exceeded more than once per year.
[c] Three-year average of the weighted annual arithmetic mean.
[d] 98th percentile value of the 24-hour concentrations averaged over three years.
[e] Three-year average of annual fourth-highest daily 1-hour maximum.
[f] 98th percentile value of the daily 1-hour maximum averaged over three years.
[g] Three-year average of annual fourth-highest daily 8-hour maximum.
[h] Rolling 3-month average.
[i] Quarterly average.

Table 2

MEAN WIND SPEED AND PREVAILING DIRECTION FOR KAHULUI AIRPORT, MAUI

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Speed (mph)	11.1	11.6	11.6	13.3	12.8	15.2	15.2	14.6	13.4	12.3	11.4	11.3	12.8
Direction	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Notes: Mean wind speeds are based on data from 1996 to 2006. Mean wind direction based on data from 1992 to 2002.

Source: Desert Research Institute, Western Regional Climate Data Center.

Table 3

AIR POLLUTION EMISSIONS INVENTORY FOR ISLAND OF MAUI, 1993

Air Pollutant	Point Sources (tons/year)	Area Sources (tons/year)	Total (tons/year)
Particulate	63,275	7,030	70,305
Sulfur Oxides	6,419	nil	6,419
Nitrogen Oxides	7,312	8,618	15,930
Carbon Monoxide	4,612	20,050	24,662
Hydrocarbons	1,991	234	2,225

Source: Final Report, "Review, Revise and Update of the Hawaii Emissions Inventory Systems for the State of Hawaii", prepared for Hawaii Department of Health by J.L. Shoemaker & Associates, Inc., 1996

Table 4

ANNUAL SUMMARIES OF AIR QUALITY MEASUREMENTS FOR MONITORING STATIONS NEAREST PUUNENE HEAVY INDUSTRIAL SUBDIVISION PROJECT

Parameter / Location	2005	2006	2007	2008	2009
Particulate (PM-10) / Kihei					
24-Hour Averaging Period:					
No. of Samples	337	337	326	331	-
Highest Concentration ($\mu g/m^3$)	155	72	281[a]	78	-
2nd Highest Concentration ($\mu g/m^3$)	119	66	93	60	-
No. of State AAQS Exceedances	1	0	1[a]	0	-
Annual Average Concentration ($\mu g/m^3$)	25	22	26	20	-
Particulate (PM-2.5) / Kihei					
24-Hour Averaging Period:					
No. of Samples	108	109	78	58	358
Highest Concentration ($\mu g/m^3$)	10	30[b]	11	16	26
98th Percentile Concentration ($\mu g/m^3$)	8	10	10	15	16
No. of State AAQS Exceedances	0	0	0	0	0
Annual Average Concentration ($\mu g/m^3$)	5	5	5	6	4

[a]Exceptional event (brush fire)

[b]Data flagged due to fireworks

Source: State of Hawaii Department of Health, "Annual Summaries, Hawaii Air Quality Data, 2005 - 2009"

Table 5

ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS ALONG ROADWAYS NEAR PUUNENE HEAVY INDUSTRIAL SUBDIVISION PROJECT (parts per million)

Roadway Intersection	Year/Scenario					
	2011/Present		2015/Without Project		2015/With Project*	
	AM	PM	AM	PM	AM	PM
Kamaaina Road at Mokulele Highway	5.1	2.6	4.8	2.8	5.3	3.2

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)

Roadway Intersection	Year/Scenario		
	2011/Present	2015/Without Project	2015/With Project*
Kamaaina Road at Mokulele Highway	2.6	2.4	2.6

Hawaii State AAQS: 4.4
National AAQS: 9

*Including traffic mitigation.

APPENDIX I

Archaeological
Inventory Survey

SCS Project Number 1219-AIS-3

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, PŪLEHU NUI AHUPUA`A, WAILUKU DISTRICT, ISLAND OF MAUI, HAWAI`I [TMK: (2) 3-8-008: POR. 005, POR. 006, AND 019]

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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: pors. 005 and 006] and the 86.029-acre subject property [TMK: (2) 3-8-008:019] in Pu`unēnē, Pūlehu Nui Ahupua`a, Wailuku District, Island of Maui, Hawai`i. 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 Inventory 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 (IARII) 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 storehouse 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 subsumed 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 IARII 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.

TABLE OF CONTENTS

ABSTRACT ii

TABLE OF CONTENTS iii

LIST OF FIGURES iv

INTRODUCTION 1

GEOGRAPHIC SETTING 1
- SOILS 8
- VEGETATION 8
- CLIMATE 8

TRADITIONAL AND HISTORIC SETTING 9
- TRADITIONAL TIMES 9
- HISTORIC TIMES 10

PREVIOUS ARCHAEOLOGY IN GENERAL AREA 12
- PREVIOUS ARCHAEOLOGY IN THE PROPOSED PROJECT AREA 14

SETTLEMENT PATTERN 17

METHODOLOGY 18
- FIELD METHODOLOGY 18
- LABORATORY METHODOLOGY 19

INVENTORY SURVEY RESULTS 19
- STATE SITE 50-50-09-4164 FORMER N.A.S. PUUNENE HOUSING AREA A SOUTHERN PORTION 24
- STATE SITE 50-50-09-4801 POST-WAR CATTLE RANCHING COMPLEXES 48

DISCUSSION AND CONCLUSION 51

SIGNIFICANCE ASSESSMENTS AND RECOMMENDATIONS 52

REFERENCES 54

APPENDIX A: STRATIGRAPHIC TRENCH INFORMATION ..... A

APPENDIX B: ARTIFACT ANALYSIS ..... B

LIST OF FIGURES

Figure 1: United States Geological Survey (USGS) 1992 Puu O Kali Quadrangle Map Showing Proposed Project Location and the Alternate Access Road 3

Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Proposed Project Location and the Alternate Access Road 4

Figure 3: Google Earth (2011) Image Showing Location of the Proposed Project and the Alternate Access Road 5

Figure 4: Photograph of Representative Basalt Boulders Amongst Tall Grass. View to Northeast. 6

Figure 5: Photograph of Representative Impacted Area from Recent Mechanical Excavation. View to Southeast. 7

Figure 6: International Archaeological Research Institute Incorporated (IARII) Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Alternate Road. 15

Figure 7: IARII Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Perimeter of TMK (2) 3-8-008:019. 16

Figure 8: USGS 1992 Puu O Kali Quadrangle Map Showing SCS Archaeological Sites and Trench Locations. 23

Figure 9: Photograph of SCS Site T-7 Piggery Structure with Rooms. View to Northwest. 30

Figure 10: Photograph of SCS Site T-14 Foundation Over View. View to Southeast. 35

Figure 11: Plan View Drawing of SCS Site T-14 Foundation 36

Figure 12: Photograph of SCS Site T-25 Western Perimeter and Stratigraphic Trench 6 Over View. View to East. 41

Figure 13: Plan View Drawing of SCS Site T-25 Western Perimeter and Stratigraphic Trench 6. 42

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: pors. 005 and 006] and on 86.029-acres of land [TMK: (2) 3-8-008: 019] within Pūlehu Nui Ahupua`a, Wailuku District, Island of Maui, Hawai`i (Figures 1, 2, and 3). According to the County of Maui Real Property Tax Division website, http://www.mauipropertytax.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 Bassford, B.A. and Guerin Tome, 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. (IARII) conducted an Archaeological Inventory Survey of a large area, part of which included the proposed project area (Tomanari-Tuggle *et al.* 2001). During the IARII 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 (*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 IARII 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 Hawaii [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 active sugarcane lands. A bridge constructed by Hawaiian Cement was observed in the asphalt section of the alternative access road. Otherwise, the lands 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 size of basketballs to the size of a 55-gallon drum littered the landscape and created physical obstacles (Figure 4).

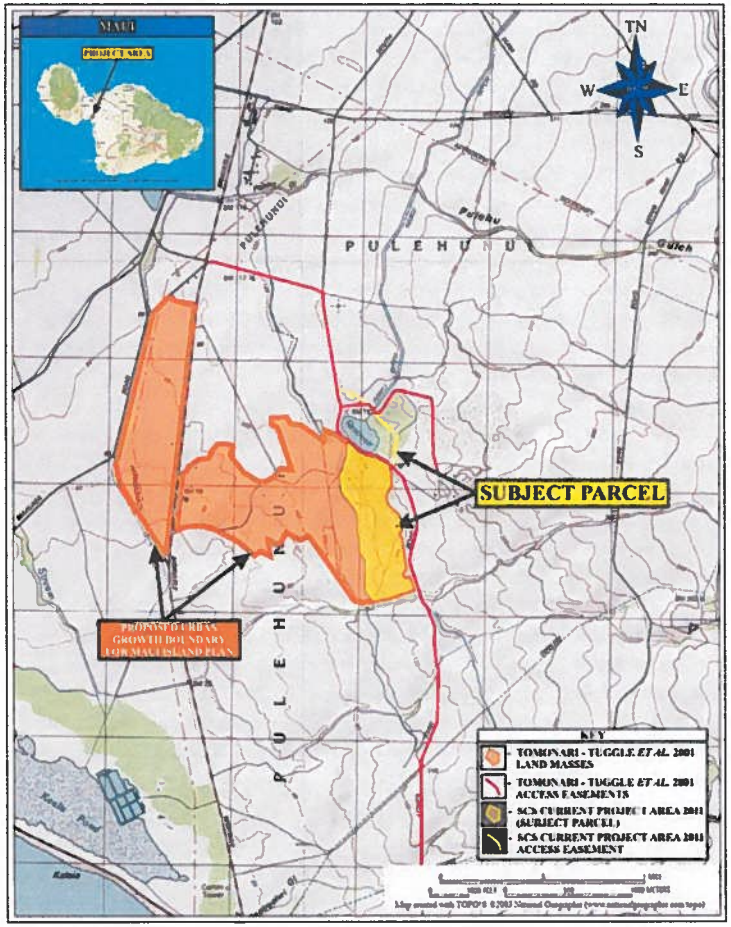

Figure 1: United States Geological Survey (USGS) 1992 Puu O Kali Quadrangle Map Showing Proposed Project Location and the Alternate Access Road.

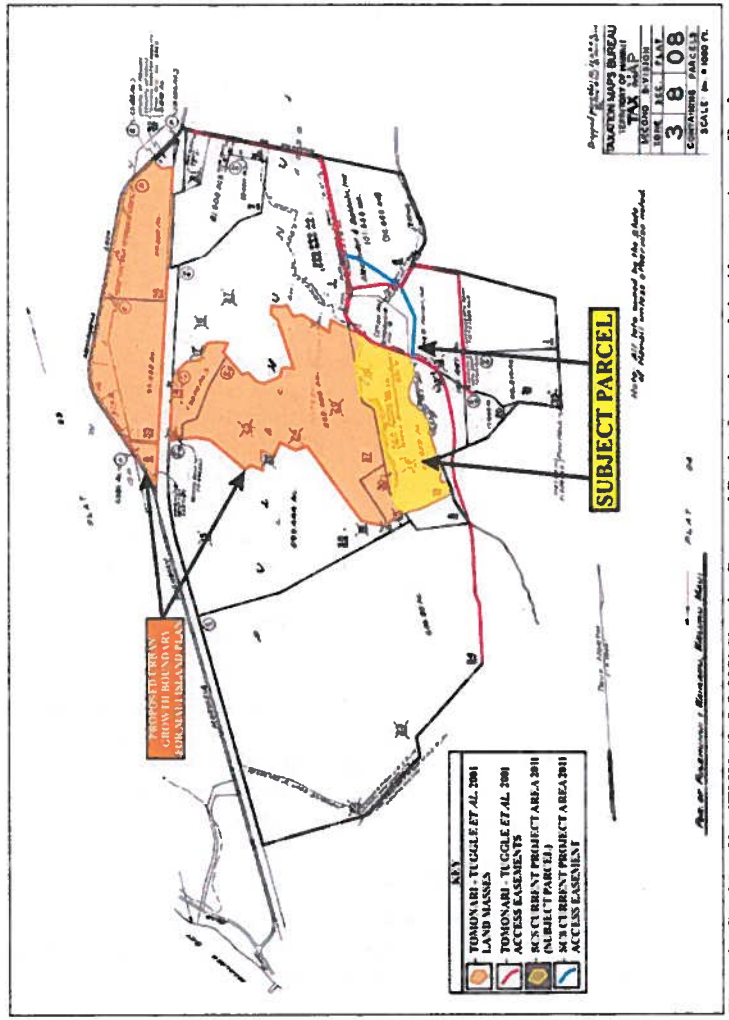

Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Proposed Project Location and the Alternate Access Road.

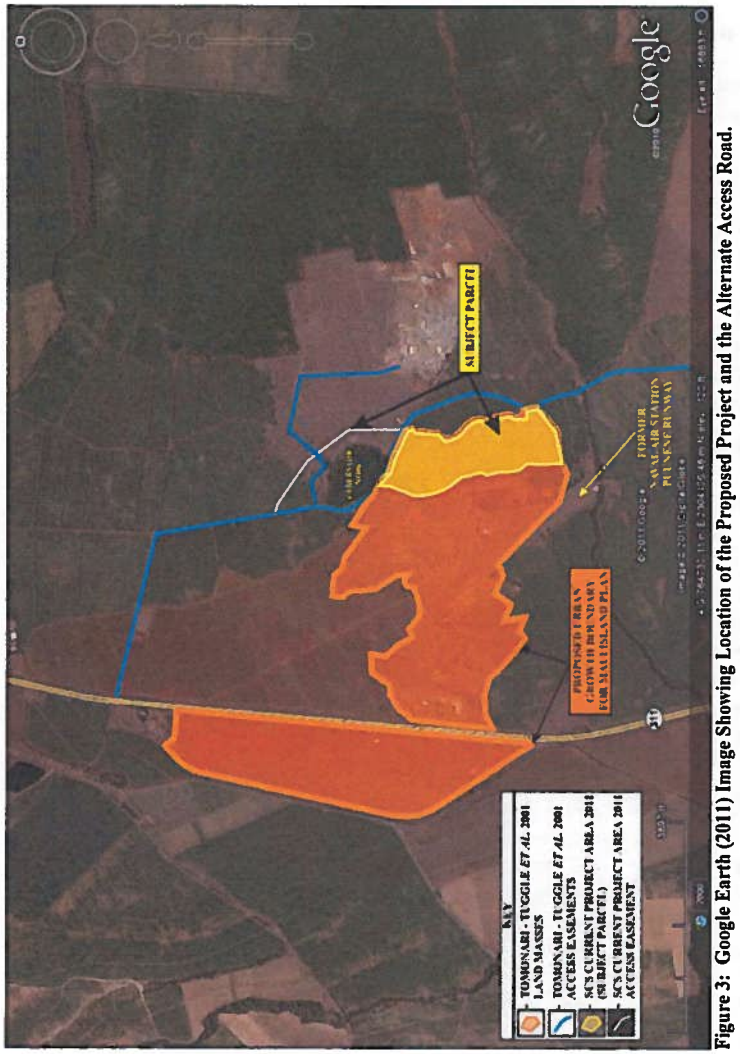

Figure 3: Google Earth (2011) Image Showing Location of the Proposed Project and the Alternate Access Road.

The landscape condition of the proposed project area's larger portion was varied. The northern portion of the proposed project area was cleaned 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 86.029-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.

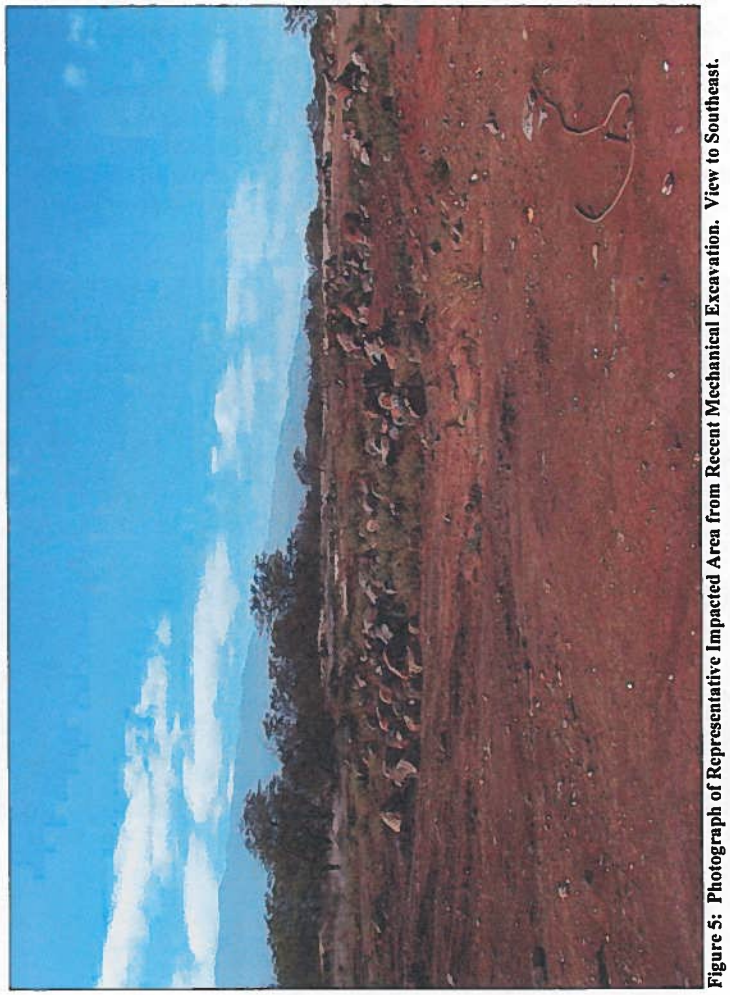

Figure 5: Photograph of Representative Impacted Area from Recent Mechanical Excavation. View to Southeast.

SOILS

Based on Foote *et al.* (1972: 126–127; Map 106), the proposed 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 proposed project area containing Alae cobbly 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 Alae 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 natural 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 fallax*) and *'uhaloa* (*Waltheria americana*), vegetation in the proposed project area was generally composed of non-native introductions. Although decomposing grasses dominated the vegetation regime, larger vegetation common to arid regions such as *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), castor bean (*Ricinus communis*), lion's ear (Leontis nepetifolia), spiny amaranth (*kuku*; *Amaranthus spinosus*), tomato (*Solanum* sp.), goosefoot (*Chenopodium* sp.), golden crownbeard (*Verbesina encelioides*), klu (*kolu*; *Acacia farnesiana*), balsam pear (*Momordica charantia*), *koali kua hulu* (*Merremia aegyptia*), hairy abutilon (*ma'o*; *Abutilon grandifolium*), and coat buttons (*Tridax 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 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

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 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, Haleakala, the latter which rises to over 3,048 meters (10,000 ft) amsl. The coastal area, on which the proposed project area lies, is currently referred to as "Kihei," which translates as "cape" or "cloak" in Hawaiian (Pukui *et al.* 1974:110).

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 catholic work practices such as fishing and planting (Sterling 1998). Documented oral accounts of pre-Contact activities and events occurring in the Kihei area, specifically naming Pūlehu 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. Fornander, in Sterling (1998:253), reported that the area of Kiheipukoa was the location "where peace was concluded and festive reunions took place of warlike encounters." The festive reunions took place once Alapainui, once *Moi* of Maui, found out that his nephew Kamehamehanui succeeded him. A separate story dates to 1776 when Kalani'opu'u landed his warring faction at Kiheipuko'a between Kealia and Kapa'ahu thinking that "the *Alapa* were to drink of the waters of Wailuku. The *Alapa* were those who excelled at being warriors. Unfortunately for Kalani'opu'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 (Speakman 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, Compte 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 Makena.

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). Kolb *et al.* (1997:68–69) state that Kalepolepo (*i.e.*, Kihei) 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 Kihei. According to Colin *et al.* (14:2000), in 1849 John Halstead constructed "The Koa House" at Kalepolepo in Kihei, one of several such buildings supporting the whaling industry in Kihei. 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 Māhele of 1848. Thought to have been created under pressure from foreigners, Kauikeaouli (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 [Kirch 1985:309].

The Māhele 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 Pūlehu Nui Ahupua`a (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 (Burgett and Spear 1997:5). On this LCA Keaweamahi claimed 5 *apana* (land portions), 7 *lo`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 *ahupua`a* of Pūlehu Nui is shown to continue northeast upslope on the northwest side of Haleakala. LCA 5230 also extends into the upper portion of Pūlehu Nui Ahupua`a. An overview of upland LCAs within the upland portion of Pūlehu Nui Ahupua`a reveal that land at the higher elevations were utilized for sweet and Irish potatoes (Waihona `Aina 2011). LCA 9019:3, claimed by Helehua, located just below the modern Kula Highway and between Holopuni and Pulehu 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 Wahine 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 *ahupua`a*, 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 *ahupua`a*. It further indicates that LCA 5230 is the largest LCA awarded in Pūlehunui Ahupua`a. Thus, it is difficult to ascertain where particular activities were conducted (*e.g., lo`i, kula, apana*) within the LCA.

In Sterling (1998:254–257) it was reported that the late Governor W. L. Moehonua was an "owner" of Pūlehu Nui Ahupua`a and the boundaries of the *ahupua`a* were somewhat vague. Through the information provided by the Māhele, it was acknowledged that Keaweamahi previously owned land within the *ahupua`a*. Oral testimonies from multiple sources contribute to somewhat more specific but general boundaries of the *ahupua`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 Kalepolepo, but by the 1870s whaling diminished and the potato industry moved to the Ulupalakua 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, Haleakala Ranch utilized many coastal portions of Kula in the later 1800s.

Like the rest of Hawai`i (and the world) during the 1940s, Kihei in Pūlehu Nui Ahupua`a was interrupted by the advent of World War II (WWII). The coast from Ma`alaea 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 Kihei 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 *ahupua`a* of Pūlehu Nui Walker listed two sites identified as Haleokane Heiau and Nininiwai 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 Kai 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 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 I (Sinoto and Pantaleo 1992).

Between 1995 and 1999 Scientific Consultant Services, Inc. conducted an Inventory Survey (followed by two addendums) for the Puunene Bypass/ Mokulele Highway Improvements Corridor located in TMK: (2) 3-8:-04, 05, 06, and 07; Burgett 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. 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 Kīhei, Maui, Hawai'i [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 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 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. (IARII) (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, 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 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.).

Spread amongst the commercial businesses were five (5) archaeological sites.

- Former Naval Air Station Puunene (State Site 50-50-09-4164; Feature Amount: 165)
- Sugarcane Plantation Features (State Site 50-50-09-4800; Feature Amount: 7)
- Post-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)
- Haiku Ditch and Reservoir (State Site 50-50-09-4802; Feature Amount: 5)

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 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.

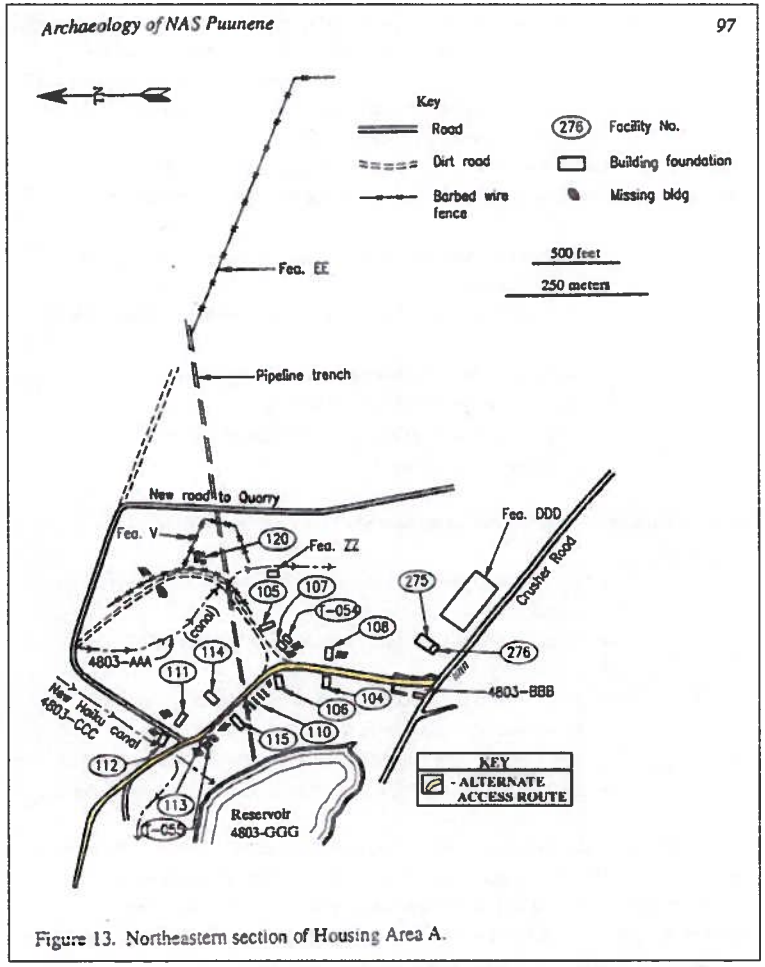

Figure 6: International Archaeological Research Institute Incorporated (IARII) Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Alternate Road.

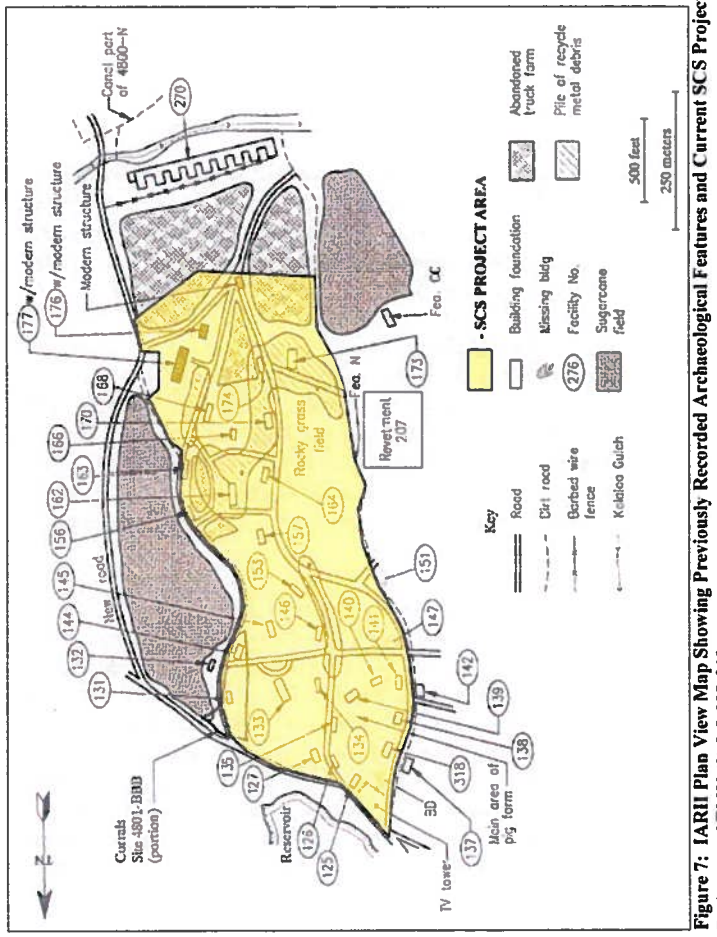

Figure 7: IARII Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Perimeter of TMK (2) 3-8-008:019.

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), Barrera (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 zone. 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 (Barrera 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 Haleakala.

> The great bulk and altitude of Haleakal~ 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 Haleakal~, 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 geographical/physiographical 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 florescent pink and blue flagging tape. During the pedestrian survey, results were complied 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 on the exterior of the features failed to 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) Munsell 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 stratigraphic 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 view sketches showing location and morphology of identified sites/features/deposits were illustrated. All retrieved artifact and samples are 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 clearly 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 Puunene, Island of Maui, Hawai`i [TMK: (2) 3-8-008: 019] (see Figures 1 and 2). The 917 meter (3,007.8 feet) long alternate access road [TMK: (2) 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 50-50-09-4801, 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 Puunene, 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 Puunene (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 subsumed under the previous State 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 Puunene (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 (Maui 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 Puunene 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 Puunene 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 subsurface 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

Stratigraphic Trench Identification	GPS Coordinates	Long Axis Orientation (Degrees and North-type)	Dimensions (meters; L x W x Max. Depth)	Dimensions (feet: L x W x Max. Depth)	Exposed Strata Amount	Cultural Material Observed in Stratum	Stratum Interpretation
ST-1	East 765116 North 2303502	69/249° True	4.7 x 0.5 x 1.0	15.42 x 1.64 x 3.28	2	None	I-Natural II-Natural
ST-2	East 765184 North 2303438	63/243° True	5.1 x 0.5 x 1.1	16.73 x 1.64 x 3.61	2	None	I-Natural II-Natural
ST-3	East 765164 North 2303343	89/269° True	4.6 x 0.5 x 1.3	15.09 x 1.64 x 4.27	6	None	I-Natural II-Natural III-Natural IV-Natural V-Natural VI-Natural
ST-4	East 765229 North 2303382	68/248° True	4.8 x 0.5 x 1.3	15.75 x 1.64 x 4.27	4	None	I-Natural II-Natural III-Natural IV-Natural
ST-5	East 765252 North 2303466	84/264° True	5.3 x 0.5 x 0.85	17.39 x 1.64 x 2.79	4	Asphalt (I); Basalt Gravel (II); Basalt Gravel (III)	I-Fill II-Fill III-Fill IV-Natural
ST-6	East 765299 North 2303515	79/259° True	10.0 x 0.5 x 1.0	32.81 x 1.64 x 3.28	7	Concrete Slab (I); Basalt Gravel (II); Concrete Wall (III); Asphalt (IV)	I-Fill II-Fill III-Fill IV-Fill V-Disturbed Natural VI-Natural VII-Natural
ST-7	East 765279 North 2303638	004/184° True	4.5 x 0.5 x 0.8	14.76 x 1.64 x 2.62	2	None	I-Natural II-Natural
ST-8	East 765238 North 2303769	59/239° True	4.3 x 0.5 x 1.1	14.11 x 1.64 x 3.61	3	Asphalt (I)	I-Fill II-Disturbed Natural III-Natural
ST-9	East 765070 North 2303739	89/269° True	4.0 x 0.5 x 0.6	13.12 x 1.64 x 1.97	1	None	I-Natural
ST-10	East 765038 North 2303690	89/269° True	3.3 x 0.5 x 1.0	10.83 x 1.64 x 3.28	3	None	I-Natural II-Natural III-Natural

Stratigraphic Trench Identification	GPS Coordinates	Long Axis Orientation (Degrees and North-type)	Dimensions (meters; L x W x Max. Depth)	Dimensions (feet: L x W x Max. Depth)	Exposed Strata Amount	Cultural Material Observed in Stratum	Stratum Interpretation
ST-11	East 765063 North 2303621	64/244° True	4.0 x 0.5 x 0.9	13.12 x 1.64 x 2.95	2	None	I-Natural II-Natural
ST-12	East 765043 North 2303871	179/359° True	6.1 x 0.5 x 1.2	20.01 x 1.64 x 3.94	1	None	I-Natural
ST-13	East 764956 North 2303913	76/256° True	5.0 x 0.5 x 1.0	16.4 x 1.64 x 3.28	1	None	I-Natural
ST-14	East 764999 North 2303985	64/244° True	6.0 x 0.5 x 1.0	19.69 x 1.64 x 3.28	1	None	I-Natural
ST-15	East 765117 North 2304100	42/222° True	4.2 x 0.5 x 1.3	13.78 x 1.64x 4.27	2	None	I-Natural II-Natural
ST-16	East 765035 North 2304138	70/250° True	3.8 x 0.5 x 0.8	12.47 x 1.64 x 2.62	1	None	I-Natural
ST-17	East 764983 North 2304062	49/229° True	4.6 x 0.5 x 0.9	15.09 x 1.64 x 2.95	1	Plastic (I)	I-Disturbed Natural
ST-18	East 764903 North 2304044	65/245° True	5.8 x 0.5 x 1.0	19.03 x 1.64 x 3.28	1	None	I-Disturbed Natural
ST-19	East 764886 North 2304105	63/243° True	5.6 x 0.5 x 1.0	18.37 x 1.64 x 3.28	2	None	I-Natural II-Natural
ST-20	East 764999 North 2304229	004/184° True	5.2 x 0.5 x 0.8	17.06 x 1.64 x 2.62	3	Concrete (I); Plastic (II)	I-Fill II-Disturbed Natural III-Natural

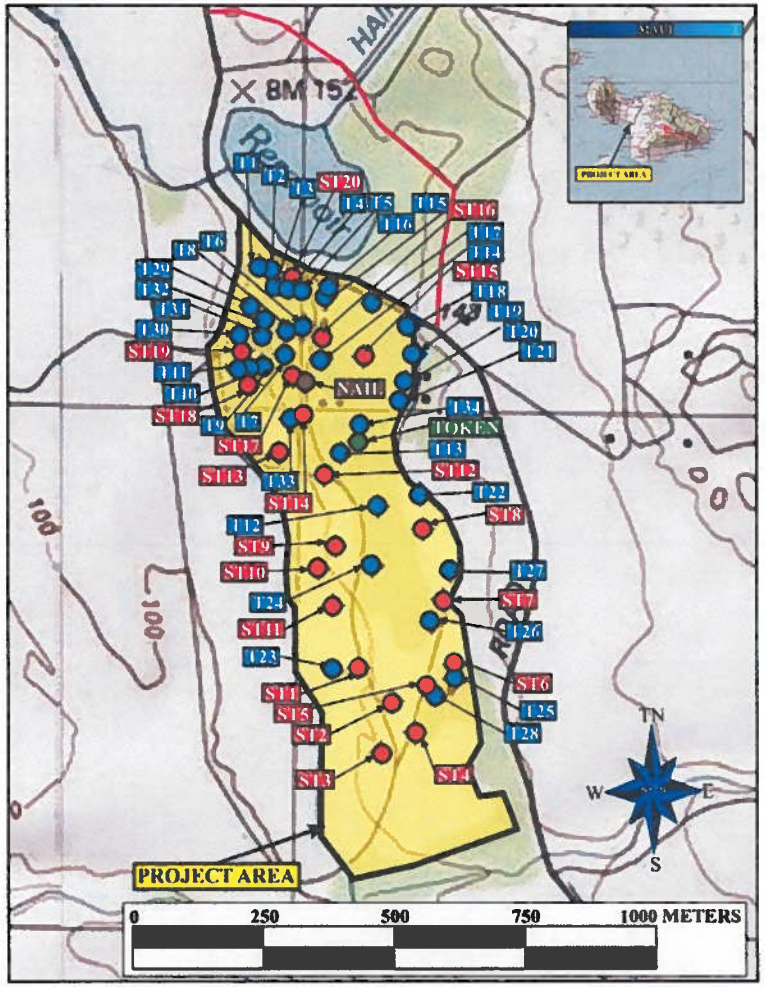

Figure 8: USGS 1992 Puu O Kali Quadrangle Map Showing SCS Archaeological Sites and Trench Locations.

STATE SITE 50-50-09-4164 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 though 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 764912/ 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
Criterion 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 (165/345° 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 764939/ North 2304264
Previous Archaeological Recordation: None
Features: 1
Feature Type: Wall

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 a possibly being constructed during World War II, during the existence of N.A.S. Puunene. Located on relatively flat terrain amongst dried grasses, live kiawe (Prosopis pallida) and *koali kua hulu* (*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 of 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 waterworn branch coral, several glass bottle and jug sherds, ferrous metal wire insulation, a whiteware cup base sherd with a painted blue whale design, and a US 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 764949/ North 2304248
Previous Archaeological Recordation: IARII (Facility 125)
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-3 consisted of a concrete slab interpreted as a building foundation. Located on slight (3°) east to west slope amongst *haole koa* (*Leucaena leucocephala*), castor bean (*Ricinnus communis*), *koali kua hulu* (*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 steel 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 sherds. 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 hill top amongst *koali kua hulu* (*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 764999/ 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: Fair
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 *koali kua hulu* (*Merremia*

aegyptia), tomato (*Solanum* sp.), spiny amaranth (*Amaranthus spinosus*), 'uhaloa (*Waltheria indica*), klu (*Acacia farnesiana*), goosefeet (*Chenopodium* sp.), and dried grasses, the concrete slab measured approximately 22.7 m long by 9.9 m wide (74.48 x 32.48 feet). T-5's long axis was oriented northeast-southwest (120/300° True) and constructed of concrete and steel rebar. T-5 was previously recorded during the 1999 IARII survey as Facility 126. Cultural materials observed on the foundation surface were identified as bottle and window glass sherds and non-diagnostic ferrous metal and plastic. T-5 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-6
GPS Coordinates: East 765002/ North 2304155
Previous Archaeological Recordation: IARII (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 abutilon (*Abutilon grandifolium*), golden crown beard (*Verbesina encelioides*), 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 IARII 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.

SCS Temporary Site: T-7

GPS Coordinates: East 764967/ North 2304104
Previous Archaeological Recordation: IARII (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 (*Verbesina encelioides*), goosefeet (*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 (029/209° True) and constructed of concrete and steel rebar. T-7 was previously recorded during the 1999 IARII 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 cement 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 a plastic PVC pipe and an electrical rubber insulator. T-7 was impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-8
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, *haole koa*,

balsam pear (*Momordica charantia*), klu, lion's ear, and *koali kua 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 IARII 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: IARII (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 crown beard and dried grasses, T-9 measured approximately 22.5 m long by 9.0 m wide (73.82 x 29.53 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 IARII 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.

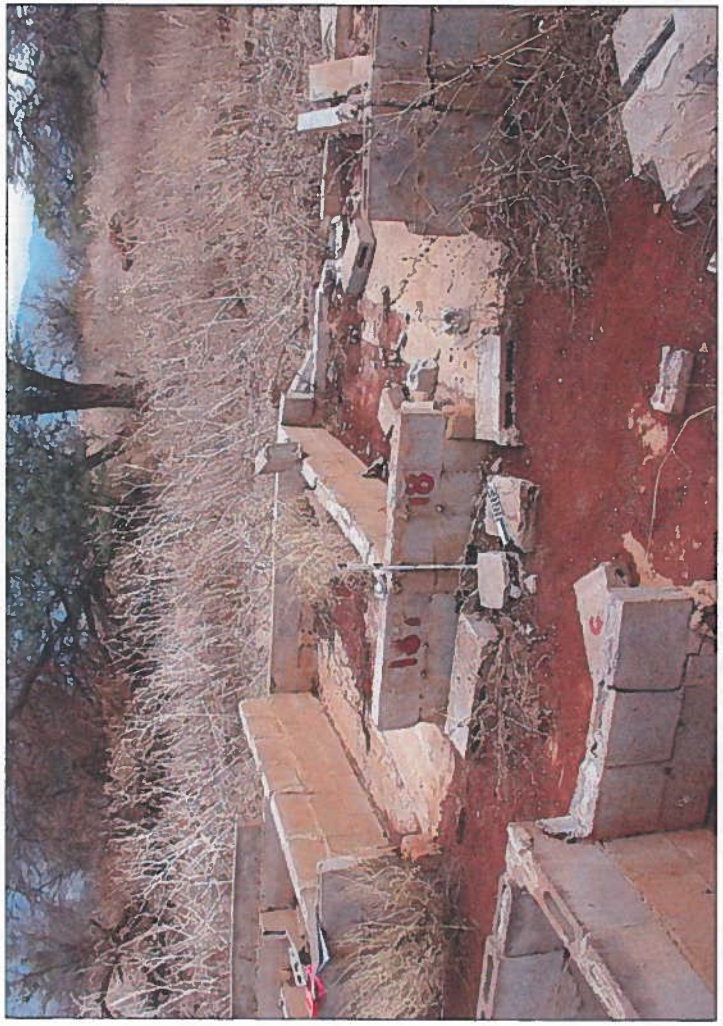

Figure 9: Photograph of SCS Site T-7 Piggery Structure with Rooms. View to Northwest.

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 IARII survey. Cultural material observed on the surface of the foundation was identified as bottle glass sherds, 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: IARII (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, *'uhaloa*, *haole koa*, 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 IARII 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: IARII (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 (170/350° True). T-12 was constructed of concrete and steel rebar and was recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as ferrous metal, plastic, a wound light blue glass bead, and sawn 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: IARII (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 (140/320° True). Constructed of concrete and steel rebar, T-13 was recorded during the 1999 IARII survey. Cultural material observed during the current 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 765038/ North 2304093
Previous Archaeological Recordation: IARII (Facility 134)
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-14 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, *kiawe*, 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 (173/353° True). Constructed of concrete and steel rebar, T-14 was recorded during the 1999 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as window glass sherds. 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: 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-15 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 (149/329° True). Constructed of concrete and steel rebar, T-15 was recorded during the 1999 IARII survey. Cultural material observed during the current 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 opihi (*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 765048/ 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, tomato, *kiawe*, 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 (55/235° True). T-16 was not recorded during the 1999 IARII survey. Cultural material observed during the current 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.

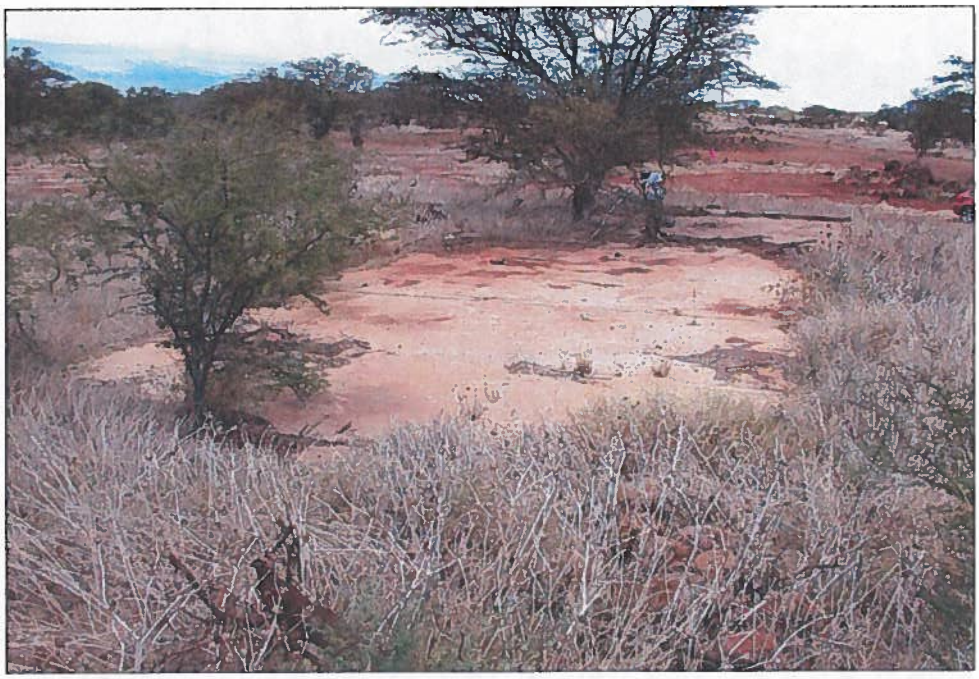

Figure 10: Photograph of SCS Site T-14 Foundation Over View. View to Southeast.

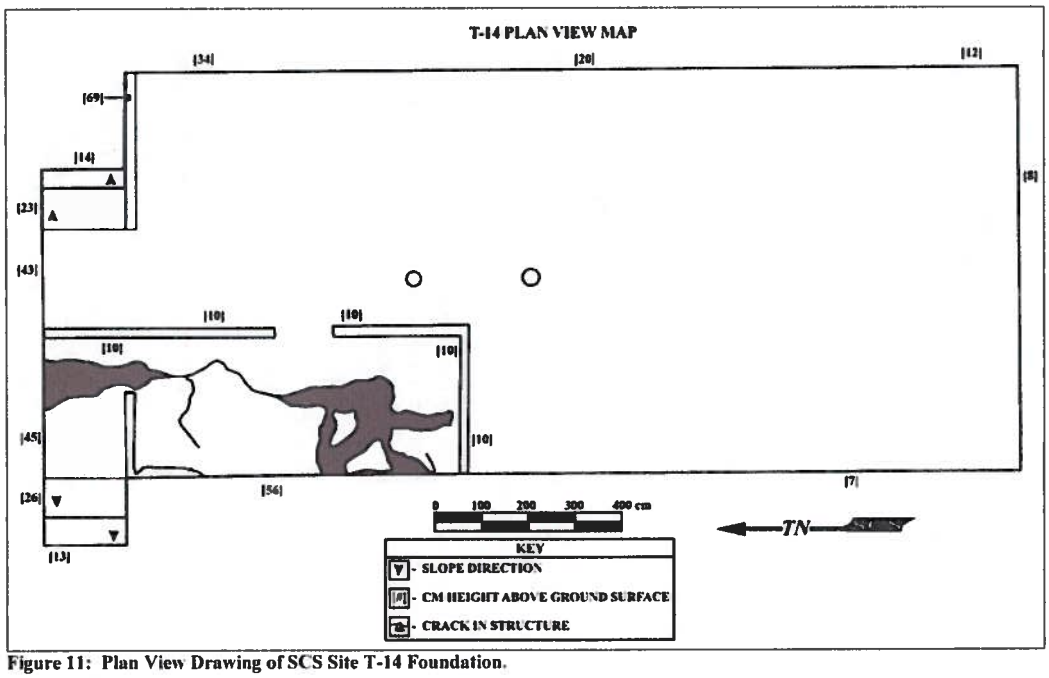

Figure 11: Plan View Drawing of SCS Site T-14 Foundation.

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 amongst *kiawe* 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-southwest (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 (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 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 sherds. 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 929.53 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 IARII 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 765300/ North 2303486
Previous Archaeological Recordation: IARII (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 (020/200° True). Constructed of concrete and rebar, T-25 was recorded during the 1999 IARII 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 (IARII Facility 177) west side to locate subterranean 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 matrices and site architecture (see Appendix A).

- Layer I (0–10 cmbs) was a secondary concrete slab that was constructed following the military departure of the former Naval Air Station Puunene.
- Layer II (10–60 cmbs) 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 cmbs) was a primary concrete wall located above the ground surface. Layer III was observed in Layers IV, V, and VI.
- Layer IV (95–100 cmbs) 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 cmbs) 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 cmbs) 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 terminated in 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 cmbs) 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 laid 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.

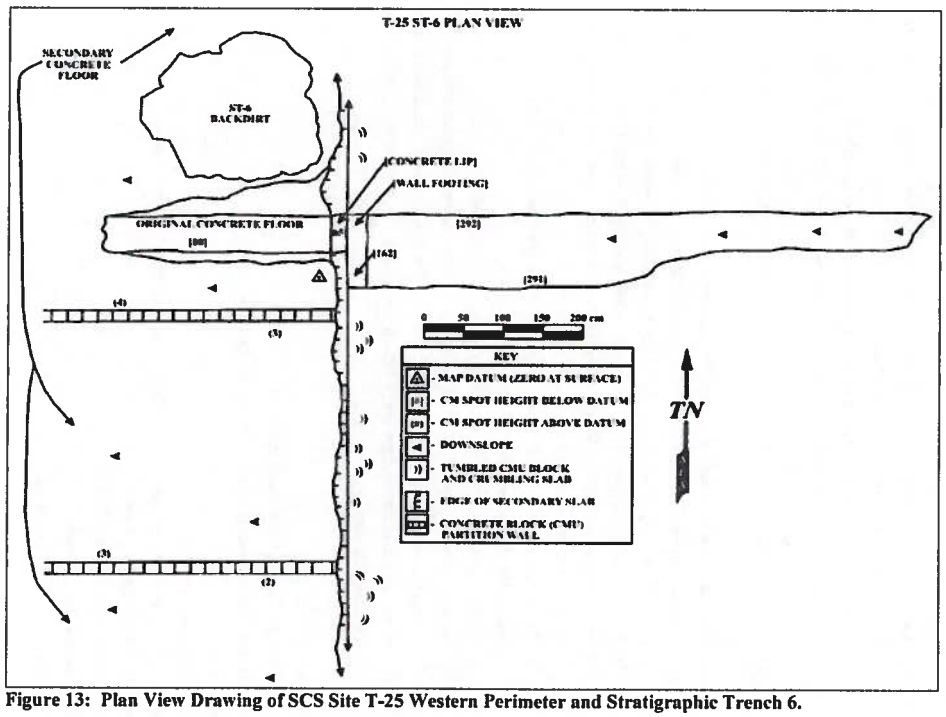

Figure 13: Plan View Drawing of SCS Site T-25 Western Perimeter and Stratigraphic Trench 6.

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 (0.66 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 Temporary Site: T-26
GPS Coordinates: East 765253/ North 2303593
Previous Archaeological Recordation: IARII (Facility 168)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for military squadron shops and a storehouse
Feature Structural Integrity: Fair
Feature Age Association: World War II
Criterion Significance: A and D
Recommendations: No further work

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 IARII 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 Temporary Site: T-27
GPS Coordinates: East 765292/ North 2303689
Previous Archaeological Recordation: IARII (Facility 163)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for a military storehouse
Feature Structural Integrity: Good
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 IARII survey. Cultural material observed during the current survey on the surface of the foundation was identified as galvanized nails, concrete fragments, and aluminum can. T-27 was not impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-28
GPS Coordinates: East 765265/ North 2303454
Previous Archaeological Recordation: IARII (Facility 176)
Features: 1
Feature Type: Concrete slab
Feature Function: Building foundation for a military garage and maintenance
Feature Structural Integrity: Fair
Feature Age Association: World War II

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 amongst 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, ferrous metal nuts 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 amongst lion's ear, *kiawe*, goosefeet, 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 sherds, 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 amongst *haole koa*, castor bean, and dried grasses, T-30 measured approximately 23.0 m long by 9.0 m wide (75.46 x 29.53feet). 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 sherds, 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 amongst lion's ear, spiny amaranth, tomato, goosefeet, and dried grasses, T-31 measured approximately 16.0 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 sherds, 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 *haole koa*, castor bean, 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 (020/200° 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, a 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 (149/329° 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 765205/ North 2304161
Previous Archaeological Recordation: Unknown
Features: 1

Feature Type: Water trough
Feature Function: Cattle rehydration
Feature Structural Integrity: Excellent
Feature Age Association: Post-World War II
Criterion Significance: D
Recommendations: No further work

SCS Site T-18 consisted of a rectangular-shaped trough interpreted as a water trough for cattle rehydration. Located on relatively level terrain amongst *kiawe*, lion's ear, and dried grasses, T-18 measured approximately 2.03 m long by 1.03 m wide (6.66 x 3.38 feet) and constructed four concrete bricks high. The long axis of the site was oriented northeast-southwest (096/276° 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 Recordation: 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 *kiawe*, 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 (169/349° 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 Recordation: 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 Site T-20 consisted of two features: a rectangular-shaped feed trough (Feature 1) and a water trough (Feature 2). These features were interpreted as a cattle nourishment station and rehydration station respectively. Located on relatively level terrain amongst *kiawe*, golden crown beard, lion's ear, and dried grasses, the T-20 Feature 1 feed trough measured approximately 43.0 m long by 1.5 m wide (141.08 x 4.92 feet). The long axis of the Feature 1 feed trough was oriented southeast-northwest (002/182° True). Constructed of concrete, it is not known if the T-20 Feature 1 feed trough was singularly recorded; it was more likely described collectively as part of State Site 50-50-09-4801 during the 1999 IARII survey. Located on the same terrain is the T-20 Feature 2 water 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 (092/272 ° True). Constructed of concrete brick and cement, it is not known if the Feature 2 water trough was singularly recorded; it was also likely described collectively as part of State Site 50-50-09-4801. Cultural material observed during the current survey on the surface of T-20 was identified as milled wood, ferrous metal, concrete, and cattle bones. Neither of the two features collectively described as T-20 were impacted by recent mechanical clearance of the proposed project area.

SCS Temporary Site: T-21
GPS Coordinates: East 765188/ North 2304018
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 a two features: a rectangular-shaped concrete slab interpreted as a building foundation (Feature 1) and second, a water trough (Feature 2) interpreted as a cattle rehydration station. Located on relatively level terrain amongst *kiawe*, 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 29.2 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 (Tomanari-Tuggle *et al.* 2001). During the IARII 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 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 Puunene area (Housing Area A Southern Portion). The mechanical excavation of twenty (20) stratigraphic trenches 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 study 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 Kula 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 Hawai'i 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 IARII 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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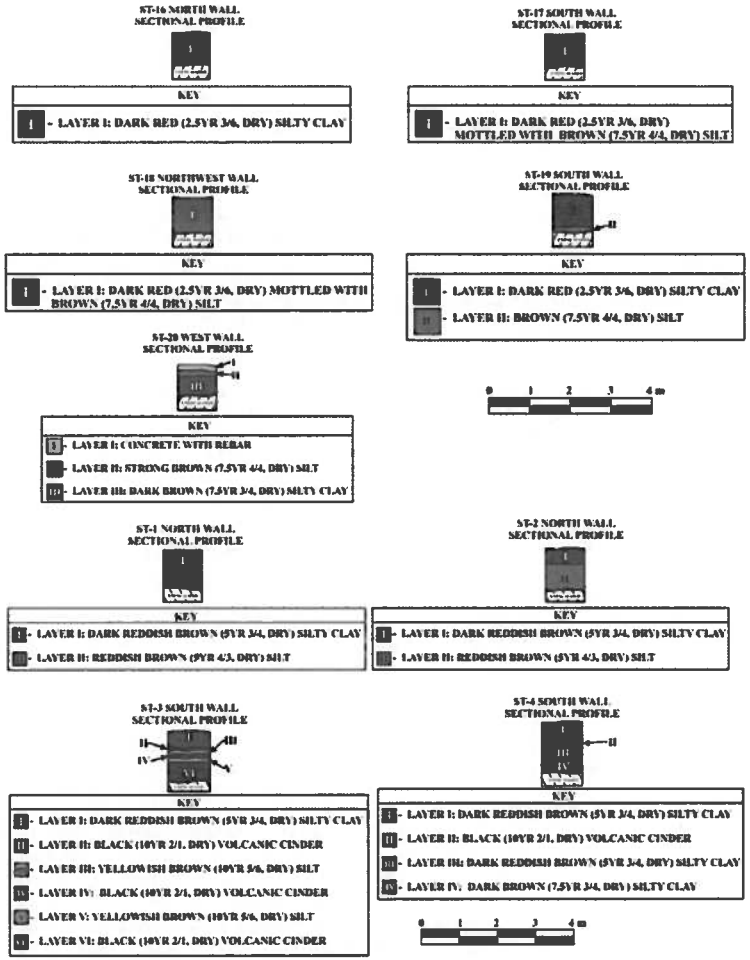
APPENDIX A: STRATIGRAPHIC TRENCH INFORMATION



ST-6 EAST WALL PROFILE

KEY

- I - LAYER I: SECONDARY CONCRETE SLAB
- II - LAYER II: YELLOWISH RED (5YR 4/6, DRY) SILTY CLAY
- III - LAYER III: ABOVE SURFACE PRIMARY CONCRETE WALL
- IV - LAYER IV: BLACK (10YR 2/1, DRY) ASPHALT
- V - LAYER V: BROWN (7.5YR 4/4, DRY) SILT WITH VOLCANIC GLASS CINDER
- VI - LAYER VI: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY
- VII - LAYER VII: DARK BROWN (7.5YR 3/4, DRY) SILTY CLAY
- CONCRETE BRICK
- SECONDARY CONCRETE GRADE BEAM
- PRIMARY CONCRETE WALL ABOVE GROUND SURFACE
- PRIMARY CONCRETE WALL BELOW GROUND SURFACE
- PRIMARY CONCRETE GRADE BEAM

ST-8 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: BLACK (10YR 2/1, DRY) ASPHALT
- II - LAYER II: GRAY (7.5YR 5/1, DRY) BASALT GRAVEL
- III - LAYER III: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY
- IV - LAYER IV: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

ST-7 EAST WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY
- II - LAYER II: DARK BROWN (7.5YR 3/4, DRY) SILTY CLAY

0 1 2 3 4 m

ST-9 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: BLACK (10YR 2/1, DRY) ASPHALT
- II - LAYER II: BLACK (10YR 2/1, DRY) VOLCANIC CINDER
- III - LAYER III: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

ST-9 NORTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

ST-10 NORTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY
- II - LAYER II: DARK YELLOWISH BROWN (10YR 4/4, DRY) SILTY CLAY
- III - LAYER III: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

0 1 2 3 4 m

ST-11 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY
- II - LAYER II: DARK YELLOWISH BROWN (10YR 4/4, DRY) SILTY CLAY

ST-12 EAST WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

ST-13 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

ST-14 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK REDDISH BROWN (5YR 3/4, DRY) SILTY CLAY

0 1 2 3 4 m

ST-15 SOUTH WALL SECTIONAL PROFILE

KEY

- I - LAYER I: DARK RED (2.5YR 3/6, DRY) SILTY CLAY
- II - LAYER II: BROWN (7.5YR 4/4, DRY) SILT

APPENDIX B: ARTIFACT ANALYSIS

B

SCS TEMPORARY SITE	DEPTH	COLLECTED ITEM IDENTIFICATION	MEASUREMENTS	COUNT	REMARKS
T-1	Surface	Copper Penny	Diameter: 1.9 cm Thickness: 01. cm Weight: 3.0 g	1	United States 1944 "S" wheat penny
T-2	Surface	Copper Penny	Diameter: 1.9 cm Thickness: 01. cm Weight: 3.0 g	1	United States 1944 "S" wheat penny
T-12	Surface	Glass Bead	Diameter: 1.2 cm Weight: 2.2 g	1	Light blue, wound
T-17	Surface	Marine Shell Button	Diameter: 1.3 cm Thickness: 0.2 cm Weight: 0.6 g	1	Two hole button; obverse with elliptical depression, reverse flat
GENERAL PROJECT AREA	Surface	Ferrous Metal Square Nail	Length: 6.9 cm Weight: 13.9 g	1	Corroded; GPS coordinates: East 765005/ North 2303937
GENERAL PROJECT AREA	Surface	Non-Ferrous Metal School Token	Diameter: 2.3 cm Thickness: 0.1 cm Weight: 1.3 g	1	Aluminum, Kihei School 5 cent cafeteria token; obverse dented

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 Kihei School 5 Cent Cafeteria Token (Bag 6)

APPENDIX J

Archaeological
Monitoring Plan

SCS Project Number 1219-AMP-3

AN ARCHAEOLOGICAL MONITORING PLAN FOR A 917 METER (3,007 FEET) LONG ALTERNATE ACCESS ROAD AND AN 86.029-ACRE PROPERTY IN PUUNENE, PŪLEHU NUI AHUPUA`A, WAIL UKU DISTRICT, ISLAND OF MAUI, HAWAI`I [TMK: (2) 3-8-008:005, 006, AND 019]

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TABLE OF CONTENTS

TABLE OF CONTENTS ii

LIST OF FIGURES ii

INTRODUCTION 1
- PROJECT AREA AND VICINITY 1

REASON FOR MONITORING 6

GENERAL PROJECT AREA HISTORICAL BACKGROUND 6
- PROJECT AREA SOILS 6
- PROJECT AREA VEGETATION 6
- CLIMATE 7

TRADITIONAL AND HISTORIC SETTING 7
- TRADITIONAL TIMES 8
- HISTORIC TIMES 8

PREVIOUS ARCHAEOLOGY IN GENERAL AREA 11
- PREVIOUS ARCHAEOLOGY IN THE CURRENT PROJECT AREA 12

POTENTIAL SITE TYPES TO BE ENCOUNTERED 16

MONITORING CONVENTIONS AND METHODOLOGY 17

LABORATORY ANALYSIS 19

CURATION 19

REPORTING 20

REFERENCES CITED 21

LIST OF FIGURES

Figure 1: USGS (Puu O Kali Quadrangle) Map, Showing Project Area Location 2
Figure 2: Tax Map Key [TMK] Showing Project Area. 3
Figure 3: Plan View Map of Grading Plan for the Current Project Area. 4
Figure 4: International Archaeological Research Institute Incorporated (IARII) Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Alternate Road. 13
Figure 5: IARII Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Perimeter of TMK (2) 3-8-008:019. 14

INTRODUCTION

At the request of CMBY 2011 Investment, LLC., Scientific Consultant Services (SCS), Inc. prepared this Archaeological Monitoring Plan (AMP) for the proposed Puunene Heavy Industrial Subdivision Project on a 917 meter (3,0007 feet) long alternate access road and on 86.029-acres of land within Pūlehu Nui Ahupua`a, Wailuku District, Island of Maui, Hawai`i [TMK: (2) 3-8-008:005, 006, and 019] (Figures 1, 2, and 3). This varied Monitoring program follows an Archaeological Inventory Survey (AIS; Tome and Dega 2011, review pending) 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, on-going 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 Inadvertant Discovery of Human Remains (pursuent 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 Pūlehu Nui Ahupua`a, Wailuku District, Island of Maui, Hawai`i. According to the County of Maui Real Property Tax Division website, http://www.mauipropertytax.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-

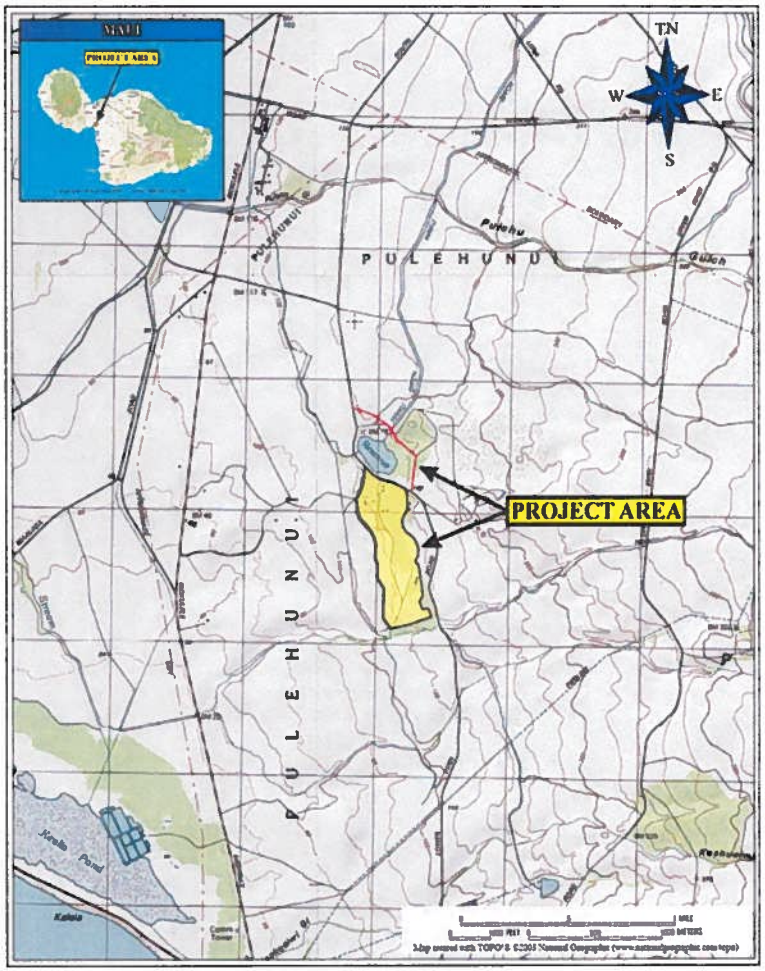

Figure 1: USGS (Puu O Kali Quadrangle) Map, Showing Project Area Location.

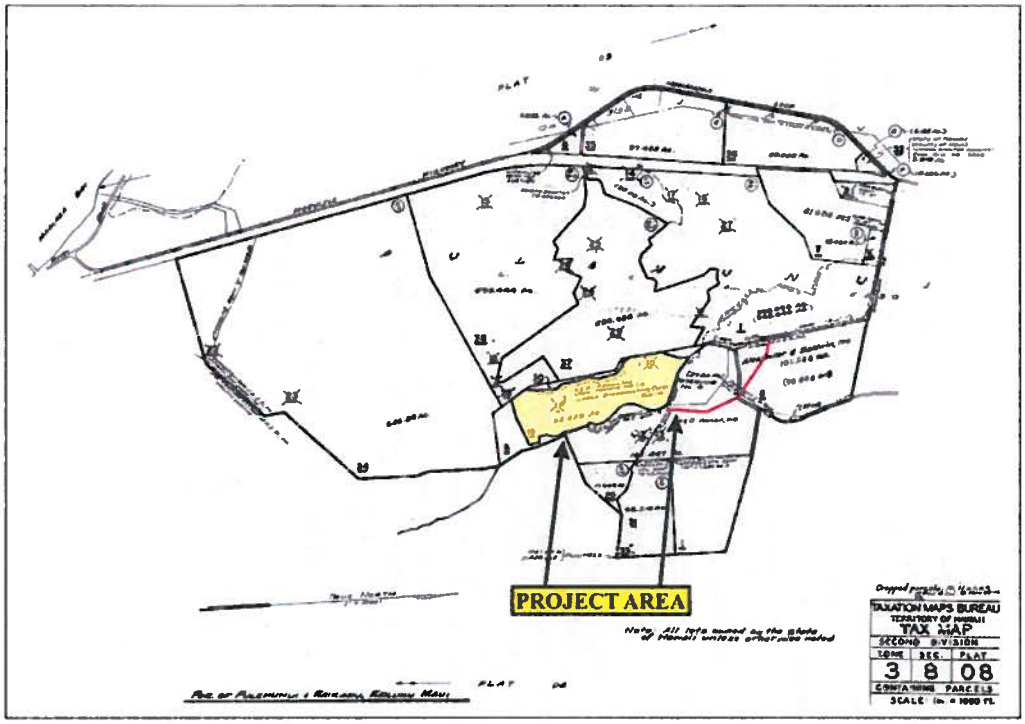

Figure 2: Tax Map Key [TMK] Showing Project Area.

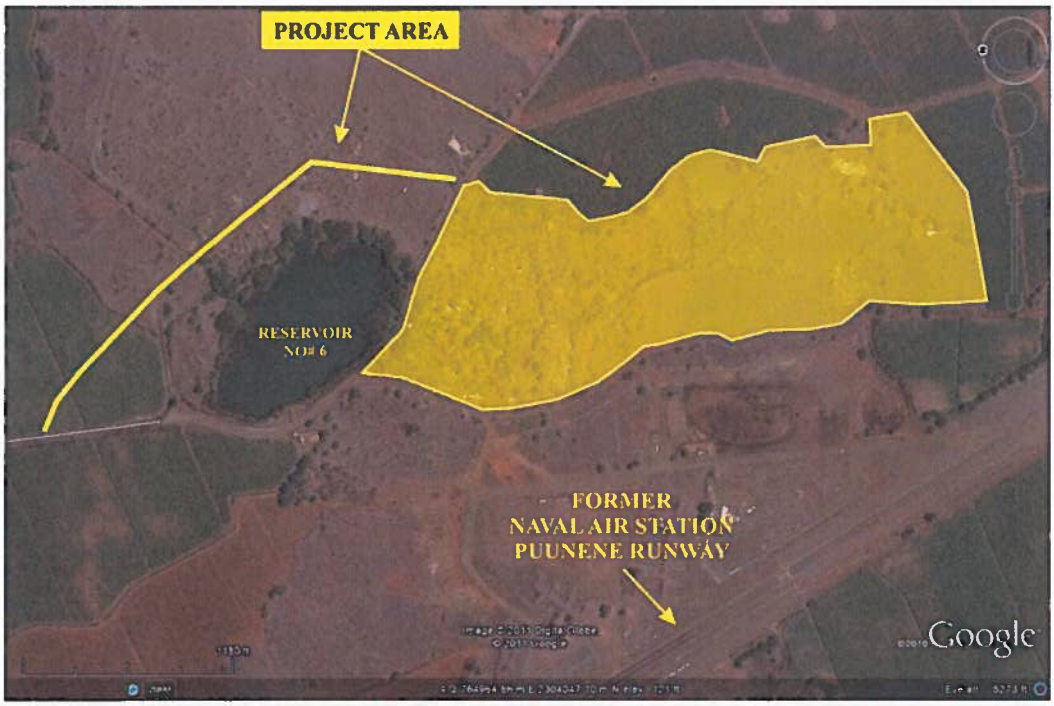

Figure 3: Plan View Map of Grading Plan for the Current Project Area.

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 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 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 clearance 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 clearance 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 alternate 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 Alae cobbly 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 Alae 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 project area revealed the presence of volcanic cinders strata that were interpreted during the current survey as natural strata. Naturally 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 *'ilima* (*Sida fallax*) and *'uhaloa* (*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 *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), castor bean (*Ricinus communis*), lion's ear (Leontis nepetifolia), spiny amaranth (*kuku*; *Amaranthus spinosus*), tomato (*Solanum* sp.), goosefoot (*Chenopodium* sp.), golden

crownbeard (*Verbesina encelioides*), klu (*kolu*; *Acacia farnesiana*), balsam pear (*Momordica charantia*), *koali kua hulu* (*Merremia aegyptia*), hairy abutilon (*ma'o*; *Abutilon grandifolium*), and coat buttons (*Tridax 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 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 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, Haleakala, 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 "cloak" in Hawaiian (Pukui *et al.* 1974:110).

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 catholic work practices such as fishing and planting (Sterling 1998). Documented oral accounts of pre-Contact activities and events occurring in the Kihei area, specifically naming Pūlehu 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. Fornander, in Sterling (1998:253), reported that the area of Kiheipukoa was the location "where peace was concluded and festive reunions took place of warlike encounters." The festive reunions took place once Alapainui, once *Moi* of Maui, found out that his nephew Kamehamehanui succeeded him. A separate story dates to 1776 when Kalani'opu'u landed his warring faction at Kiheipuko'a between Kealia and Kapa'ahu thinking that "the *Alapa* were to drink of the waters of Wailuku. The *Alapa* were those who excelled at being warriors. Unfortunately for Kalani'opu'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 (Speakman 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 project area lies. The first Western explorer credited with landing on Maui is Admiral Jean Francois Galaup, Compte 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 Makena.

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). Kolb *et al.* (1997:68–69) state that Kalepolepo (*i.e.*, Kihei) 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 Kihei. According to Colin *et al.* (14:2000), in 1849 John Halstead constructed "The Koa House" at Kalepolepo in Kihei, one of several such buildings supporting the whaling industry in Kihei. 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 Māhele of 1848. Thought to have been created under pressure from foreigners, Kauikeaouli (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 [Kirch 1985:309].

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) 3-8-04 to exist north of the project area on the plains of Pūlehu Nui Ahupua`a (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 (Burgett and Spear 1997:5). On this LCA Keaweamahi claimed 5 *apana* (land portions), 7 *lo`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 ahupua`a of Pūlehu Nui is shown to continue northeast upslope on the northwest side of Haleakala. LCA 5230 also extends into the upper portion of Pūlehu Nui Ahupua`a. An overview of upland LCAs within the upland portion of Pūlehu Nui Ahupua`a reveal that land at the higher elevations were utilized for sweet and Irish potatoes (Waihona `Aina 2011). LCA 9019:3, claimed by Helehua, located just below the modern Kula Highway and between Holopuni and Pulehu 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 Wahine 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 *ahupua`a*, 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 *ahupua`a*. It further indicates that LCA 5230 is the largest LCA awarded in Pūlehunui Ahupua`a. Thus, it is difficult to ascertain where particular activities were conducted (*e.g., lo`i, kula, apana*) within the LCA.

In Sterling (1998:254–257) it was reported that the late Governor W. L. Moehonua was an "owner" of Pūlehu Nui Ahupua`a and the boundaries of the *ahupua`a* were somewhat vague. Through the information provided by the Māhele, it was acknowledged that Keaweamahi previously owned land within the *ahupua`a*. Oral testimonies from multiple sources contribute to somewhat more specific but general boundaries of the *ahupua`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 Kalepolepo, but by the 1870s whaling diminished and the potato industry moved to the Ulupalakua 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, Haleakala Ranch utilized many coastal portions of Kula in the later 1800s.

Like the rest of Hawai`i (and the world) during the 1940s, Kihei in Pūlehu Nui Ahupua`a was interrupted by the advent of World War II (WWII). The coast from Ma`alaea 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 Kihei 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 ahupua`a of Pūlehu Nui Walker listed two sites identified as Haleokane Heiau and Nininiwai Heiau (see Sterling 1998:253).

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 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 Kai 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 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 addendums) for the Puunene Bypass/ Mokulele Highway Improvements Corridor located in TMK: (2) 3-8:-04, 05, 06, and 07; Burgett 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. 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 Kīhei, Maui, Hawai`i [TMK: (2) 3-8-004:028] (Tome and Dega 2005). This 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 No. 50-50-09-5801, WW II training site) and a traditional Hawaiian site (State Site No. 50-50-09-5802, 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, Hawai`i [TMK: (2) 3-8-008:005, 006, and 019]. Fieldwork was conducted between June 27 and 30, 2011 by SCS archaeologists Ian Bassford, 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 50-50-09-4801, 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

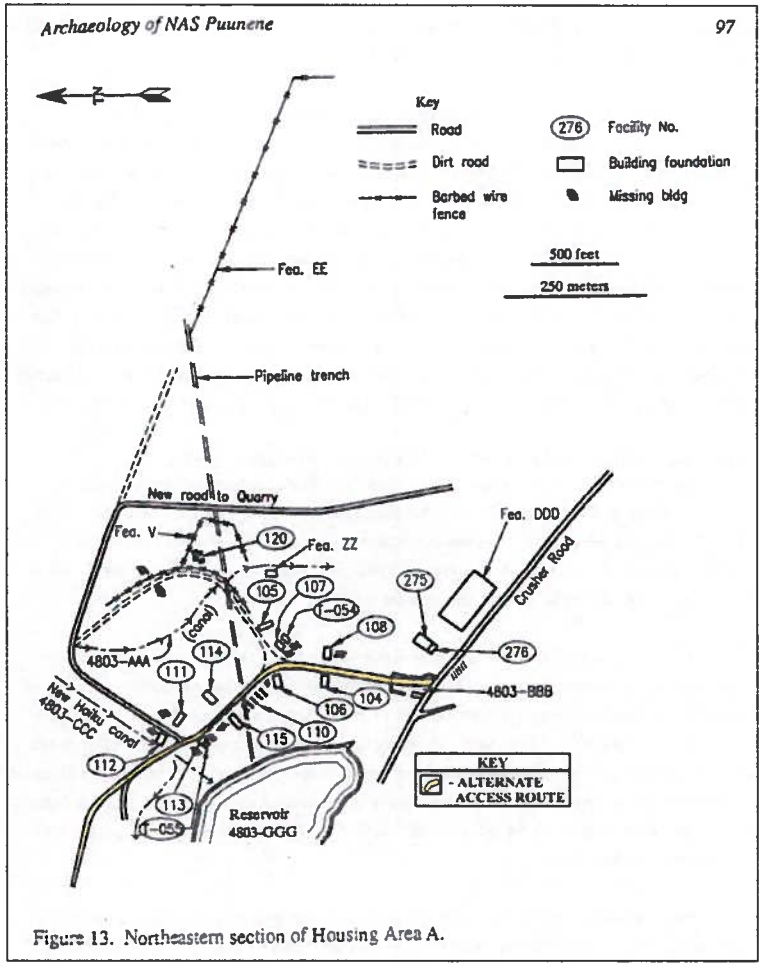

Figure 13. Northeastern section of Housing Area A.

Figure 4: International Archaeological Research Institute Incorporated (IARII) Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Alternate Road.

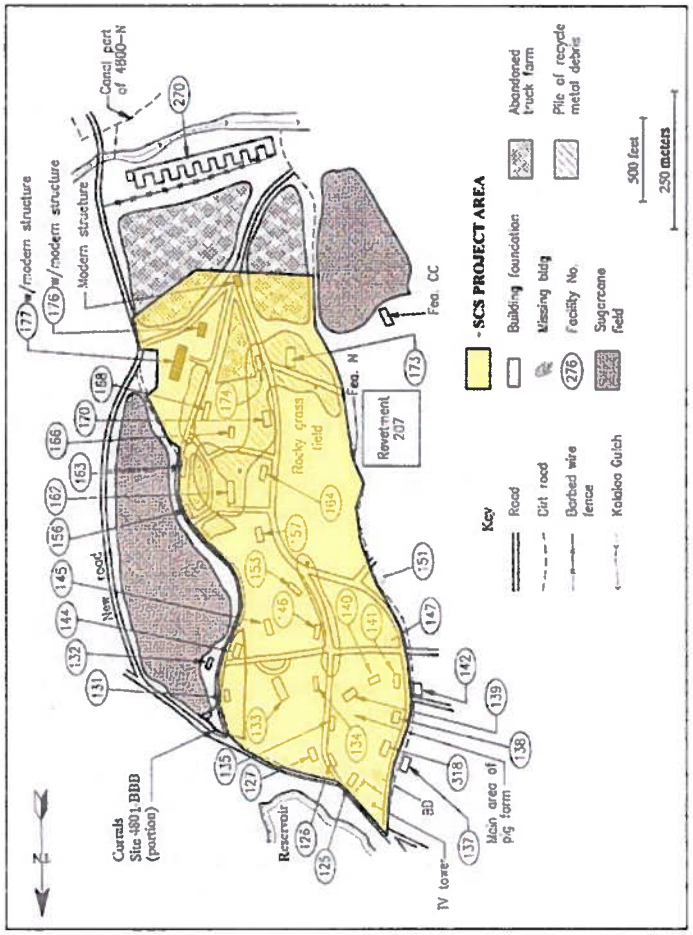

Figure 5: IARII Plan View Map Showing Previously Recorded Archaeological Features and Current SCS Project Area Perimeter of TMK (2) 3-8-008:019.

project area, the IARII survey identified two archaeological sites comprised of a section associated with the former Naval Air Station Puunene (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 subsumed under the previous State site number designations.

Most of the historic features within in 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 Puunene (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 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 Puunene 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 Puunene 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 Puunene (State Site 50-50-09-4164; Feature Amount: 165)
- Sugarcane Plantation Features (State Site 50-50-09-4800; Feature Amount: 7)
- Post-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)
- Haiku Ditch and Reservoir (State Site 50-50-09-4802; Feature Amount: 5)

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 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.

The archaeological sites located in the current 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 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).

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 Puunene 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 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 sample 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 ethnicity 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 6.E-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 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.

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 artifact and midden samples will 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 amenable 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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APPENDIX K

Cultural Impact Assessment

SCS Project Number 1221-CIA-2

A CULTURAL IMPACT ASSESSMENT REPORT FOR APROXIMATELY 86 ACRES, LAND OF PŪLEHU NUI, WAILUKU DISTRICT, MAUI, HAWAI'I [TMK: (2) 3-8-08:019]

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TABLE OF CONTENTS

TABLE OF CONTENTS ii

LIST OF FIGURES iii

INTRODUCTION 1

METHODOLOGY 6
- ARCHIVAL RESEARCH 8
- INTERVIEW METHODOLOGY 8
- PROJECT AREA AND VICINITY 9

CULTURAL HISTORICAL CONTEXT 9
- PAST POLITICAL BOUNDARIES 10
- TRADITIONAL SETTLEMENT PATTERNS 10
- EARLY HISTORY 12
- THE GREAT MĀHELE 13

HISTORIC LAND USE 15
- SUGAR YEARS 15
- WORLD WAR II 16

SUMMARY 22
- ARCHAEOLOGY 23

CIA INQUIRY RESPONSE 24

CULTURAL ASSESSMEMNT ..... **ERROR! BOOKMARK NOT DEFINED.**

REFERENCES CITED 26

APPENDIX A: CIA CONSULTATION LETTERS - 1ST BATCH 8 JULY 2011 ..... A

APPENDIX B: NEWSPAPER NOTICES ..... B

APPENDIX C: OHA'S RESPONSE C

LIST OF FIGURES

Figure 1: USGS Quadrangle Map Showing Project Area. 2
Figure 2: Tax Map Key [TMK] of Project Area. 3
Figure 3: Google Maps Plan View of Project Area. 4
Figure 4: Modified "Pulehenui Kula Maui, Survey and Map By M.D. Monsarrat 1879", Showing *Ahupua`a* Meets and Bounds and Boundary of Spreckles Kula land(State Survey Office, Reg. Map #1770) 14
Figure 5: "Kihei Plantation Co. [crossed out], Map of Lands in Kula, Maui Belonging to the "Five Companies" of the Maui Ag. Co., July 1904" (State Survey Office, Reg. Map #1770). 17
Figure 6: Close-up of Makawao Plantation Lands in Pūlehu Nui Ahupua`a (State Survey Office, Reg. Map #1770). 18
Figure 7: "1943 Arial View of Puunene" (National Archives Photo). 20
Figure 8: "Boundary Map NAS Puunene Pulehunui and Waikapu Districts of Kula and Wailuku Maui T.H. June 1944", Showing Project Area (14th Naval District, Pearl Harbor, T.H.; Courtesy of Hugh Starr) 21

INTRODUCTION

At the request of CMBY 2011 Investment, LCC (CMBY), Scientific Consultant Services (SCS), Inc., conducted a Cultural Impact Assessment (CIA) on approximately 86 acres in the lands of Pūlehu Nui , Wailuku District, Maui Island, Hawai`i [TMK: 3-8-01; (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 *ahupua`a* 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, Kamehameha III (Kauikeaouli) preserved the peoples traditional right to subsistence. As a result in 1850, the Hawaiian Government confirmed the traditional access rights to native Hawaiian *ahupua`a* 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 *ahupua`a* in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner" (Pele Defense Fund v. Paty, 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 the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's 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.

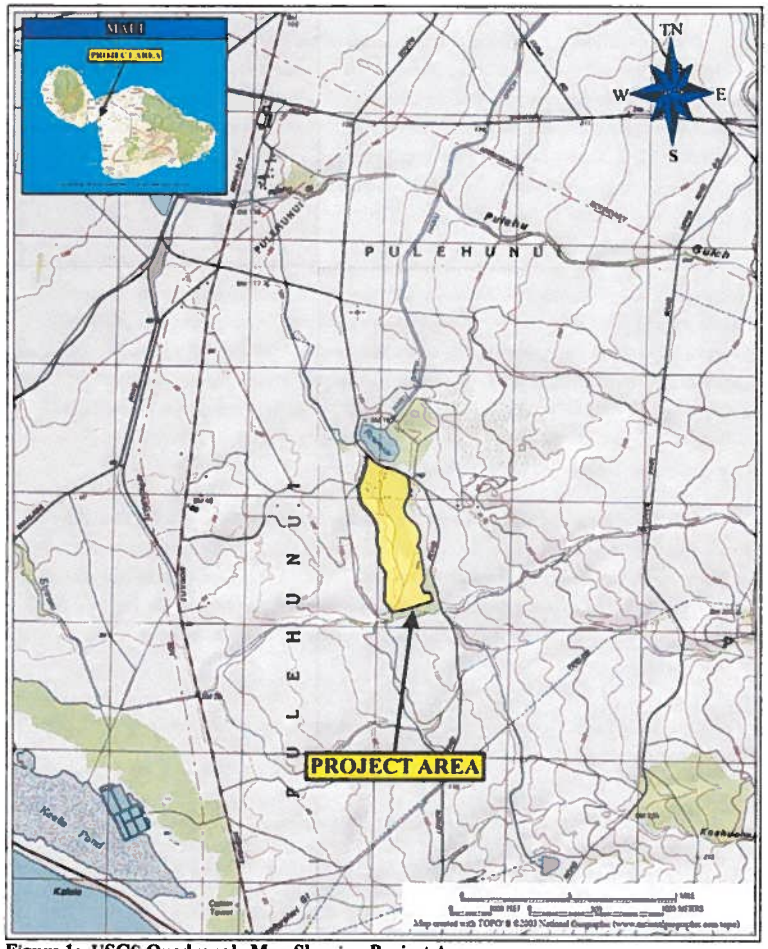

Figure 1: USGS Quadrangle Map Showing Project Area.

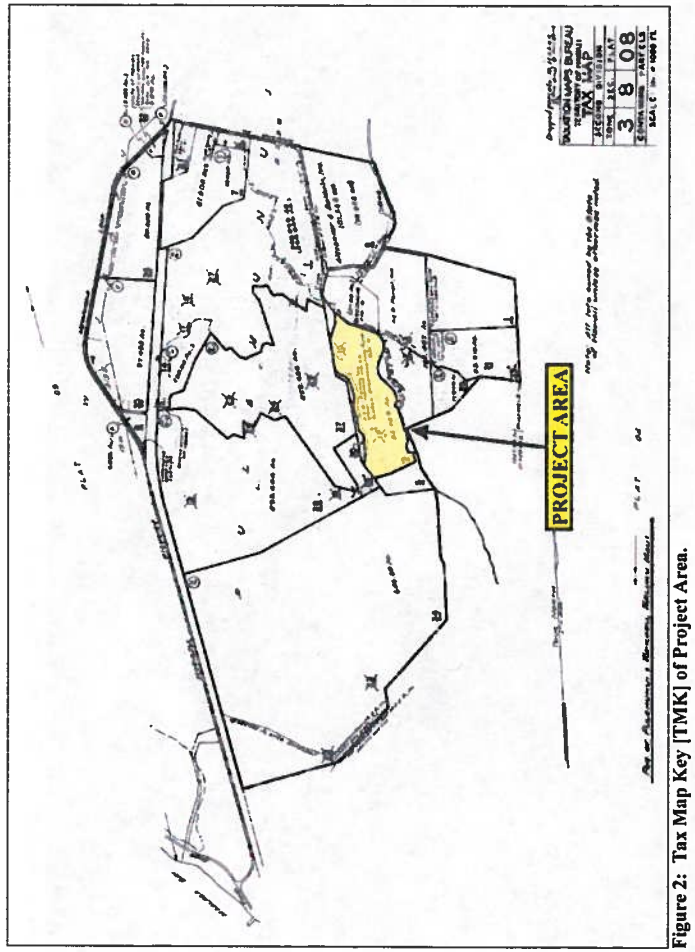

Figure 2: Tax Map Key [TMK] of Project Area.

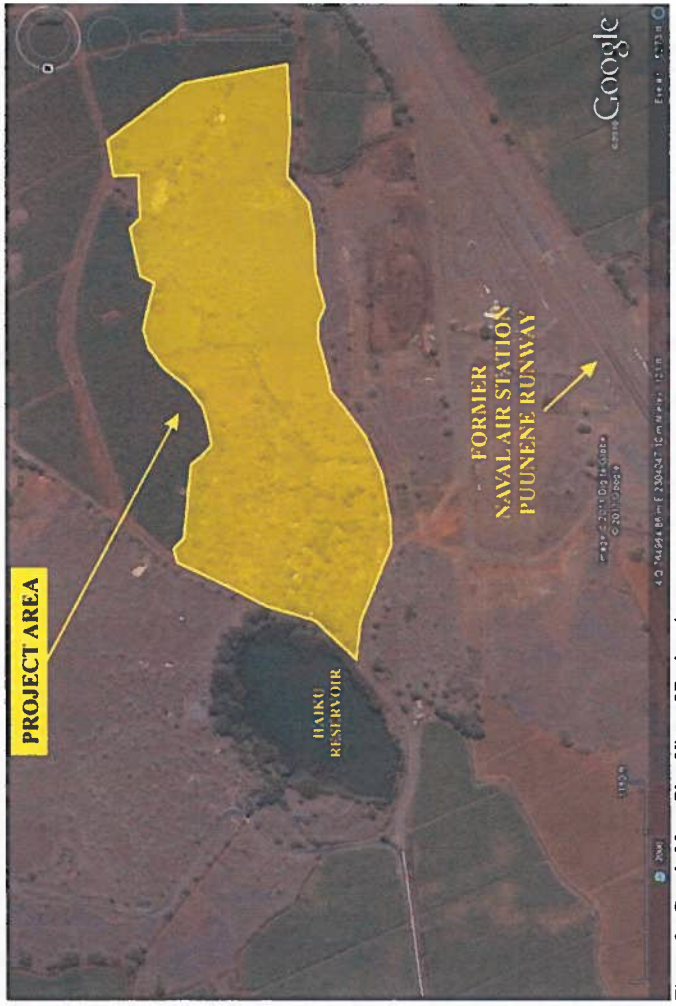

Figure 3: Google Maps Plan View of Project Area.

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 these 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 religions 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) if consultation is available, a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints of limitations which might have affected the quality of the information obtained;

(2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;

(3) 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;

(4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or being interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;

(5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;

(6) 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;

(7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;

(8) an explanation of confidential information that has been withheld from public disclosure in the assessment;

(9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;

(10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices, or beliefs; the potential of the proposed action to isolate cultural resources, practices, or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

(11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

If on-going 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.

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 upon 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 on-going 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 transcripts 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; Kimokeo Kapahuleua; 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 and 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 on-going 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 Pūlehu Nui Ahupua'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-ft wide access easement along Kama'aina Road, South Firebreak Road, and Lower Kihei road. An alternate access route around the north and east side of an HC&S irrigation reservoir was also examined. Both access routes were assessed as part of the CIA. (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 amphitheater 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 (*kula*), and the land of Pūlehu Nui, among others.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui Island into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1940:383; Fornander places Kaka`alaneo at the end of the 15th century or the beginning of the 16th 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 *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili `āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore, able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili `āina* or *`ili* were smaller land divisions next to importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa `āina* residing in a *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the lands of Pūlehu Nui which translated literally means "large pūlehu," but since *pūlehu* means "broiled", it might refer to the degree of broiling one could receive from the sun in this area (Pukui *et al.*:193).

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 *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinaruma*) and *mai`a* (banana,

Musa sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). It must be noted that Handy (1940:105 stated that, ". . . the bounds of cultivation . . . were strictly drawn by limitation of water for irrigation." The word "*kula*" meant "open country, or plain", according to Handy and Handy, and was often used to differentiate between dry, or *kula* land, and wet-taro land. The height and size of Haleakalā to the east, prevents moisture from reaching its southern and western flanks, causing and 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 seashore, vast stony *kula* 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 Waikapu 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 Mā`alaea 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, not 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 [1984:852]

Not much had changed 24 years later (1817) when Peter Corney sailed this way, bound for O`ahu. He made special reference to Keālia Pond (now the Keālia Pond and Wildlife Refuge), a short distance southwest of the project area:

. . . Next morning we passed Morokenee (Molokini), and made sail up Mackerey (Maalaea) 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 [Corney 1965:70-71]

EARLY HISTORY

The Wailuku 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'ū, 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'ū 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 prize troops consisted of chiefs from his own group of attendants, which were named the 'Ālapa and Pi'ipi'i. Leaving nothing to chance, Kalani'ōpu'ū 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'ō'io Bay and ravaged the country side giving Kahekili notice and time to prepare his fighting men (*ibid.*). Kalani'ōpu'ū's men traveled up the coast by sea and landed at Kīheipuko'a at Keālia, confident that the victory was to be theirs (*ibid.*) The 800 'Ālapa and Pi'ipi'i warriors marched across the plain (in which is the project area) to Wailuku where Kahekili and his warriors were waiting. Kamakau said:

They slew the Alapa on the sand hills at the southeast of Kalua. There the dead lay in heaps strewn like *kukui* 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 Wailuku to Kahului in 1854:

Leaving Wai-lu-ku [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 sirocco, and clouds of sand are carried across the northern side of the isthmus to a height of several hundred feet. These sand-hills constitute a huge "Golgotha" 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 lurid 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]

The1776 encounter between Kahekili and Kalani'ōpu'ū resulted in a temporary truce which was broken in 1790 by the battle of Kepaniwai, when Kamehameha I 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, Kauikeaouli (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame'eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I: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'āinana* (commoners), 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, *'okipū* (on O'ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame'eleihiwa 1992:295; Kirch and Sahlins 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 Pūlehu Nui extended across the Kula plain up through Makawao, to the edge of Haleakalā and would have included fruitful sections, not just the arid plains (Figure 4). There were 13 *kuleana* claimed in the *ahupua'a* of Pūlehu Nui. LCA 05230, consisting of 982 acres and belonging to Keaweamahi, appears to contain the portion of

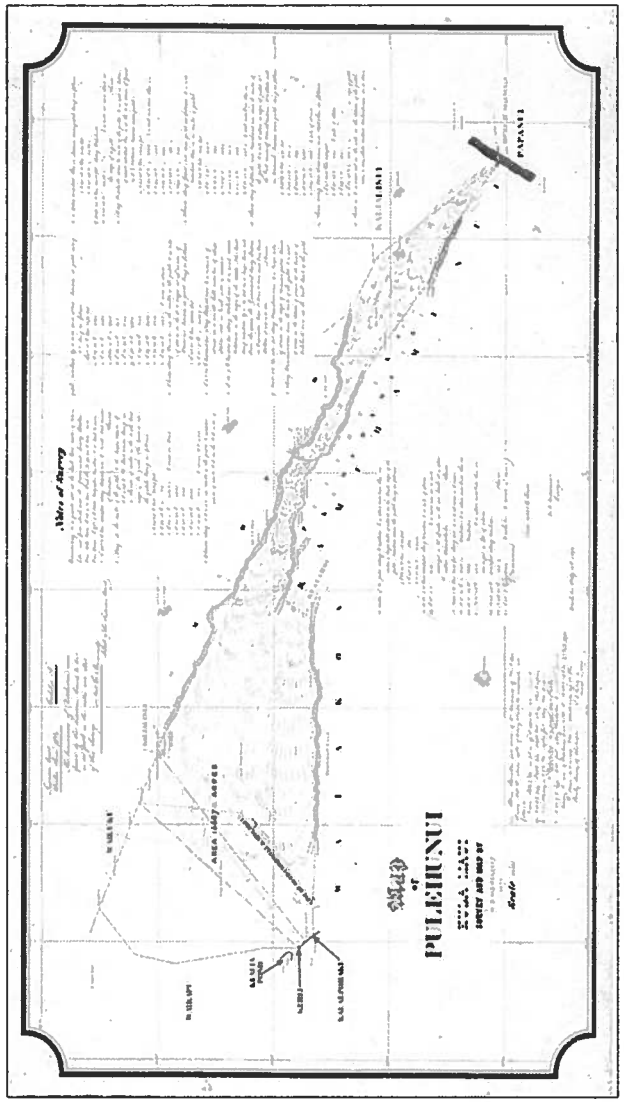

Figure 4: Modified "Pulehenui Kula Maui, Survey and Map By M.D. Monsarrat 1879", Showing *Ahupua'a* Meets and Bounds and Boundary of Spreckles Kula land(State Survey Office, Reg. Map #1770)

Pūlehu Nui where the project area is located. On this LCA Keaweamahi claimed 5 *apana* (land portions), 7 *lo'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 (Waihona '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 Haleakalā 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 Waikapū 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 Pūlehu Nui, Claus Spreckles obtained from Henry Cornwell.

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' Haiku 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 Haiku Ditch ends at the Haiku 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 Waihee 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 Spreckles, 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 Spreckles from Hawai`i (Dorrance and Morgan 2000; Wilcox 1996).

Henry Baldwin and Lorrin Thurston formed the Kihei 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 Pu`unēnē 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 reap 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 Kula Plantation Company, Makawao Plantation Company, Pulehu Plantation Company, Kailua Plantation and Kalianui Plantation Company were newly formed by carving up the unprofitable Kihei Plantation land (Dorrance and Morgan 2000). Figure 5 shows the lands in Kula, previously Kihei 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 Pūlehu 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 to small to accommodate (www.airfields-freeman.com/HI/Airfields_HI_Maui.htm :2011). Two years later, Inter-Island Airways began service to Maui, conveniently landing at Puunene 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

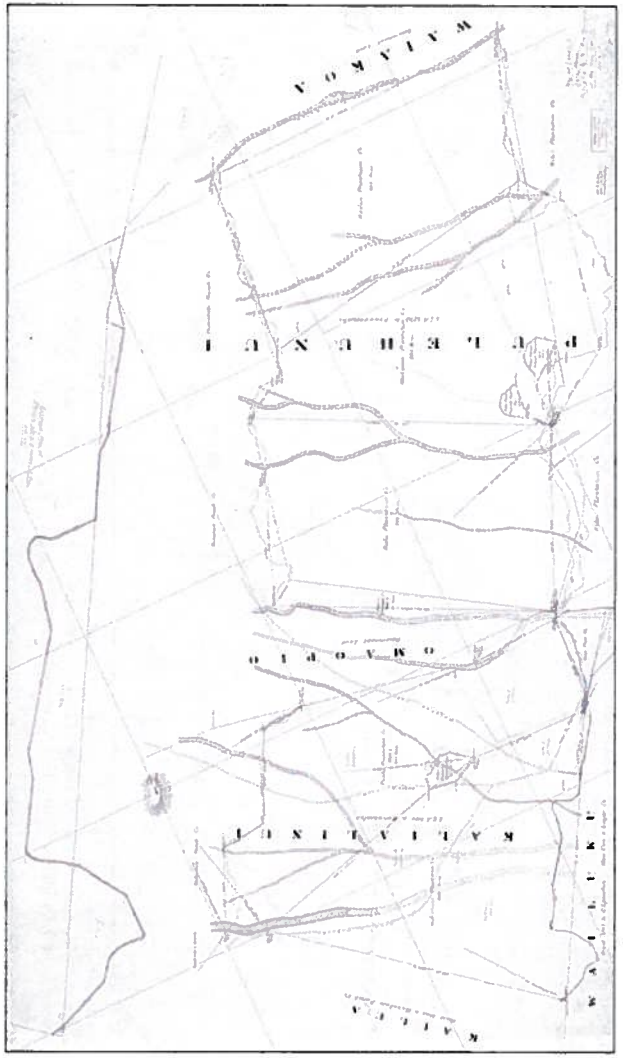

Figure 5: "Kihei Plantation Co. [crossed out], Map of Lands in Kula, Maui Belonging to the "Five Companies" of the Maui Ag. Co., July 1904" (State Survey Office, Reg. Map #1770).

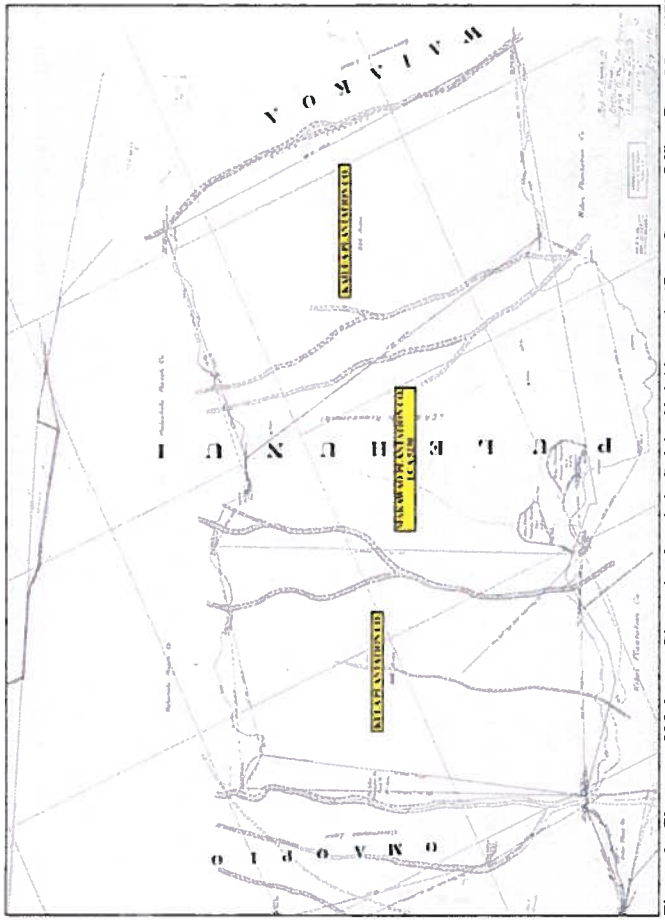

Figure 6: Close-up of Makawao Plantation Lands in Pālehu Nui Ahupua'a (State Survey Office, Reg. Map #1770).

drones for the fleet. Shortly after the United States entered WWII, land in the area of the airport was condemned (1942), including the project parcel listed as parcel 2-C in the Declaration of Taking filed with the District Court of the United States for the District of Hawaii (on file Bureau of Conveyances, Honolulu). The airport was expanded and commissioned as Naval Air Station Maui (NAS). The Figure 7 photo illustrates the military impact on the area and shows a portion of the Haiku reservoir and the project area. The Navy lengthened and widened the runways and added Link trainers, as well as changing its name to NAS Puunene. One hundred and six squadrons and carrier groups passed through the NAS during WWII (www.airfields-freeman.com/HI/Airfields_HI_Maui.htm :2011).

Figure 8 shows a 1944 map of the Navel 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 3,300 personnel, and 271 aircraft. There were two paved runways, taxiways, ramps, hangers, 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/Pu`unēnē 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.*). Over-grown 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 raceway park, county fair grounds, Hawai`i National Guard, Maui Correctional Center and 3.5 (at 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.*).

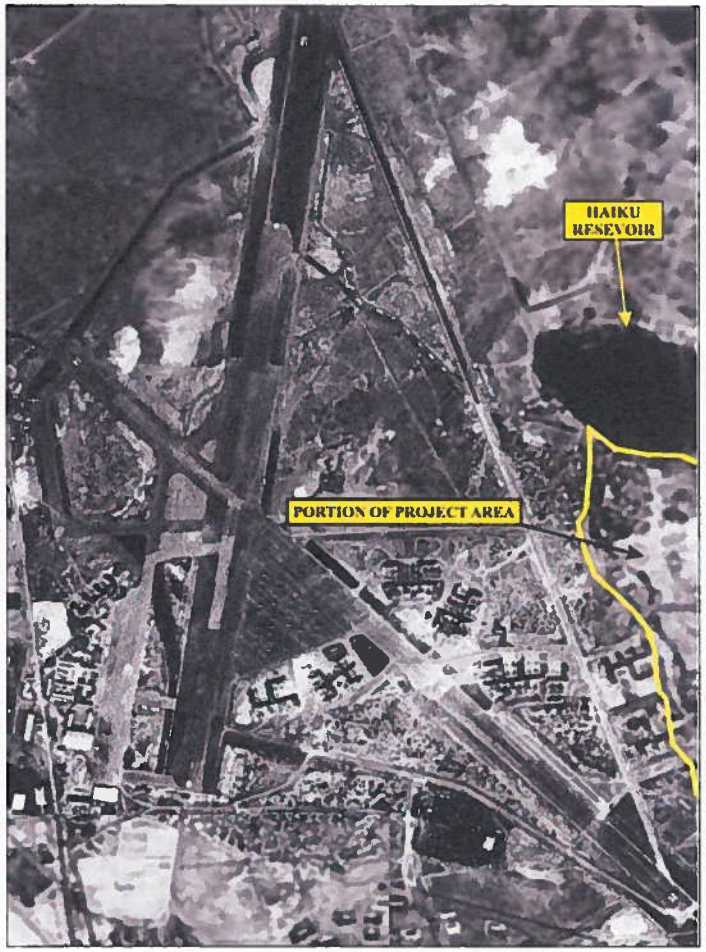

Figure 7: "1943 Arial View of Puunene" (National Archives Photo).

Figure 8: "Boundary Map NAS Puunene Pulehunui and Waikapu Districts of Kula and Wailuku Maui T.H. June 1944", Showing Project Area (14th Naval District, Pearl Harbor, T.H.; Courtesy of Hugh Starr).

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 (OEQC 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), O`ahu Branch; Central Maui Hawaiian Civic Club; Kimokeo Kapahuleua; Maui SHPD, Cultural Branch; County of Maui, Department of Planning, Cultural Resources Commission; OHA Maui Branch; and Hale Mahaolu. 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 and 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, Beckwith, Chinen, Kame`eleihiwa, Fornander, Kuykendall, Kelly, Handy and Handy, Puku`i and Elbert, Thrum, 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 Waihona `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. (IARII) conducted Archaeological Inventory Survey in 1999 of a large area, part of which included the current the subject property (Tomanari-Tuggle *et al.* 2001). During the IARII survey, two archaeological sites, State Site 50-50-09-4164 (former World War Two Naval Air Station Puunene) and State Site 50-50-09-4801 (post-World War II cattle ranching site) were newly identified. IARII 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 form 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 IARII (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 Pu`unēnē 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 Lanikāula*, located on Moloka`i, is considered an extremely sacred spot. Another might be Kīlauea and Halema`uma`u, home of Pele o 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; Kimokeo Kapahuleua; Maui SHPD, Cultural Branch; County of Maui, Department of Planning, Cultural Resources Commission; OHA Maui Branch; and Hale Mahaolu . 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 and the August issue of the OHA newspaper, *Ka Wai Ola*. In addition, contact was made with long time resident, Hugh Starr, 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 ASSESSMEMNT

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 historical research and no additional suggestion for contacts, 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 a requirement 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

Phyllis Coochie Cayan
History and Culture Branch Chief
State Historic Preservation Division
601 Kamokila Blvd. Room 555
Kapolei, Hawai'i 96707

July 8, 2011

Dear Ms. Cayan:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. 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 me or Leann McGerty 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. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachments:
Figure 1: USGS Quadrangle (Wailuku) Map Showing Project Area Location.
Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Project Area Location.
Land Commission Award 5230

Central Maui Hawaiian Civic Club
P.O. Box 1493
Wailuku, Hawai'i 96793

August 24, 2011

Dear Members:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

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Thank you in advance for your comments and help. We look forward to hearing from you.

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Cathleen A. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

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Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Project Area Location.
Land Commission Award 5230

County of Maui
Department of Planning
Cultural Resources Commission
250 S. High Street
Wailuku, Hawai`i 96793

July 8, 2011

Dear Sir or Madam:

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, Pūlehunui Ahupua`a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona `Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

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Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Project Area Location.
Land Commission Award 5230

Hale Mahaolu
11 Mahaolu St.
Kahului, Hawai`i 96732

July 8, 2011

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Sincerely,

Cathleen A. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachments:
Figure 1: USGS Quadrangle (Wailuku) Map Showing Project Area Location.
Figure 2: Tax Map Key [TMK: (2) 3-8-008] Showing Project Area Location.
Land Commission Award 5230

Kimokeo Kapahulehua
c/o 'Ao'ao O Nā Loko I'a O Maui
P.O. Box 1574
Kīhei, Hawai'i 96731

July 8, 2011

Dear Mr. Kapahulehua:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. 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 me or Leann McGerty 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. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

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Land Commission Award 5230

Office of Hawaiian Affairs
360 Papa Place, Suite 105
Kahului, Hawai'i 96732-2464

July 8, 2011

Dear Sir or Madam:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

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Cathleen A. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

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Land Commission Award 5230

Clyde Nāmu'o, Director
C/o Office of Hawaiian Affairs
711 Kapi'olani Blvd, Suite 500
Honolulu, Hawai'i 96813

July 8, 2011

Dear Mr. Nāmu'o:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

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Cathleen A. Dagher
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Land Commission Award 5230

Hinano Rodrigues, Cultural Historian
DLNR Maui Office Annex
130 Mahalani Street
Wailuku, Hawai'i 96791

July 8, 2011

Dear Hinano:

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, Pūlehunui Ahupua'a, Wailuku District, Maui Island [TMK: (2) 3-8-008:019] (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 Waihona 'Aina Database (2011) indicates Land Commission Award (LCA) 5230 was issued to one Keaweamahi. According to the Tax Map Key (TMK), LCA 5230 appears to have included the current project area (see Figure 2).

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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 me or Leann McGerty 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. Dagher
Senior Archaeologist
Scientific Consultant Services, Inc.

Attachments:
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Land Commission Award 5230

APPENDIX B: NEWSPAPER NOTICES

CULTURAL IMPACT ASSESSMENT NOTICE:
Information requested by SCS of cultural resources or on-going cultural activities on or near a land parcel in Pu'unene, Pūlehunui Ahupua'a, Wailuku District, Maui, Island, Hawai'i [TMK: (2) 3-8-008:019].
Please respond within 30 days to SCS at (808) 597-1182

Ka Wai Ola
Honolulu Advertiser
Maui News

SCIENTIFIC CONSULTANT SERVICES, Inc.

711 Kapiolani Blvd., Suite 975 Honolulu, Hawai'i 96813

PH: 808-597-1182 FAX: 808-597-1193

FAX OR TRANSMITTAL MEMORANDUM

To: Star Advertiser Date: 7/14/2011

Firm: Legal Dept. Phone: 529-4344

Address: Fax: 529-4929

Legals@StarAdvertiser.com

The following is being sent to you: _____ By Fax _____ Enclosed _____ Under Separate Cover

_____ SCS Report(s) _____ Contract(s) _____ Billing(s) _____ Bid _____ Other

Enclosed: Item:

SCS Project Number: 1221

RUN Dates 7/20/7/21/724

( ) For your files ( ) For your signature and return ( ) For necessary action

( ) For your client ( ) Submitted as a "DRAFT" ( ) As requested

( ) For review and comment ( ) Submitted as a "FINAL" ( ) As per our conversation

Comments:

Mary Thanks, Suarra

Mahalo,

For SCS: _____

Spear / Chaffee / Duga / McGerty / Pestana / Dagher / Baker / Tome / Smitherman

CULTURAL IMPACT ASSESSMENT NOTICE:
Information requested by SCS of cultural resources or on-going cultural activities on or near a land parcel in Pu'unene, Pūlehunui Ahupua'a, Wailuku District, Maui, Island, Hawai'i [TMK: (2) 3-8-008:019].
Please respond within 30 days to SCS at (808) 597-1182

Ka Wai Ola
Honolulu Advertiser
Maui News

1221

AFFIDAVIT OF PUBLICATION

STATE OF HAWAII, County of Maui. } ss.

Rhonda M. Kurohara being duly sworn deposes and says, that she is in Advertising Sales of the Maui Publishing Co., Ltd., publishers of THE MAUI NEWS, a newspaper published in Wailuku, County of Maui, State of Hawaii; that the ordered publication as to

CULTURAL IMPACT ASSESSMENT NOTICE

of which the annexed is a true and correct printed notice, was published 3 times in THE MAUI NEWS, aforesaid, commencing on the 20th day of July, 2011, and ending on the 24th day of July, 2011, (both days inclusive), to-wit: on

July 20, 21, 24, 2011

and that affiant is not a party to or in any way interested in the above entitled matter.

This 1 page Cultural Impact, dated July 20, 21, 24, 2011, was subscribed and sworn to before me this 25th day of July, 2011, in the Second Circuit of the State of Hawaii, by Rhonda M. Kurohara

Notary Public, Second Judicial Circuit, State of Hawaii
BETTY E. UEHARA
My commission expires 09-23-11

BETTY E. UEHARA NOTARY PUBLIC No. 83-344 STATE OF HAWAII

CULTURAL IMPACT ASSESSMENT NOTICE:
Information requested by SCS of cultural resources or on-going cultural activities on or near a land parcel in Pu'unene, Pulehunui-Ahupua'a, Wailuku district, Maui Island, Hawai'i (TMK: (2) 3-8-008:019).
Please respond within 30 days to SCS at (808) 507-1182.
(MN - July 20, 21, 24, 2011)

1221

AFFIDAVIT OF PUBLICATION

IN THE MATTER OF

STATE OF HAWAII)
) SS.
City and County of Honolulu)

Doc. Date: JUL 2 5 2011 # Pages: 1
Notary Name: Patricia K. Reese First Judicial Circuit
Doc. Description: Affidavit of Publication
Notary Signature Date

NOTARY PUBLIC STATE OF HAWAII

CULTURAL IMPACT ASSESSMENT NOTICE:
Information requested by SCS of cultural resources or on-going cultural activities on or near a land parcel in Pu'unene, Pulehunui-Ahupua'a, Wailuku district, Maui Island, Hawai'i (TMK: (2) 3-8-008:019). Please respond within 30 days to SCS at (808) 507-1182
(SA3296000 7/20, 7/21, 7/24/11)

Rose Rosales being duly sworn, deposes and says that she is a clerk, duly authorized to execute this affidavit of Oahu Publications, Inc. publisher of The Honolulu Star-Advertiser and MidWeek, that said newspapers are newspapers of general circulation in the State of Hawaii, and that the attached notice is true notice as was published in the aforementioned newspapers as follows:

Honolulu Star-Advertiser 3 times on:
07/20, 07/21, 07/24/2011

Midweek Wed. 0 times on:

_____ times on:

And that affiant is not a party to or in any way interested in the above entitled matter

Rose Rosales

Subscribed to and sworn before me this 25th day of July A.D. 20 11

Patricia K. Reese, Notary Public of the First Judicial Circuit, State of Hawaii
My commission expires: Oct. 07 2014

Ad # 0000329665

LN: _____

07/19/2011 09:51 8082426389 MAUI NEWS CLASSIFIED PAGE 01/01

CP

Scientific Consultant Services 2x2
CLASS2011 7/20 Wed to
1498565 - Page 1 - Composite

CULTURAL IMPACT ASSESSMENT NOTICE:

Information requested by SCS of cultural resources or on-going cultural activities on or near a land parcel in Pu'unene, Pulehunui Ahupua'a, Wailuku district, Maui Island, Hawai'i (TMK: (2) 3-8-008:019).

Please respond within 30 days to SCS at (808) 597-1182.

(MN: July 20, 21, 24, 2011)

Cost $198.43

To Suarra

From: Rhonda
The Maui News Classified Dept.
Ph: (808) 242-6333 Fax: (808) 242-6389

Your ad proof. Please call or fax your corrections/approval by _____
Mahalo!

Received Time Jul-19- 9:56AM

APPENDIX C: OHA'S RESPONSE

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD11/5837B

July 28, 2011

Cathleen A. Dagher, Senior Archaeologist
Scientific Consultant Services, Inc.
711 Kapi'olani Boulevard, Suite 975
Honolulu, Hawai'i 96813

Re: Pre-Cultural Impact Assessment Consultation
Pu'unene Heavy Industrial Subdivision
Island of Maui

Aloha e Cathleen A. Dagher,

The Office of Hawaiian Affairs (OHA) is in receipt of your July 8, 2011 letter with enclosures initiating consultation ahead of a cultural impact assessment (CIA) for the proposed development of a heavy industrial subdivision (project) on 86 acres in Kihei on the Island of Maui. OHA is concurrently responding to a June 23, 2011 request for comments on this project from Chris Hart & Partners, Inc. who will be preparing a draft environmental assessment (DEA). It is our understanding your CIA will become a supporting document to certain determinations within the DEA.

Your letter indicates that your firm will be conducting an archaeological inventory survey (AIS) of the project area. We look forward to reviewing the results of the AIS. Your archival research indicates Land Commission Award 5230 to Keaweamahi is within the project area. We appreciate that you have provided this information in your letter.

OHA suggests that your CIA comprehensively discuss how project infrastructure (wastewater and onsite drainage systems) intends 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. As you know, in traditional thinking natural resources (such as water) and cultural resources are one and the same and necessary to perpetuate traditional cultural practices.

OHA notes that the Kealia 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 have no additional comments or referrals to individuals or organizations who may be interested in participating in consultation for this project to offer to you at this time. Thank you for initiating consultation. We look forward to reviewing the CIA and providing additional comments at that time. Should you have any questions or concerns, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA- Maui COC

APPENDIX L

Phase I
Environmental Site
Assessment and
Supplemental Data

Phase I
Environmental
Site Assessment

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

Former Puunene Piggery Site
South Fire Break Road
Puunene, Maui, Hawaii 96784
TMK (2) 3-8-008: Parcel 019

Prepared For:
A&B Properties, Inc.
822 Bishop Street
Honolulu, Hawaii 96813

Prepared By:
ENVIROSERVICES & TRAINING CENTER, LLC
505 Ward Avenue, Suite 202
Honolulu, Hawaii 96814
tel: (808) 839-7222

ETC Project No. 11-1001

March 2011

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1

2.0 INTRODUCTION 4

2.1 BACKGROUND 4
2.2 PURPOSE 5
2.3 SCOPE OF SERVICES 6
2.4 SIGNIFICANT ASSUMPTIONS 6
2.5 CONDITIONS AND LIMITATIONS 7
2.6 USER RELIANCE 7
2.7 ENVIRONMENTAL PROFESSIONAL CERTIFICATION 7

3.0 SITE DESCRIPTION 8

3.1 LOCATION AND DESCRIPTION 8
3.2 PHYSICAL SETTING 8
3.2.1 Site Topography 8
3.2.2 Regional Geology 8
3.2.3 Site Geology 8
3.2.4 Regional Hydrogeology 9
3.2.5 Site Hydrogeology 9
3.2.6 Nearest Surface Water Bodies 9
3.3 CURRENT USE OF THE SUBJECT PROPERTY 10
3.4 CURRENT USES OF THE ADJOINING PROPERTIES 10

4.0 USER PROVIDED INFORMATION AND DOCUMENT REVIEW 11

4.1 REQUIRED INFORMATION 11
4.1.1 Environmental Liens 11
4.1.2 Activity and Use Limitations 11
4.1.3 Specialized Knowledge 11
4.1.4 Valuation Reduction for Environmental Issues 11
4.1.5 Commonly Known or Reasonably Ascertainable Information 11
4.1.6 Degree of Obviousness of Potential Contamination 12
4.2 OTHER INFORMATION PERTAINING TO THE SUBJECT PROPERTY 12
4.2.1 Reason for Performing Phase I ESA 12
4.2.2 Title Records 12
4.2.3 Owner, Property Manager, and Occupant Information 12
4.3 DOCUMENT REVIEW 13
4.3.1 Former Piggery and Solid Waste Management Activities 13
4.3.2 Former Puunene Naval Air Station 14

5.0 RECORDS REVIEW 15

5.1 STANDARD ENVIRONMENTAL RECORD SOURCES 15
5.1.1 Federal NPL and Delisted NPL 16
5.1.2 Federal CERCLIS and CERCLIS NFRAP 16
5.1.3 Federal RCRA CORRACTS 16
5.1.4 Federal RCRA (non-CORRACTS) TSD Facilities 16
5.1.5 Federal RCRA Generator 16
5.1.6 Federal Institutional Control/Engineering Control Registries 17
5.1.7 Federal ERNS 17
5.1.8 State Equivalent NPL and CERCLIS 17
5.1.9 State Landfill and/or Solid Waste Disposal 17
5.1.10 State Leaking Underground Storage Tanks 18
5.1.11 State Registered Underground Storage Tanks 18
5.1.12 State Institutional Control Registry 18
5.1.13 State Voluntary Cleanup/Response Sites 18

5.1.14 *State Brownfields* 18
5.1.15 *Unmappable/Orphan Sites* 19
5.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES 19
5.3 HISTORICAL USE INFORMATION ON THE SUBJECT AND ADJOINING PROPERTIES 20
5.3.1 *Aerial Photograph Review* 20
5.3.2 *Fire Insurance Maps* 20
5.3.3 *Property Tax Files and Land Title Records* 21
5.3.4 *Building Permit Records* 21
5.4 ENVIRONMENTAL LIENSEARCH 21

6.0 SITE RECONNAISSANCE 22

6.1 METHODOLOGY AND LIMITING CONDITIONS 22
6.2 GENERAL SITE SETTING 22
6.3 OBSERVATIONS 22
6.4 DIELECTRIC FLUID CONTAINING EQUIPMENT 23

7.0 INTERVIEWS 24

7.1 INTERVIEW WITH OWNER 24

8.0 FINDINGS AND OPINIONS 26

8.1 SITE DESCRIPTION 26
8.2 USER PROVIDED INFORMATION AND DOCUMENT REVIEW 26
8.3 RECORDS REVIEW 27
8.3.1 *Standard Environmental Record Sources* 27
8.3.2 *Additional Environmental Record Sources* 29
8.3.3 *Historical Use Information on the Subject and Adjoining Properties* 29
8.4 SITE RECONNAISSANCE 30
8.5 INTERVIEWS 30

9.0 DATA GAPS 31

10.0 CONCLUSIONS 32

11.0 DEVIATIONS AND ADDITIONAL SERVICES 33

11.1 DEVIATIONS 33
11.2 ADDITIONAL SERVICES 33
11.2.1 *Limited Surface Soil Investigation* 33
11.2.2 *Solid Waste Clearance and Environmental Compliance* 33

12.0 REFERENCES 34

APPENDICES

APPENDIX I: FIGURES
APPENDIX II: PHOTOGRAPHIC DOCUMENTATION
APPENDIX III: HISTORICAL RESEARCH DOCUMENTATION
APPENDIX IV: REGULATORY RECORDS DOCUMENTATION *(EDR Radius Map Report)*
APPENDIX V: ADDITIONAL DOCUMENTATION
APPENDIX VI: QUALIFICATIONS OF THE ENVIRONMENTAL PROFESSIONAL

1.0 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 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. 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 contracted 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 dismiss 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 Puunene 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 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. 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 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.

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 know as the PNAS)* 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 Poffenroth 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 RECs 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 (TMK) identification number (2) 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 property 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. Such 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 II 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 liens, activity and use limitations, specialized knowledge, valuation 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 groundwater 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 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 inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared by: Sharla 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 Puu O Kali Quadrangle, 1983. The elevation of the Subject Property is approximately 110 to 140 feet above mean sea level (msl). Topography at the site is relatively flat with a very slight downward 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 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 theoliite, theoleiitic olivine basalt, and oceanite known as the Honomanu Volcano Series. The Kula Volcanic Series overlays the Honomanu Series and is comprised of hawaiite, alkalic olivine basalt, and ankaramite. Lava flows from the Haleakala volcano formed the Maui Isthmus and are made up of permeable basalt and erosional 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 Waiakoa 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 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 down 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 "Ghyben-Herzberg" 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 Sector on the island of Maui. The aquifer is classified by Mink and Lau, 1990, with the system identification number 60302214 (33221). 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 Lau, 1990)

The site is further underlain by a second aquifer of the same system. The aquifer is an unconfined basal aquifer underlain with basalt of the Honomanu volcanic series covered by andesitic 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 irreplaceable with a moderate vulnerability to contamination (Mink and Lau, 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 Crusher 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 Maalaea Bay.

3.3 Current Use of the Subject Property

The southernmost portion of the Subject Property is currently used for sugarcane cultivation. There is 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 bin, 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 Maui 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 I 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 I ESA.

In order to qualify for one of the LLPs 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 landowner, 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 feed, 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 Mr. Poffenroth's 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 surface 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 I ESA and will be reported under separate cover.

4.3.2 Former Puunene Naval Air Station

The Subject Property was reportedly part of the former Puunene Naval Air Station (also known as the Maui Airport Military Reservation). The Puunene 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. 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 "transformer building" located west of the Subject Property was investigated and/or remediated. Ms. Maria 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 governmental 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 E1527-05. The information provided is assumed to be correct and complete, unless noted otherwise.

Table 1: ASTM Practice Environmental Record Sources and Recommended Search Distances

Environmental Database Sources	ASTM Practice Search Distances (miles)
Federal NPL Site List	1.0
Federal Delisted NPL Site List	0.5
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP Site List	0.5
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	Subject Property and adjoining properties
Federal Institutional Control/Engineering Control Registries	Subject Property only
Federal ERNS List	Subject Property only
State-Equivalent NPL	1.0
State-Equivalent CERCLIS	0.5
State Landfill and/or Solid Waste Disposal Site Lists	0.5
State Leaking UST List	0.5
State Registered UST List	Subject Property and adjoining properties
State Institutional Control Registry	Subject Property only
State Voluntary Cleanup/Response (VCP/VRP) Sites	0.5
State Brownfield Sites	0.5

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 Registries

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 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 subjected 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 incinerators. 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 Hawaii'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 cleanup 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 plotted due to poor or inadequate 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

UMTRA – Uranium Mill Tailings Sites

ODI – Open Dump Inventory

TRIS – Toxic Chemical Release Inventory System

TSCA – Toxic Substances Control Act

FTTS – FIFRA/TSCA Tracking System

SSTS – Section 7 Tracking Systems

ICIS – Integrated Compliance Information System

LUCIS – Land Use Control Information System

CDL – Clandestine Drug Labs

RADINFO – 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 Notifications

UIC – Underground Injection Well Listing

DRYCLEANERS – Permitted Drycleaner Facility Listing

AIRS – List of Permitted Facilities

Manufactured Gas Plants – EDR Propriety 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 covered 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 Publications of America 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., Rey Cel Broadcasting Inc., and LESEA 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 groundcover primarily consisted of bare soil, interior dirt and asphalt paved roads and moderate to heavy vegetation. 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 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 containter) 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 Puunene 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 RECs in connection with the Subject Property.

7.1 Interview with Owner

Mr. Sean 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 Puunene 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 the 1960s. In addition to the pig farm 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 2004, 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 emptied/cleaned and disposed.
- Various pesticides are/were used as part of the sugarcane cultivation activities and other agricultural operations. In addition, fertilizers are/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 tenant 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 buried 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 piggery 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 sugar 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 Hawaii 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 Puunene 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 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) TSD 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 information revealed that Subject Property was identified as a RCRA Large Quantity Generator (LQG). Specifically, the "Former Poffenroth Piggery" is listed as a RCRA LQG with the RCRA Facility ID: HIR000138545. No apparent RCRA violations were noted. In addition, with the exception of the 'hazmat' bin pending disposal, site reconnaissance findings indicated no other apparent hazardous waste storage and/or generation on the Subject Property. As such, so 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 FUDS 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 was 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 this 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 also 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, Kihei, Maui, Hawaii (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.

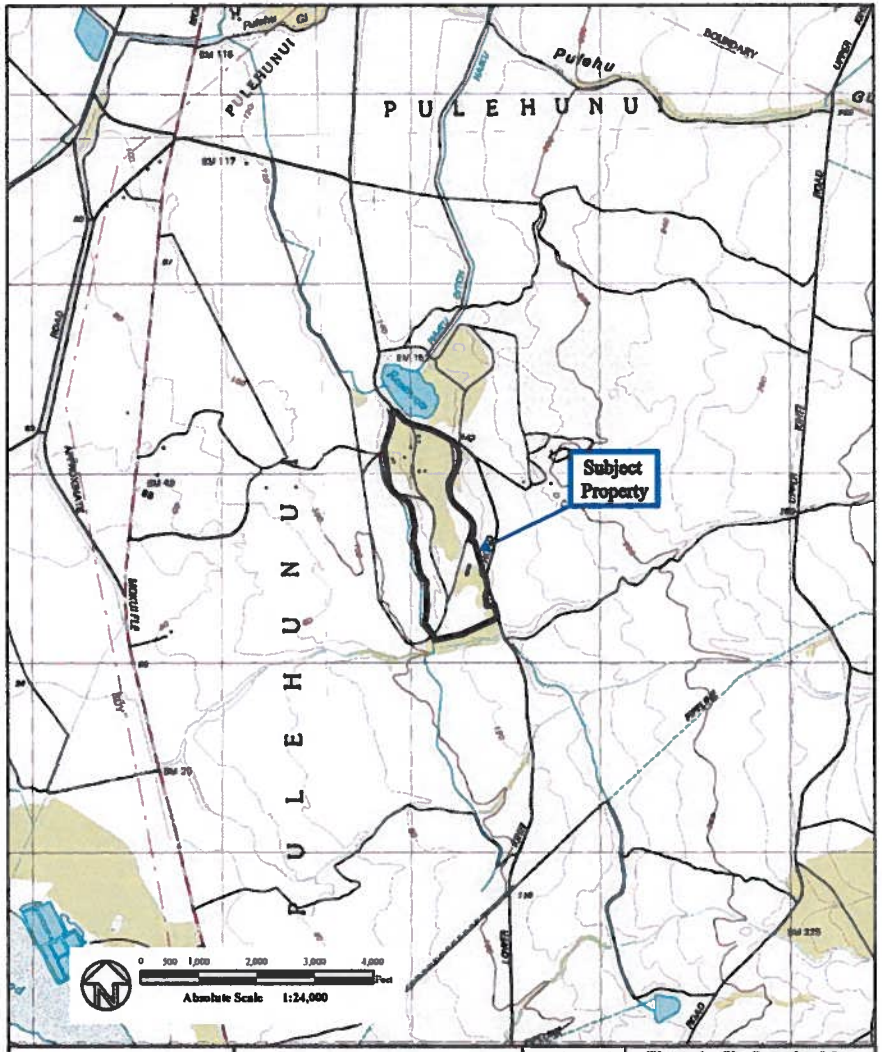
Pursuant to the landowner's request, the following opinions are based on ETC's visual inspection of the Subject Property conducted on February 18, 2011. Correspondence with Mr. Todd Nichols of the DOH SWS indicated that site clearance would be issued provided that the remaining solid waste and "plastic 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 (TPH-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.

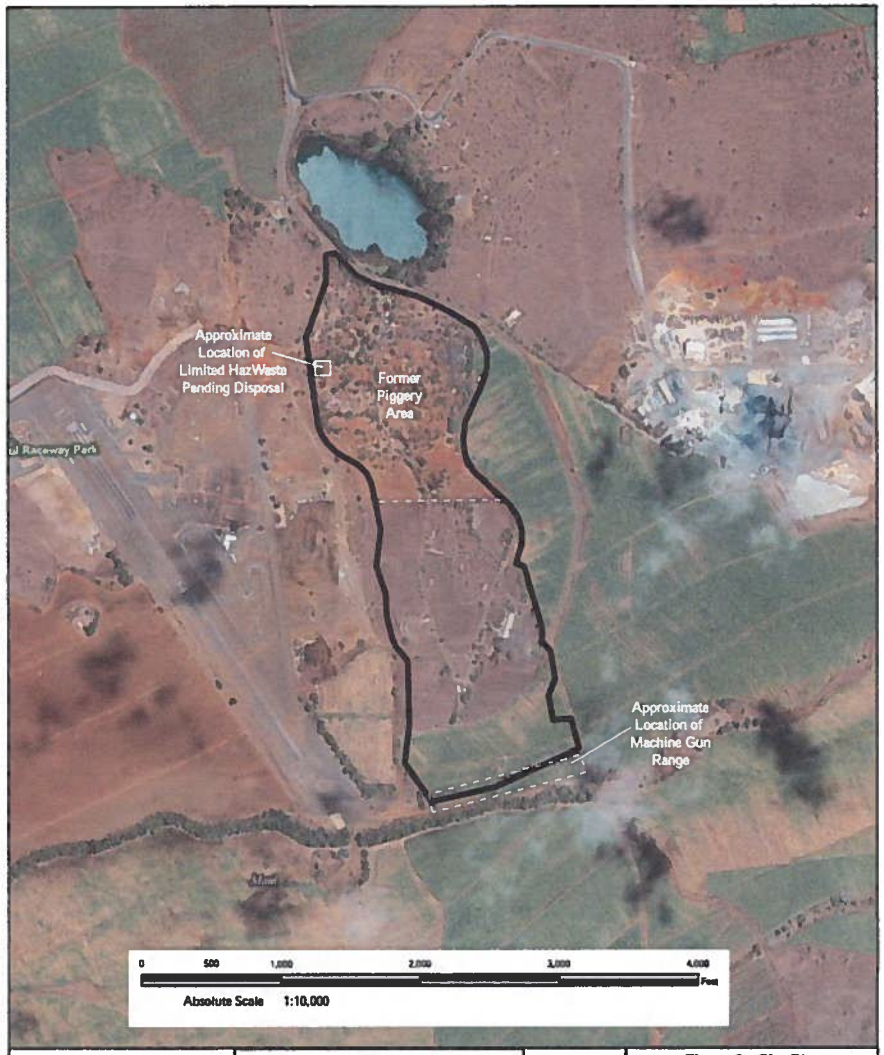
12.0 REFERENCES

- ASTM International. Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, Designation E1527-05.
- Environmental Data Resources, Inc., January 24, 2011. *The EDR Radius Map with GeoCheck*. Report Inquiry No. 2972944.2s.
- Environmental Data Resources, Inc., January 24, 2011. *Certified Sanborn® Map Report*. Order No. 2972944.3.
- Environmental Data Resources, Inc., January 24, 2011. *EDR Historical Topographic Map Report*. Order No. 2972944.4.
- Environmental Data Resources, Inc., January 25, 2011. *The EDR Aerial Photo Decade Package*. Order No. 2972944.5.
- Environmental Data Resources, Inc., January 25, 2011. *The EDR Environmental LienSearch Report*. Order No. 2972944.7.
- Macdonald, G.A., A.T. Abbot, and F.L. Peterson. 1983. *Volcanoes in the Sea*. University of Hawaii Press.
- Maui County Property Tax Office, Ownership and Building Permit records.
- Mink, John F. and Stephen L. Lau. March 1990. *Aquifer Identification and Classification for Maui: Groundwater Protection Strategy for Hawaii*.
- State of Hawaii Department of Health, Solid and Hazardous Waste Branch records.
- State of Hawaii Taxation Map Bureau, Tax Map Key (2) 3-8-008: Parcel 019.
- U.S. Department of Agriculture Soil Conservation Service. 1972. *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*.
- U.S. Department of Interior Geological Survey. 1992. Puu O Kali, Hawaii Quadrangle, 7.5 Minute Series (Topographic Map).

APPENDIX I
FIGURES

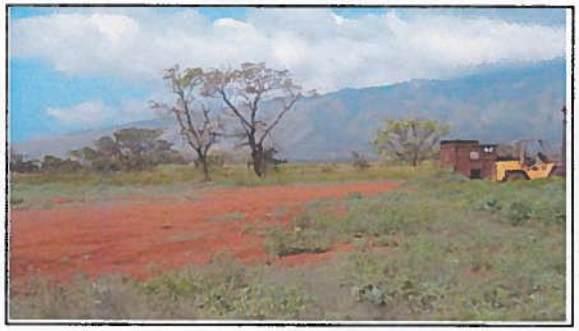


	EnviroServices & Training Center, LLC	Project No. 11-1001 March 2011	**Figure 1 - Site Location Map** Former Puunene Piggery Site South Fire Break Road Kihei, Maui, Hawaii 96753 TMK (2) 3-8-008: Parcel 19



	EnviroServices & Training Center, LLC	Project No. 11-1001 March 2011	**Figure 2 - Site Plan** Former Puunene Piggery Site South Fire Break Road Kihei, Maui, Hawaii 96753 TMK (2) 3-8-008: Parcel 19

APPENDIX II
PHOTOGRAPHIC DOCUMENTATION



Photograph 1: View of 'hazmat' 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 of the Subject Property.

	EnviroServices & Training Center, LLC	Project No. 11-1001 March 2011	**Photographic Documentation** Former Piunene Piggery Site South Fire Break Road Kihei, Maui, Hawaii 96753 TMK (2) 3-8-008: Parcel 19

Photograph 4: View of concrete pad located near the north entrance of the Subject Property.

Photograph 5: View of the north portion of the Subject Property near the north front entrance.

Photograph 6: View of the northwest portion of the Subject Property.

Photograph 7: View of the northeast portion of the Subject Property.

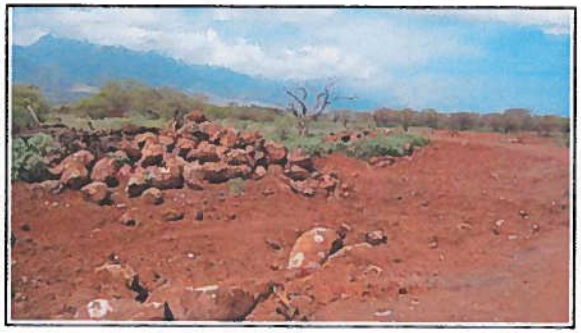
Photograph 8: View of the northeast portion of the Subject Property.

Photograph 9: View of remnant fencing and pig troughs located on the northeast portion of the Subject Property.

EnviroServices & Training Center, LLC
Project No. 11-1001
March 2011
Photographic Documentation
Former Puunene Piggery Site
South Fire Break Road
Kihei, Maui, Hawaii 96753
TMK (2) 3-8-008: Parcel 19

Photograph 10: View of the central portion of the Subject Property.

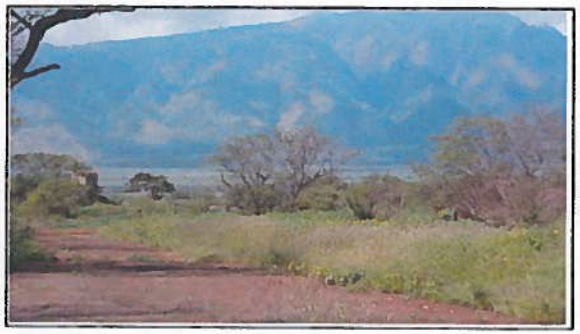
Photograph 11: View of the central portion of the Subject Property.



Photograph 12: View of the non-potable groundwater well located on the central portion of the Subject Property.

Photograph 13: View of the central portion of the Subject Property.

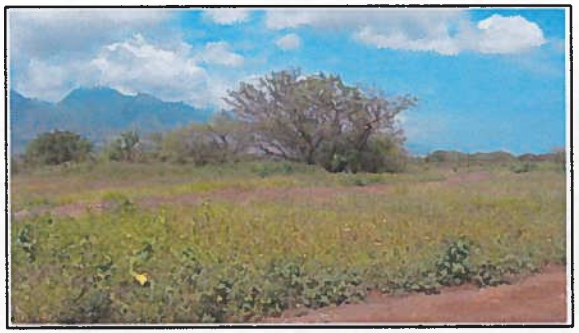
Photograph 14: View of the central portion of the Subject Property.



Photograph 15: View of the central portion 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.

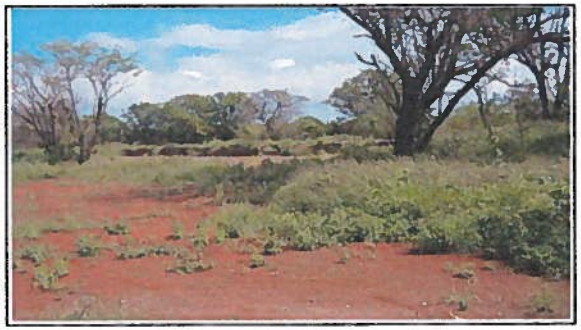


Photograph 18: View of the south portion of the Subject Property.

	EnviroServices & Training Center, LLC	Project No. 11-1001 March 2011	**Photographic Documentation** Former Puunene Piggery Site South Fire Break Road Kihei, Maui, Hawaii 96753 TMK (2) 3-8-008: Parcel 19

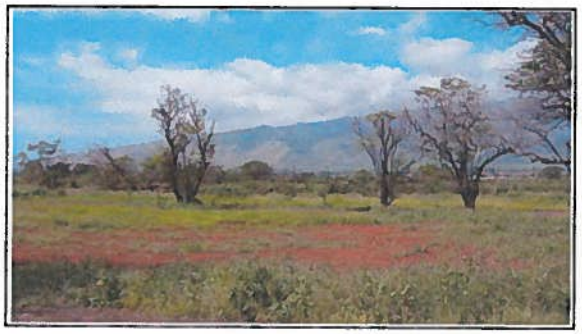
Photograph 19: View of the south portion of the Subject Property.

Photograph 20: View of concrete slab located on the southeast portion of the Subject Property.



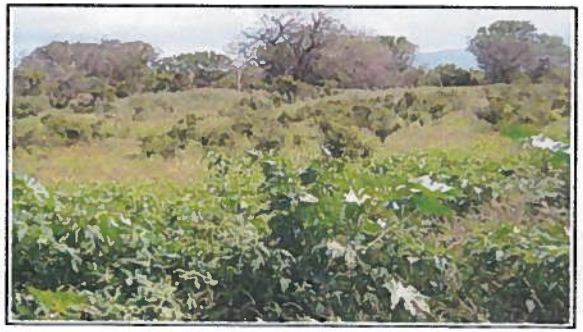
Photograph 21: View of the south portion of the Subject Property.

	EnviroServices & Training Center, LLC	Project No. 11-1001 March 2011	**Photographic Documentation** Former Puunene Piggery Site South Fire Break Road Kihei, Maui, Hawaii 96753 TMK (2) 3-8-008: Parcel 19



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.

EnvtroServices & Training Center, LLC
Project No. 11-1001
March 2011
Photographic Documentation
Former Puunene Piggery Site
South Fire Break Road
Kihei, Maui, Hawaii 96753
TMK (2) 3-8-008: Parcel 19

APPENDIX III
HISTORICAL RESEARCH DOCUMENTATION

Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96753

Inquiry Number: 2972944.3
January 24, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

1/24/11

Site Name:
Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96753

Client Name:
Enviro Srvcs. and Tmg. Center
505 Ward Avenue
Honolulu, HI 96814

EDR Inquiry # 2972944.3

Contact: Sharla Nakashima

EDR® Environmental Data Resources Inc

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Enviro Srvcs. and Tmg. Center were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edmet.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
City, State, Zip: Kihei, HI 96753
Cross Street:
P.O. # NA
Project: 11-1001
Certification # 5450-4D9A-9EB7

Sanborn® Library search results
Certification # 5450-4D9A-9EB7

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96753

Inquiry Number: 2972944.4
January 24, 2011

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edmet.com

EDR Historical Topographic Map Report

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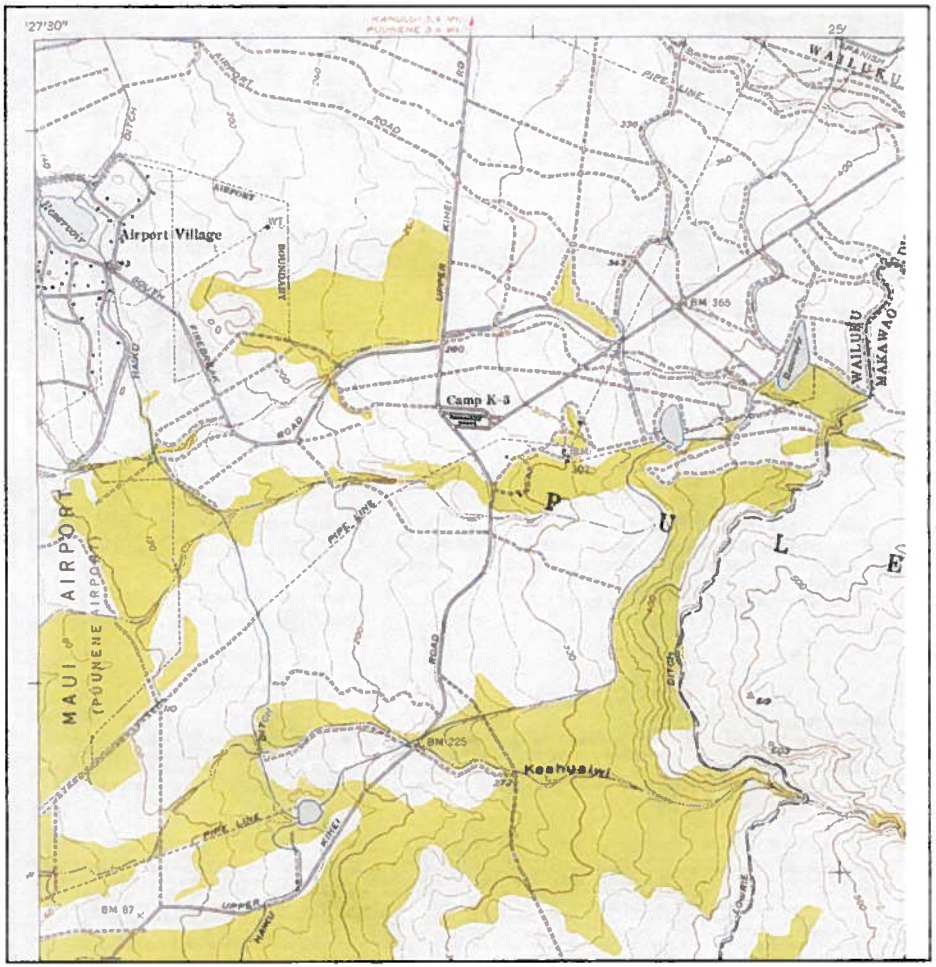
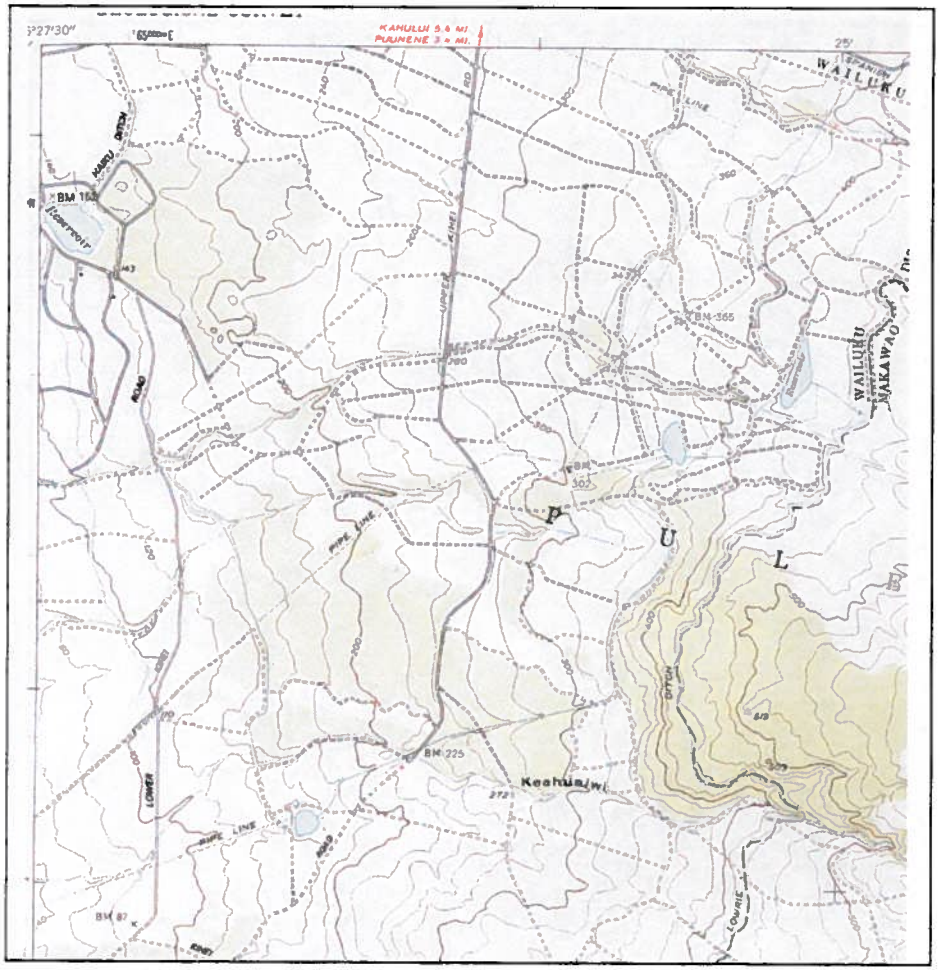
Historical Topographic Map



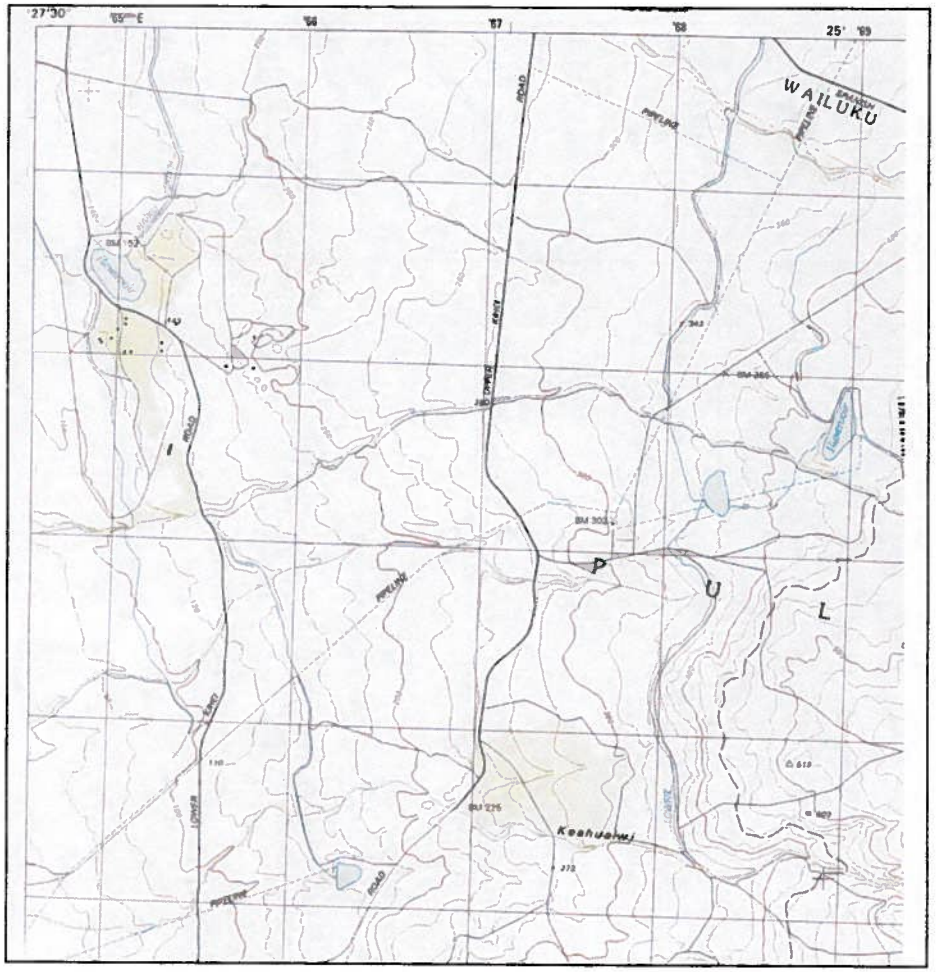
N ↑	TARGET QUAD NAME: Puu O Kali, HI MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei, HI 96753 LAT/LONG: 20.8154 / -156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY#: 2972944.4 RESEARCH DATE: 01/24/2011

Historical Topographic Map



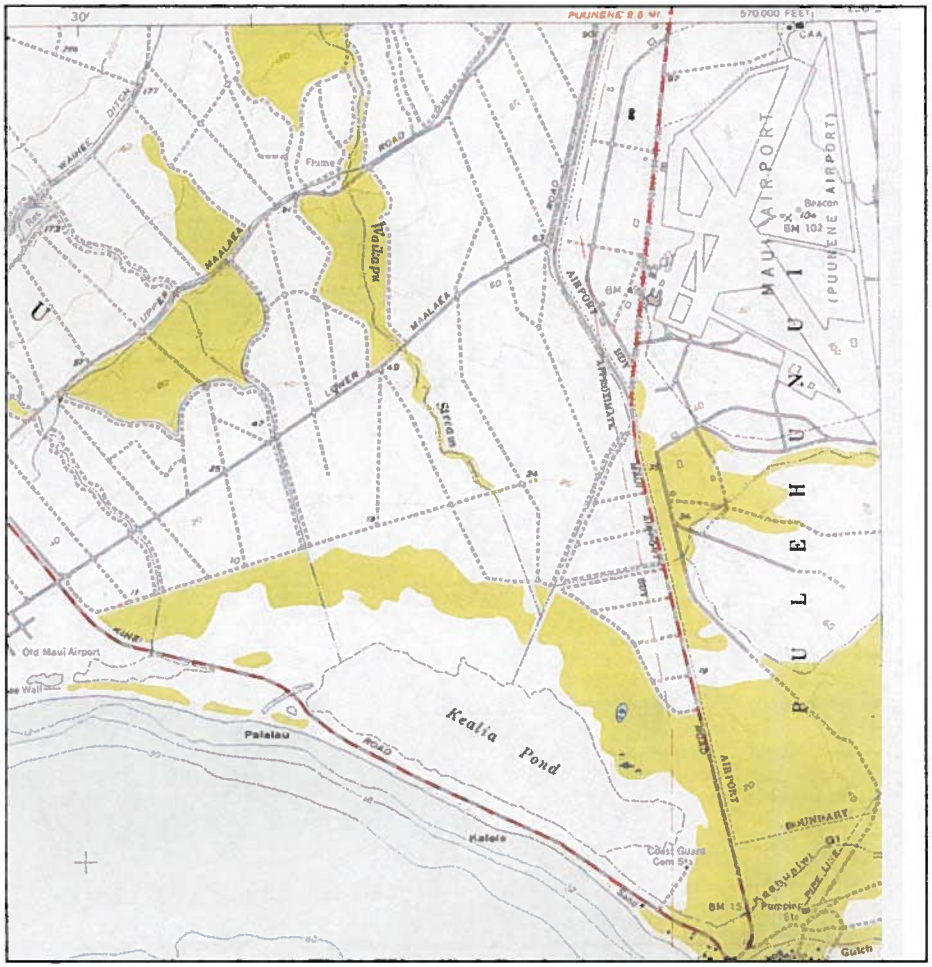
N	TARGET QUAD NAME: Puu O Kali, HI MAP YEAR: 1983 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei, HI 96753 LAT/LONG: 20.8154 / -156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY#: 2972944.4 RESEARCH DATE: 01/24/2011

Historical Topographic Map



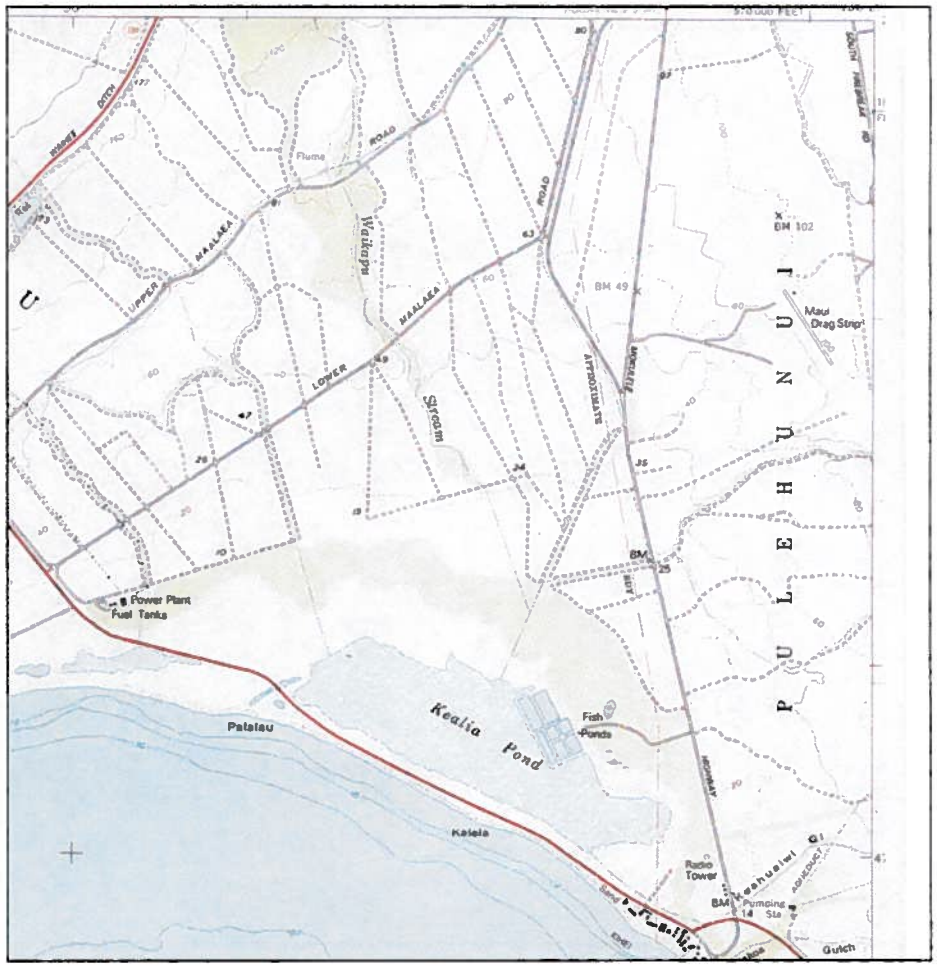
N	TARGET QUAD NAME: Puu O Kali, HI MAP YEAR: 1992 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei, HI 96753 LAT/LONG: 20.8154 / -156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY#: 2972944.4 RESEARCH DATE: 01/24/2011

Historical Topographic Map



N	ADJOINING QUAD NAME: Maalaea, HI MAP YEAR: 1954 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei, HI 96753 LAT/LONG: 20.8154 / -156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY#: 2972944.4 RESEARCH DATE: 01/24/2011

Historical Topographic Map



N	ADJOINING QUAD NAME: Maalaea, HI MAP YEAR: 1983 SERIES: 7.5 SCALE: 1:24,000	SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei, HI 96753 LAT/LONG: 20.8154 / -156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY#: 2972944.4 RESEARCH DATE: 01/24/2011

Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96753

Inquiry Number: 2972944.5
January 25, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
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800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:
Aerial Photography January 25, 2011

Target Property:
South Fire Break Road
Kihei, HI 96753

Year	*Scale*	*Details*	*Source*
1954	Aerial Photograph. Scale: 1"=750'	Panel #: 20156-G4, WAILUKU, HI;Flight Date: April 04, 1954	EDR
1976	Aerial Photograph. Scale: 1"=1000'	Panel #: 20156-G4, WAILUKU, HI;Flight Date: December 20, 1976	EDR
1992	Aerial Photograph. Scale: 1"=1000'	Panel #: 20156-G4, WAILUKU, HI;Flight Date: September 23, 1992	EDR

INQUIRY #: 2972944.5
YEAR: 1976
= 1000'
N

INQUIRY #: 2972944.5
YEAR: 1992
= 1000'
N

Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96752

Inquiry Number: 2972944.7
January 25, 2011

The EDR Environmental LienSearch™ Report

EDR® Environmental Data Resources Inc

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800 352 0050
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EDR Environmental LienSearch™ Report

The EDR Environmental Lien Search Report provides results from a search of available current land title records for environmental cleanup liens 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/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(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, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
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EDR Environmental LienSearch™ Report

TARGET PROPERTY INFORMATION

ADDRESS

FORMER PUUNENE PIGGERY SITE
SOUTH FIRE BREAK ROAD
Kihei, HI 96753

RESEARCH SOURCE

Source 1: HI State Bureau of Conveyances

Source 2: N/A
Examiner's Note: Public records of HI State Bureau of Conveyances were searched from January 1, 1980 to January 17, 2011 , and no other deeds vesting title in the subject property were found of record during the period searched.

PROPERTY DESCRIPTION

Current Owner: A&B Hawaii Inc

Legal Description: See deed attached

Property Identifiers: APN: 3-8-008-019-0000

General Comments: N/A

PROPERTY INFORMATION

Deed 1:

Type of Deed: Sub- SubLease
Title is vested in: Lesea Broadcasting Corp and Rey Cel Broadcasting Inc
Title received from: A&B Hawaii Inc
Date Executed: August 4, 1994
Date Recorded: October 19,1994
Book:
Page:
Volume:
Instrument #: 94-171517
Docket:

Land Record Comments: According to the county this property has been owned by A &B Hawaii Inc prior to our search period. This lease is the last recorded document of record

ENVIRONMENTAL LIEN

Environmental Lien: Found Not Found X
If found:

EDR Environmental LienSearch™ Report

1st Party:
2nd Party:
Dated:
Recorded:
Book:
Page:
Docket:
Volume:
Instrument:
Comments:
Miscellaneous:

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

Other AUL's: Found Not Found X
If found:

1st Party:
2nd Party:
Dated:
Recorded:
Book:
Page:
Docket:
Volume:
Instrument:
Comments:

EDR Environmental LienSearch™ Report

DEED EXHIBIT

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED

OCT 19, 1994 01:58 PM

Doc No(s) 94-171517

/s/ S. FURUKAWA
REGISTRAR OF CONVEYANCES

CONVEYANCE TAX: $106.43

LAND COURT SYSTEM | REGULAR SYSTEM

Return by Mail ( ) Pickup (X) To:

CARLSMITH BALL WICHMAN
MURRAY CASE & ICHIKI
1001 Bishop Street
Pacific Tower, Suite 2200
Honolulu, Hawaii 96813

Attention: Eric A. James, Esq.
Telephone: 523-2500

SHORT FORM SUB-SUBLEASE

This Short Form Sub-Sublease ("Short Form Lease"), made this 4th day of August, 1994, by and between LESEA BROADCASTING CORP., a nonprofit Indiana corporation, registered to do business in the State of Hawaii, whose principal place of business and post office address is P. O. Box 12, South Bend, Indiana 46624 ("LeSea"), and REY-CEL BROADCASTING, INC., a Hawaii corporation, whose principal place of business and post office address is 230 Hana Highway, Kahului, Maui, Hawaii 96732 ("Rey-Cel"):

W I T N E S S E T H:

That LeSea and Rey-Cel entered into that certain unrecorded Sub-Sublease dated July 16, 1993 (the "Sub-Sublease"), wherein LeSea leased to Rey-Cel, for the rents and upon the terms, covenants and conditions set forth therein, that certain parcel of real property described as follows:

A portion of that certain property situate at Puunene, Island of and County of Maui, State of Hawaii, consisting of approximately 86,520.0 square feet, as shown on the 1963 Tax Maps of the Island of Maui, State of Hawaii, identified as a portion of Tax Map Key No. 3-8-4-5, and more particularly described in that certain Sublease dated August 28, 1990, by and between Maui Factors, Inc., as Sublessor, and LaSea, as Sublessee, recorded in the Bureau of Conveyances, State of Hawaii, as Document No. 90-185709.

To have and to hold the same for a term commencing upon June 22, 1994 and terminating upon December 31, 2001.

This Short Form Sub-Sublease is executed for the purpose of giving notice of the existence of the Sub-Sublease. Reference is made to the Sub-Sublease, as the same may be amended from time to time, for the full description of the rights and duties of LaSea and Rey-Cal, and this Short Form Sub-Sublease shall in no way amend or modify the terms and conditions of, or the interpretation of the rights and duties of LaSea and Rey-Cal under, the Sub-Sublease.

IN WITNESS WHEREOF, the parties hereto have executed this Short Form Sub-Sublease as of the date first above written.

REY-CEL BROADCASTING, INC.

By _____
Name:
Its:

"Rey-Cel"

LESEA BROADCASTING CORP.

By _____
Name: Peter Sumrall
Its: Vice President

"LaSea"

STATE OF HAWAII }
COUNTY OF MAUI } ss.

On this 4th day of August, 1993, before me personally appeared _____, 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.

_____
Notary Public, State of Hawaii
My commission expires: 10/26/96

L.S.

STATE OF INDIANA)
) ss.
COUNTY OF ST. JOSEPH)

On this 26th day of July, 1994, before me personally appeared PETER SUNRAUL, 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.

Lori F. Sarkisian
Notary Public, State of Indiana

My commission expires: 12-17-95

[illegible]

APPENDIX IV
REGULATORY RECORDS DOCUMENTATION *(EDR Radius Map Report)*

Former Puunene Piggery Site
South Fire Break Road
Kihei, HI 96753

Inquiry Number: 2972944.2s
January 24, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800 352 0050
www.edrnet.com

FORM-PRM-MAR

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	7
Orphan Summary	8
Government Records Searched/Data Currency Tracking	GR-1
GEOCHECK ADDENDUM	
Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting SSURGO Soil Map	A-5
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-9
Physical Setting Source Records Searched	A-14

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EXECUTIVE SUMMARY

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 1527-05) 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
KIHEI, HI 96753

COORDINATES

Latitude (North):	20.815400 - 20' 48' 55.4"
Longitude (West):	156.452800 - 156' 27' 10.1"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765121.4
UTM Y (Meters):	2303676.8
Elevation:	124 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	20156-G4 WAILUKU, HI
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 site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... 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 - equivalent CERCLIS

SHWS..... Sites List

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tank Database
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Underground Storage Tank Database
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Engineering Control Sites

INST CONTROL..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing
VCP..... Voluntary Response Program Sites

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODL..... Open Dump Inventory
INDIAN ODL..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
CDL..... Clandestine Drug Lab Listing
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information
LUCIS..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... Release Notifications

Other Ascertainable Records

RCRA-NonGen..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems

ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database
FINDS..... Facility Index System/Facility Registry System
RAATS..... RCRA Administrative Action Tracking System
UIC..... Underground Injection Wells Listing
DRYCLEANERS..... Permitted Drycleaner Facility Listing
AIRS..... List of Permitted Facilities
INDIAN RESERV..... Indian Reservations
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List
COAL ASH DOE..... Steam-Electric Plan 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 close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated 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 italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing 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 12/31/2009 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

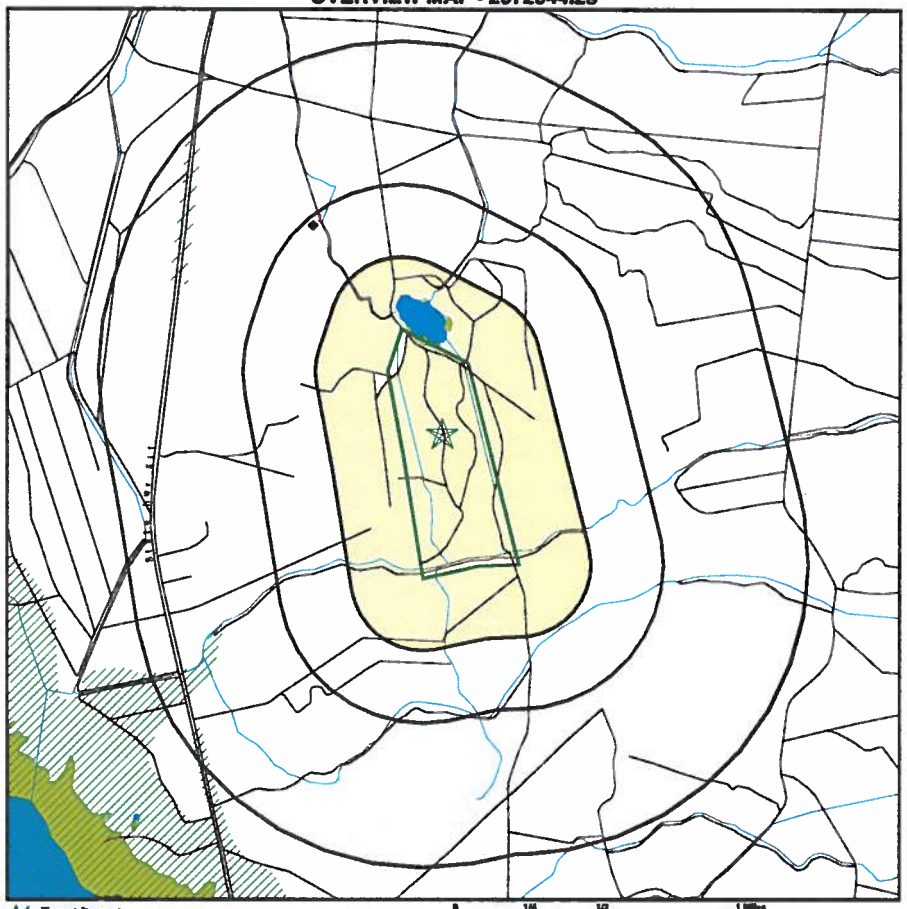
Lower Elevation	Address	Direction / Distance	Map ID	Page
MAUI AIRPORT MILITARY RES		NW 1/4 - 1/2 (0.472 mi.)	1	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 3 records

Site Name	Database(s)
MECO GENERATING STATION MAALAEA	SHWS, SPILLS
KIHEI WWTP	LUST, UST
MONSANTO COMPANY	RCRA-SQG

OVERVIEW MAP - 2972944.2s



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Dept. Defense Sites
Indian Reservations BIA
Oil & Gas pipelines
100-year flood zone
500-year flood zone
National Wetland Inventory

0 1/4 1/2 1 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei HI 96753 LAT/LONG: 20.8154 / 156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY #: 2972944.2s DATE: January 24, 2011 12:28 pm

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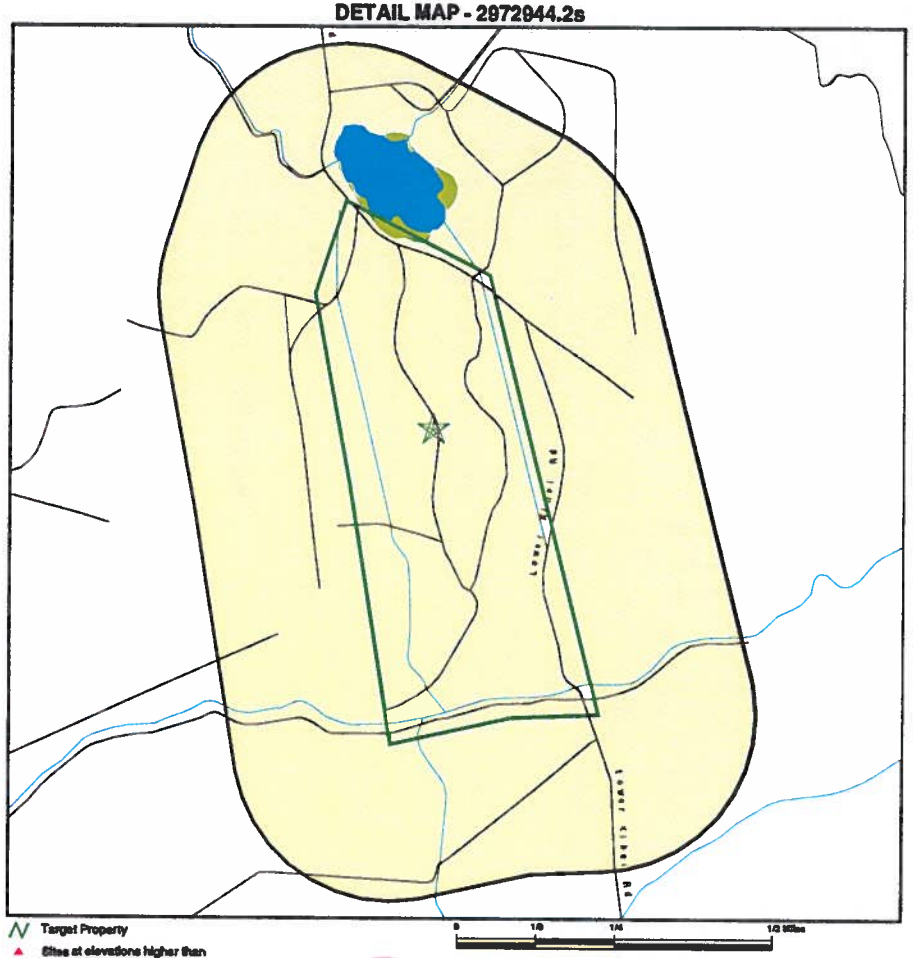
DETAIL MAP - 2972944.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei HI 96753 LAT/LONG: 20.8154 / 156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY #: 2972944.2s DATE: January 24, 2011 12:28 pm

Copyright © 2011 EDR, Inc. © 2010 Tele Atlas Rel. 07/2008.

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	0	0	NR	NR	NR	0
RCRA-CESQG		0.250	0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS		1.000	0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST		0.500	0	0	0	NR	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST		0.250	0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS		0.500	0	0	0	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS		0.500	0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		0.250	0	0	NR	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	1	0	NR	1
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number
1 NW 1/4-1/2 0.472 mi. 2493 ft.	**MAUI AIRPORT MILITARY RES** PUUNENE, HI	FUDS	1007212729 N/A

MAP FINDINGS

Relative: Lower
Actual: 120 ft.

FUDS:
Federal Facility ID: HI9799F3960
FUDS #: H09HI0225
INST ID: 54616
Facility Name: MAUI AIRPORT MILITARY RES
City: PUUNENE
State: HI
EPA Region: 9
County: MAUI
Congressional District: 02
US Army District: Honolulu District (POH)
Fiscal Year: 2009
Telephone: 808-438-8317
NPL Status: Not Listed
RAB: Not reported
CTC: 13859 7189167592
Current Owner: STATE

FUDS Description Details:

The former Maui Airport Military Reservation consists of 1,875 acres and is located midway to Kihei on Mokulele Highway. The airport was known as Puunene Naval Air Station and was built from 1936-1939. The airport was used by the Navy from 1940 to 19 946 and was later returned 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.

FUDS 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 r building with a PCB transformer, and a former landfill that may need to be removed or remediated. Current use of the site includes a heliport, crop dusting airplane runway, and a drag strip. The County of Maui is proposing the area to be a county f fairground.

FUDS Current Program Details:

FUDS Future Program Details:

Count: 3 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KIHEI	U001236805	KIHEI WWTP	480TH WELEKAHAO RD & PILANI	96753	LUST, UST
KIHEI	S106819074	MECO GENERATING STATION MAA-LAEA	N KIHEI RD		SHWS, SPILLS
KIHEI	1010316486	MONSANTO COMPANY	2111 PILANI HWY	96753	RCRA-SQG

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 required.

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
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/02/2010
Date Data Arrived at EDR: 07/14/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 82

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities 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 meet the requirements for listing.

Date of Government Version: 07/02/2010
Date Data Arrived at EDR: 07/14/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 82

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 11/22/2010
Next Scheduled EDR Contact: 02/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/02/2010
Date Data Arrived at EDR: 07/14/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 82

Source: EPA
Telephone: N/A
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: 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 companies 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 Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 01/29/2010
Date Data Arrived at EDR: 02/09/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 12/30/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 06/23/2009
Date Data Arrived at EDR: 01/15/2010
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 26

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 01/11/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS 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, to 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 Priorities 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.

Date of Government Version: 06/23/2009
Date Data Arrived at EDR: 09/02/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 19

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 12/01/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/22/2010
Next Scheduled EDR Contact: 02/28/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: 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 selective 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 offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: 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 selective 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 (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small 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 selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small 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 selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. 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.

Date of Government Version: 12/20/2009
Date Data Arrived at EDR: 01/20/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. 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 site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/20/2009
Date Data Arrived at EDR: 01/20/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 82

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 07/09/2010
Date Data Arrived at EDR: 07/09/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 39

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 01/07/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: 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 HRS 128D (includes CERCLIS sites).

Date of Government Version: 12/01/2009
Date Data Arrived at EDR: 12/07/2009
Date Made Active in Reports: 01/08/2010
Number of Days to Update: 32

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Permitted Landfills in the State of Hawaii
Solid Waste Facilities/Landfill Sites. SWF/LF 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 failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 04/01/2010
Date Data Arrived at EDR: 04/08/2010
Date Made Active in Reports: 05/19/2010
Number of Days to Update: 41

Source: Department of Health
Telephone: 808-586-4245
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank 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 Arrived at EDR: 12/17/2010
Date Made Active in Reports: 01/24/2011
Number of Days to Update: 38
Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/21/2011
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: 08/05/2010
Date Data Arrived at EDR: 08/06/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 08/30/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
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 Arrived at EDR: 05/27/2010
Date Made Active in Reports: 08/09/2010
Number of Days to Update: 74
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 11/01/2010
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: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/03/2010
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, Mississippi and North Carolina.

Date of Government Version: 08/27/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/02/2010
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: 08/05/2010
Date Data Arrived at EDR: 08/06/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 59
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's 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: 09/20/2010
Date Data Arrived at EDR: 09/20/2010
Date Made Active in Reports: 10/07/2010
Number of Days to Update: 17
Source: Department of Health
Telephone: 808-586-4228
Last EDR Contact: 12/06/2010
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 Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/30/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 05/24/2010
Date Data Arrived at EDR: 05/27/2010
Date Made Active in Reports: 08/09/2010
Number of Days to Update: 74
Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/19/2009
Date Data Arrived at EDR: 02/19/2009
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 25
Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/02/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2008
Date Data Arrived at EDR: 12/30/2008
Date Made Active in Reports: 03/16/2009
Number of Days to Update: 76

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 11/09/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 08/03/2010
Date Data Arrived at EDR: 08/04/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 61

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/11/2010
Date Data Arrived at EDR: 02/11/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 60

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 08/05/2010
Date Data Arrived at EDR: 08/06/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 59

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/27/2010
Date Data Arrived at EDR: 08/30/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 35

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Semi-Annually

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/17/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Control Sites
A listing of sites with engineering controls in place.

Date of Government Version: 12/01/2009
Date Data Arrived at EDR: 12/07/2009
Date Made Active in Reports: 01/08/2010
Number of Days to Update: 32

Source: Department of Health
Telephone: 404-586-4249
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls
Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 12/01/2009
Date Data Arrived at EDR: 12/07/2009
Date Made Active in Reports: 01/08/2010
Number of Days to Update: 32

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 04/02/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/05/2010
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

VCP: Voluntary Response Program Sites
Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 12/01/2009
Date Data Arrived at EDR: 12/07/2009
Date Made Active in Reports: 01/08/2010
Number of Days to Update: 32

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites
With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 12/01/2009
Date Data Arrived at EDR: 12/07/2009
Date Made Active in Reports: 01/08/2010
Number of Days to Update: 32

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/24/2010
Date Data Arrived at EDR: 08/25/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 53
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/30/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 12/22/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/09/2010
Next Scheduled EDR Contact: 02/21/2011
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/07/2010
Date Data Arrived at EDR: 06/18/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 60
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Listing
A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/10/2010
Date Made Active in Reports: 10/22/2010
Number of Days to Update: 42
Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 01/04/2011
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 05/08/2010
Date Data Arrived at EDR: 05/11/2010
Date Made Active in Reports: 08/09/2010
Number of Days to Update: 90
Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

LUCIS: Land Use Control Information System
LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31
Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/22/2010
Next Scheduled EDR Contact: 03/07/2011
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 04/06/2010
Date Data Arrived at EDR: 04/07/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 50
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/05/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Annually

SPILLS: Release Notifications
Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 03/10/2010
Date Data Arrived at EDR: 03/16/2010
Date Made Active in Reports: 04/13/2010
Number of Days to Update: 28

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 12/06/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

Other Ascertainable Records

RCRA-NonGen: RCRA - Non 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 selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/17/2010
Date Data Arrived at EDR: 02/19/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 87

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 01/06/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2010
Date Data Arrived at EDR: 02/09/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 62

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/09/2010
Next Scheduled EDR Contact: 02/21/2011
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
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.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 07/01/2010
Date Data Arrived at EDR: 08/11/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 113

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/03/2011
Next Scheduled EDR Contact: 04/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision
Record of Decision. ROD documents mandate a permanant remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 06/01/2010
Date Data Arrived at EDR: 06/16/2010
Date Made Active in Reports: 08/17/2010
Number of Days to Update: 62

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/14/2009
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 5

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/29/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Varies

MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/04/2010
Date Data Arrived at EDR: 09/09/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 84

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/09/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 01/13/2010
Date Made Active in Reports: 02/18/2010
Number of Days to Update: 36

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 12/17/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/29/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/18/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/29/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/29/2010
Next Scheduled EDR Contact: 03/14/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 01/06/2010
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 35
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 11/01/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 04/24/2010
Date Data Arrived at EDR: 04/29/2010
Date Made Active in Reports: 05/17/2010
Number of Days to Update: 18
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 12/23/2010
Next Scheduled EDR Contact: 04/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 02/01/2010
Date Data Arrived at EDR: 04/22/2010
Date Made Active in Reports: 08/09/2010
Number of Days to Update: 109
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/13/2010
Date Data Arrived at EDR: 07/14/2010
Date Made Active in Reports: 08/09/2010
Number of Days to Update: 26
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/13/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41
Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/10/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35
Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 02/25/2010
Date Made Active in Reports: 05/12/2010
Number of Days to Update: 76

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 11/30/2010
Next Scheduled EDR Contact: 03/07/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing
A listing of underground injection well locations.

Date of Government Version: 09/21/2010
Date Data Arrived at EDR: 10/01/2010
Date Made Active in Reports: 10/22/2010
Number of Days to Update: 21

Source: Department of Health
Telephone: 808-586-4258
Last EDR Contact: 12/08/2010
Next Scheduled EDR Contact: 03/21/2011
Data Release Frequency: Varies

DRYCLEANERS: Permitted Drycleaner Facility Listing
A listing of permitted drycleaner facilities in the state.

Date of Government Version: 06/30/2010
Date Data Arrived at EDR: 07/13/2010
Date Made Active in Reports: 08/04/2010
Number of Days to Update: 22

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Varies

AIRS: List of Permitted Facilities
A listing of permitted facilities in the state.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/24/2011
Number of Days to Update: 10

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 01/10/2011
Next Scheduled EDR Contact: 04/25/2011
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised 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: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 92

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 12/13/2010
Next Scheduled EDR Contact: 02/07/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/10/2010
Next Scheduled EDR Contact: 02/14/2011
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/18/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 11/09/2009
Date Data Arrived at EDR: 12/18/2009
Date Made Active in Reports: 02/10/2010
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 12/21/2010
Next Scheduled EDR Contact: 03/28/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife 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
Date Data Arrived at EDR: 02/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/21/2011
Next Scheduled EDR Contact: 05/02/2011
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly 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
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

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 information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There 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, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
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 number, 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: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The 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 EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic 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.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

FORMER PUUNENE PIGGERY SITE
SOUTH FIRE BREAK ROAD
KIHEI, HI 96753

TARGET PROPERTY COORDINATES

Latitude (North):	20.81540 - 20' 48' 55.4"
Longitude (West):	156.4528 - 156' 27' 10.1"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765121.4
UTM Y (Meters):	2303676.8
Elevation:	124 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	20156-G4 WAILUKU, HI
Most Recent Revision:	Not reported

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant 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 soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

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).

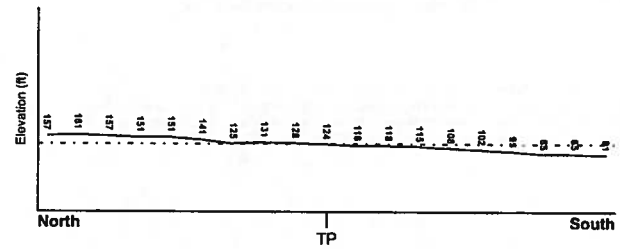
TOPOGRAPHIC INFORMATION

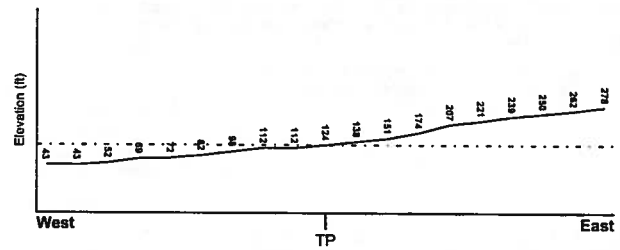
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 124 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC 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 or, should contamination exist on the target property, what downgradient 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	FEMA Flood Electronic Data
MAUI, HI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 1500030255B - FEMA Q3 Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient 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 date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

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 to rely on 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.

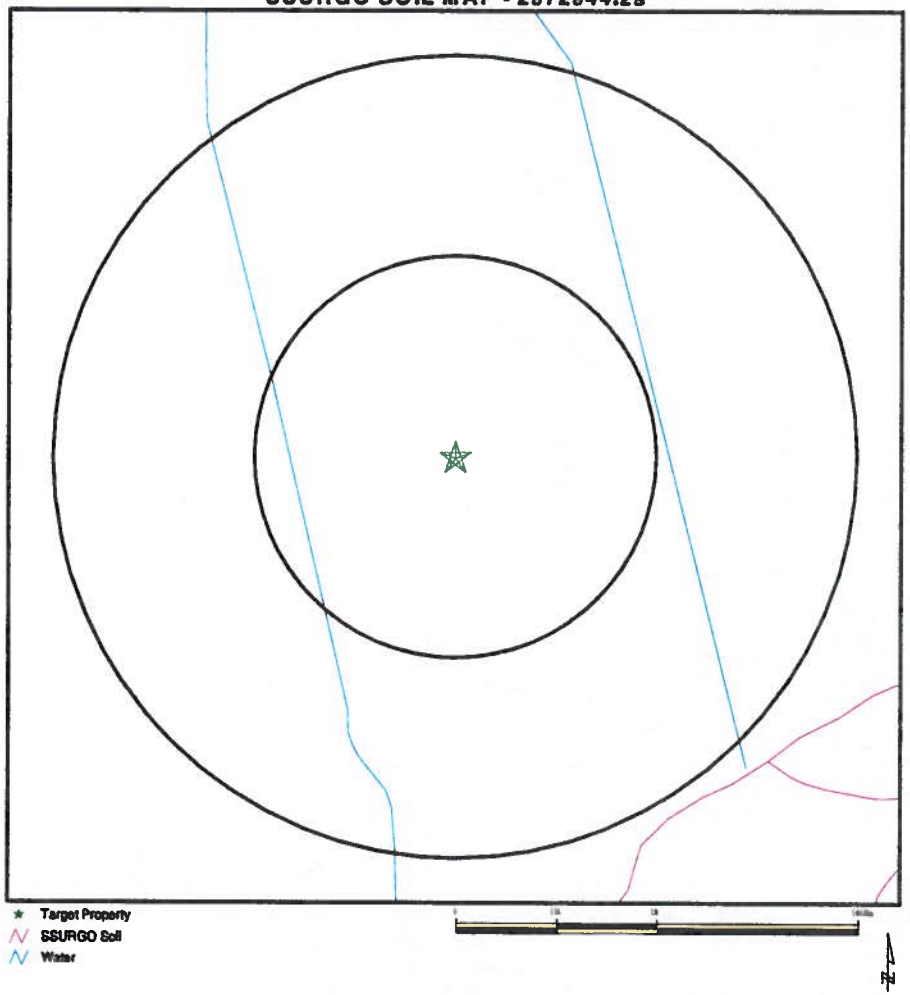
GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT		GEOLOGIC AGE IDENTIFICATION	
Era:	-	Category:	-
System:	-		
Series:	-		
Code:	N/A *(decoded above as Era, System & Series)*		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 2972944.2s



SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei HI 96753 LAT/LONG: 20.8154 / 156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY #: 2972944.2s DATE: January 24, 2011 12:28 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative 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 in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Waiakoa

Soil Surface Texture: extremely stony silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 71 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	0 inches	extremely stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
2	0 inches	20 inches	extremely stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
3	20 inches	27 inches	stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
4	27 inches	31 inches	bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

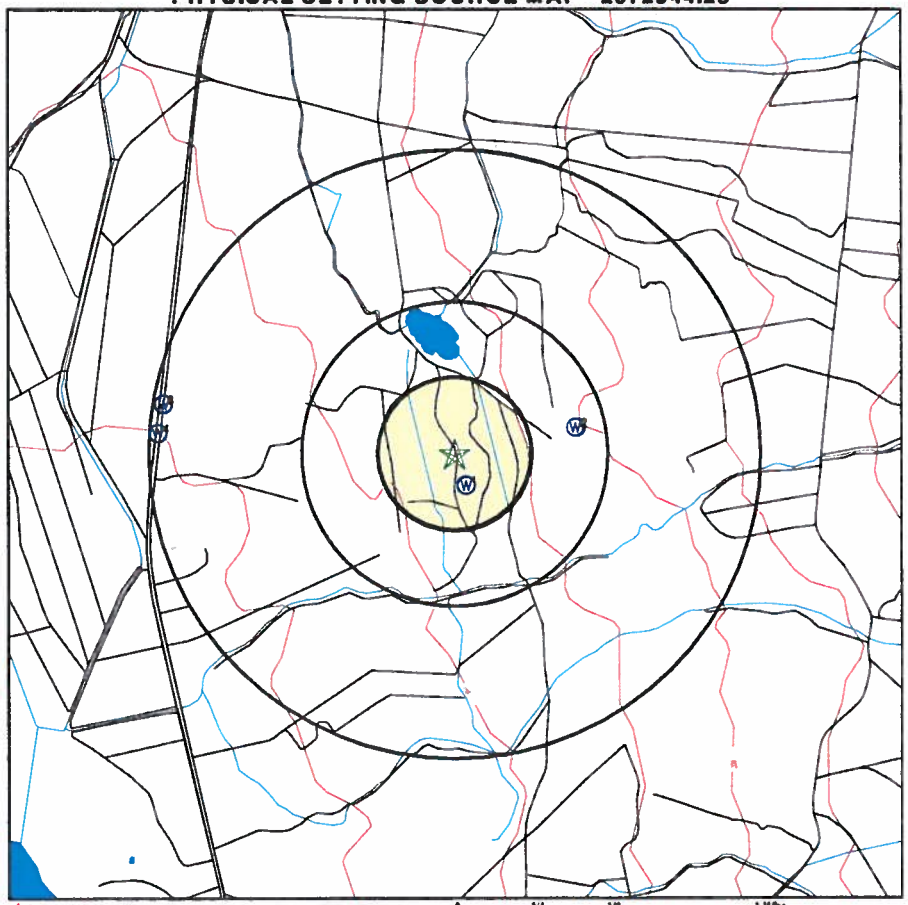
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	HI5000000001176	0 - 1/8 Mile SSE
2	HI5000000001188	1/4 - 1/2 Mile ENE
3	HI5000000001191	1/2 - 1 Mile West
4	HI5000000001187	1/2 - 1 Mile West

PHYSICAL SETTING SOURCE MAP - 2972944.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons
Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location

SITE NAME: Former Puunene Piggery Site ADDRESS: South Fire Break Road Kihei HI 96753 LAT/LONG: 20.8154 / 156.4528	CLIENT: Enviro Srvcs. and Trng. Center CONTACT: Sharla Nakashima INQUIRY #: 2972944.2s DATE: January 24, 2011 12:28 pm

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Map ID Direction Distance Elevation		Database	EDR ID Number
1 SSE 0 - 1/8 Mile Lower		HI WELLS	HI5000000001176

Wid:	6-4927-001	Island:	6
Well no:	4927-01	Well name:	Tmk 3-8-08
Old name:	Not Reported	Yr drilled:	Not Reported
Driller:	Not Reported	Quad map:	08
Longitude2:	1562718	Latitude27:	204902
Longitude8:	1562708	Latitude83:	204850
Lat83d:	20	Lat83m:	48
Lat83s:	50	Lon83d:	156
Lon83m:	27	Lon83s:	08
Lat83dd:	20.81389		
Lon83dd:	-156.45222		
Long83dd:	-156.45222		
Lat83dd 1:	20.81389		
Gps:	0	Utm:	1
Owner user:	Makimoto N	Old number:	260-
Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	120	Well depth:	Not Reported
Solid case:	Not Reported	Perf case:	Not Reported
Use:	Other		
Use year:	71		
Init water:	Not Reported		
Init head:	0		
Init chlor:	Not Reported	Init cl:	Not Reported
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Temp unit:	Not Reported
Pump gpm:	Not Reported	Draft mgy:	Not Reported
Head feet:	Not Reported	Max chlor:	Not Reported
Min chlor:	Not Reported	Geology:	THO
Pump yr:	Not Reported	Draft yr:	Not Reported
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	0	Minchl:	Not Reported
Minchl yr:	0	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported	Pump mgd:	Not Reported
Draft mgd:	Not Reported	Aquifer:	60301
Tmk:	Not Reported	Old aqui:	Not Reported
Aqui code:	60301	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	08/15/2007
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI5000000001176

2 ENE 1/4 - 1/2 Mile Higher		HI WELLS	HI5000000001188

Wid:	6-4926-002	Island:	6
Well no:	4926-02	Well name:	Hawaiian Cement
Old name:	Not Reported	Yr drilled:	2007
Driller:	Not Reported	Quad map:	08
Longitude2:	1562658	Latitude27:	204912
Longitude8:	1562648	Latitude83:	204900
Lat83d:	20	Lat83m:	49
Lat83s:	00	Lon83d:	156
Lon83m:	26	Lon83s:	48
Lat83dd:	20.81667		
Lon83dd:	-156.44667		
Long83dd:	-156.44667		
Lat83dd 1:	20.81667		
Gps:	1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported
Well type:	Rotary Drill	Casing dia:	8
Ground el:	177	Well depth:	196
Solid case:	176	Perf case:	196
Use:	UNU - Unused		
Use year:	07		
Init water:	Not Reported		
Init head:	2.65		
Init chlor:	Not Reported	Init cl:	200.00000
Test date:	6/8/2007	Test gpm:	250
Test ddown:	0.55	Test chlor:	190
Test temp:	69.0	Temp unit:	F
Pump gpm:	0.00000	Draft mgy:	Not Reported
Head feet:	2.65	Max chlor:	Not Reported
Min chlor:	Not Reported	Geology:	TK
Pump yr:	Not Reported	Draft yr:	Not Reported
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	Not Reported	Minchl:	Not Reported
Minchl yr:	Not Reported	Bot hole:	-19
Bot solid:	1	Bot perf:	-19
Spec capac:	Not Reported	Pump mgd:	Not Reported
Draft mgd:	Not Reported	Aquifer:	Not Reported
Tmk:	3-8-008:031	Old aqui:	Not Reported
Aqui code:	60302	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	08/15/2007
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI5000000001188

3 West 1/2 - 1 Mile Lower		HI WELLS	HI5000000001191

Wid:	6-4928-001	Island:	6
Well no:	4928-01	Well name:	Puunene Airp TH
Old name:	Not Reported	Yr drilled:	1942
Driller:	U S NAVY	Quad map:	06
Longitude2:	1562813	Latitude27:	204916
Longitude8:	1562803	Latitude83:	204904
Lat83d:	20	Lat83m:	49
Lat83s:	04	Lon83d:	156
Lon83m:	28	Lon83s:	03
Lat83dd:	20.81778		

Lon83dd:	-156.4675		
Long83dd:	-156.4675		
Lat83dd 1:	20.81778		
Gps:	1	Utm:	0
Owner user:	State Dot-Airport	Old number:	1-
Well type:	Not Reported	Casing dia:	8
Ground el:	70	Well depth:	70
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed		
Use year:	07		
Init water:	3.6		
Init head:	3.6		
Init chlor:	Not Reported	Init cl:	Not Reported
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Temp unit:	Not Reported
Pump gpm:	300.00000	Draft mgy:	Not Reported
Head feet:	Not Reported	Max chlor:	243
Min chlor:	Not Reported	Geology:	THO
Pump yr:	Not Reported	Draft yr:	Not Reported
Head yr:	Not Reported	Maxchl:	Not Reported
Maxchl yr:	0	Minchl:	1/1/1958
Minchl yr:	0	Bot hole:	0
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported	Pump mgd:	0.432
Draft mgd:	Not Reported	Aquifer:	60301
Tmk:	3-8-008:001	Old aqui:	Not Reported
Aqui code:	60301	Latest hd:	Not Reported
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	01/01/1942
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI5000000001191

4
West
1/2 - 1 Mile
Lower

HI WELLS **HI5000000001187**

Wid:	6-4928-002	Island:	6
Well no:	4928-02	Well name:	Puunene Airp Sha
Old name:	Not Reported	Yr drilled:	1942
Driller:	U S NAVY	Quad map:	06
Longitude2:	1562814	Latitude27:	204911
Longitude8:	1562804	Latitude83:	204859
Lat83d:	20	Lat83m:	48
Lat83s:	59	Lon83d:	156
Lon83m:	28	Lon83s:	04
Lat83dd:	20.81639		
Lon83dd:	-156.46778		
Long83dd:	-156.46778		
Lat83dd 1:	20.81639		
Gps:	1	Utm:	0
Owner user:	HC & S Co	Old number:	34-SH
Well type:	Shaft	Casing dia:	72
Ground el:	50	Well depth:	53
Solid case:	Not Reported	Perf case:	Not Reported
Use:	ABN - Sealed		
Use year:	07		
Init water:	3.7		

Init head:	3.7		
Init chlor:	Not Reported	Init cl:	Not Reported
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Temp unit:	Not Reported
Pump gpm:	2000.00000	Draft mgy:	474
Head feet:	4.3	Max chlor:	390
Min chlor:	298	Geology:	THO
Pump yr:	Not Reported	Draft yr:	70
Head yr:	70	Maxchl:	1/1/1973
Maxchl yr:	73	Minchl:	########
Minchl yr:	73	Bot hole:	-3
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported	Pump mgd:	2.880
Draft mgd:	1.3	Aquifer:	60301
Tmk:	3-8-008:001	Old aqui:	Not Reported
Aqui code:	60301	Latest hd:	4.30000
Cur head:	Not Reported	Cur cl:	Not Reported
Cur temp:	Not Reported	Wcr:	01/01/1942
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Site id:	HI5000000001187

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 Code: 96753

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.010 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. 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 (DRG)
Source: United States Geologic 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

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the 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 date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

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 in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

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
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory 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: 808-587-0214
CWRM 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: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 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: 703-356-4020
Sections 307 & 309 of IRAA 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, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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APPENDIX V
ADDITIONAL DOCUMENTATION

DEPARTMENT OF HEALTH
SOLID AND HAZARDOUS WASTE BRANCH
OFFICE OF SOLID WASTE MANAGEMENT
919 ALA MOANA BOULEVARD, SUITE 210
HONOLULU, HAWAII 96814
TEL. NO. (586-4240)FAX NO. (586-7509)

COMPLAINT FORM

Complaint No.: 05-105

COMPLAINT

Referred by: _____
Date of Referr

Complainant:
Address: _____

Complaint Date: 6/30/05
Address/Location of Incident: Larry Pottenroth
Pig Farm Site @ Camp 6, Near Drag Strip

Type of Complaint: Rubbish ___ Used oil ___ Batteries ___ Tires ___ Appliances ✓
Junk vehicles ✓ C&D ___ Compost ___ Soil ___ Others ___

Nature of Complaint: Baling junk cars/white goods
Jack Freitas delivered white goods to this site.

Recommended Actions: _____

Action Taken*: Referred to planning dept, 270-7235 7/[illegible], [illegible]

Received by: [signature] Assigned to: _____

* Note: If field inspection is needed, attach page 2 of this form.

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 538
Puunene, HI 96784

Alexander & Baldwin, Inc. (property owner)
P.O. Box 156
Kahului, HI 96732

LOCATION ADDRESS: Off Mokulele Hwy
Waikapu, Maui
TMK: 38004001

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

(x) COMPLAINT EXPLAIN: complaint 05-105, accepting white goods, balling cars and white goods
( ) OTHER EXPLAIN:

Background: On 06/30/05 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: 38004001. 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 coconuts 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/demo 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 bailer was at the site along with a shipping container. Poffenroth estimated that he will need a year to clean up the site.

POTENTIAL VIOLATIONS:

(x) HAWAII REVISED STATUTES
(x) HAWAII ADMINISTRATIVE RULES TITLE 11 CHAPTER 58.1
( ) 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

JAMES A. GAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96804

RECEIVED
DEC 1998

LAWRENCE MINE
DIRECTOR OF HEALTH

In reply, please refer to
EMD/SHW

November 27, 1998 S1130EVS

CERTIFIED MAIL NO. Z 269 803 202
RETURN RECEIPT REQUESTED

Mr. Larry Poffenroth
P.O. Box 538
Puunene, Hawaii 96784

Dear Mr. Poffenroth:

Subject: Unpermitted solid waste management operation located at two sites:
Central Maui Baseyard, Puunene, Maui (auto salvage and scrap metals)
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 on-going operation at the sites. During the course of the investigation, information was gathered in accordance with section 342H-6 (Inspection of Premises) of the Hawaii Revised Statutes.

It has been determined that there is evidence of violations of Title 11, Chapter 58.1 of the Hawaii Administrative Rules and the Hawaii Revised Statutes 342H 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 11-58.1-4. 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 Amala Place. 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 11-58.1-32 and 11-58.1-33. This section regulates the operations of automobile dismantlers, scrap metals, white goods, and junkyards.

3. The improper management of solid waste materials, in violation of Sections 11-58.1-61(a) and 11-58.1-61(b). You failed to remove accumulated solid

waste materials (e.g. used tires, used oil, white goods, and other scrap metals) to an approved solid waste disposal facility.

In accordance with the Title 11, Chapter 58.1 of Hawaii Administrative Rules, the Department hereby orders you to cease and desist all salvaging 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-9.

Any deficiencies noted are not necessarily inclusive and any omissions in this letter shall not be construed as a determination of compliance with any applicable laws. Also, any omission to cite any other violations is not intended to nor shall be binding upon the DOH.

Your response 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
919 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 Salire of my staff at (808) 586-4240.

Sincerely,

JOHN HARDER, Coordinator
Office of Solid Waste Management

JH:EVS:ma

cc: Kathleen Ho, Office of the Attorney General
C. Earl Stoner, Jr., S&F Land Company, Inc., 333 Dairy Road, Kahului, Hawaii 96732
David W. Blane, Planning Department, County of Maui
Andy Hirose, Solid Waste Division, County of Maui
Hana Steel, Solid Waste Division, County of Maui
Philip Ohta, District Land Agent/Maui District Land Management, DLNR
Roland Tejano, Wastewater Branch, DOH-Maui

→ copy to ~~[illegible]~~ CWLOOMIS

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to
EMD/SHW

May 5, 1999

SO0502EVS

CERTIFIED MAIL NO: Z 409 865 567
RETURN RECEIPT REQUESTED

WARNING LETTER

Mr. Larry Poffenroth
P.O. Box 538
Puunene, Hawaii 96784

Dear Mr. Poffenroth:

Subject: Closure of two Solid Waste Management Sites:
Central Maui Baseyard, Puunene, 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 S&F Land Company, Inc., we have not received any response 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 58.1 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 materials 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.

Your response to this letter, due to the DOH within thirty (30) calendar days of your receipt of this letter, shall be mailed to:

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 Salire at (808) 586-4240.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

cc: Kathleen Ho, Office of the Attorney General
C. Earl Stoner, Jr., S&F Land Company, Inc., 333 Dairy Road, Kahului, HI 96732
Steve Helatzis, A & B Properties, 33 Lono Avenue, Kahului, HI 96732
David W. Blane, Planning Department, County of Maui
Andy Hirose, Solid Waste Division, County of Maui
Hans Steel, Solid Waste Division, County of Maui
Philip Ohta, District Land Agent/Maui District Land Management, DLNR
Roland Tejano, Wastewater Branch, DOH-Maui

SEP 22 2005

LINDA LINGLE
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EMD/SHWB

September 19, 2005 S0926TN

CERTIFIED MAIL NO. 7005 1160 0003 8276 4707
RETURN RECEIPT REQUESTED

LETTER OF INTEREST

Mr. Larry Poffenroth
P.O. Box 538
Puunene, Hawaii 96784

Dear Mr. Poffenroth:

SUBJECT: Accumulation of Solid Waste,
TMK 38004001, 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, premises, 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.*

Therefore, the SWS is requesting that you complete the removal and properly disposal 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,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

c: Alexander & Baldwin, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

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

MAY 06 2010
facility file

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

In reply, please refer to:
EMD/SHWB

May 6, 2010

S0504JF

Mr. Sean M. O'Keefe
Director, Environmental Affairs
Alexander & Baldwin, Inc.
P.O. Box 266
Puunene, Hawaii 96784

Dear Mr. O'Keefe:

SUBJECT: Solid Waste Management Permit Application, Exemption Request
Cleanup of Former Poffenroth Piggery
Located at: TMK No. (2) 3-8-008-019, 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 filters, refrigerant, mercury switches, and other hazardous materials. Processed vehicles may be crushed/baled 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 11-58.1-04(b)(5), 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) 586-4226.

Sincerely,

STEVEN Y.K. CHANG, P.E., ACTING CHIEF
Environmental Management Division

ENVIRONMENTAL ASSESSMENT QUESTIONNAIRE

DATE: MARCH 6, 2011
JOB NAME: PIGGERY ENVIRONMENTAL SITE ASSESSMENT
FACILITY NAME & ADDRESS: FORMER POPPENROTH PIGGERY, 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

2. JOB DESCRIPTION/YEARS KNOWLEDGE OF SITE: RESPONSIBLE FOR ENVIRONMENTAL COMPLIANCE AND OTHER ENVIRONMENTAL ISSUES RELEVANT TO THE COMPANY'S OPERATIONS. FAMILIAR WITH THE SITE SINCE APPROXIMATELY 1995.

3. REASON FOR CONDUCTING PHASE I ESA: POSSIBLE SALE OF THE PROPERTY

4. HOW LONG HAS THE FACILITY BEEN THERE? THE PROPERTY WAS USED AS A PIG FARM SINCE THE 1960'S, AND WAS ADDITIONALLY USED FOR UNPERMITTED SOLID WASTE MANAGEMENT ACTIVITIES SINCE APPROXIMATELY 1995.

   WHAT WAS THERE BEFORE? PRIOR TO THE PIGGERY 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.

5. ARE THERE ANY PERMITS FROM THE COUNTY, STATE, OR FEDERAL GOVERNMENT FOR OPERATION OF THE FACILITY? NONE 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? (CESSPOOL / INJECTION WELL / COUNTY SYSTEM) BUILDINGS ON THE PROPERTY WERE MOST RECENTLY SERVED BY CESSPOOLS, 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 FLOOR DRAINS OR SUMPS ON THE PROPERTY? NONE TO MY KNOWLEDGE.

WHAT DO THEY DRAIN?

WHERE DO THEY DISCHARGE?

9. ARE THERE ANY ELECTRICAL TRANSFORMERS ON THE PROPERTY? (GROUNDED OR POLE-MOUNTED) NONE TO MY KNOWLEDGE; MECO 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? NONE 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/DID 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: NONE KNOWN EXCEPT THAT FLUOROESCENT LIGHT BALLASTS REMOVED FROM STRUCTURES AT THE SITE WERE PRESUMED TO CONTAIN PCBS IN CASES WHERE LABELS WERE MISSING OR ILLEGIBLE, OR DID NOT HAVE THE WORDS "NO PCBS"

HEAVY METALS: POTENTIAL CONTAMINANTS IN WASTES MANAGED ON THE PROPERTY (E.G., BATTERIES, LIGHT BULBS, USED CRTS).

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 WASTES: NONE KNOWN

ACID / BASES: ACIDS PRESENT IN BATTERIES STORED ON THE SITE BY THE FORMER TENANT.

SOLVENTS (CLEANSERS, 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, PIGGERY-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 BURIED ON THE PROPERTY? IF SO, WHERE IS THE WASTE / RUBBISH BURIED AND WHAT KIND OF WASTE WAS DISPOSED OF? RUBBISH ASSOCIATED WITH FEEDING OF PIGS (PRIMARILY FOOD WRAPPERS AND CONTAINERS) WAS INDISCRIMINATELY DISPOSED ON THE SURFACE AROUND THE SITE AND IN SOME CASES WAS PARTIALLY BURIED UNDER ROCK PILES AROUND THE SITE. ALL AREAS WHERE BURIED WASTE WAS KNOWN OR SUSPECTED TO BE PRESENT HAVE BEEN EXCAVATED AND THE WASTE PROPERLY DISPOSED OF.

13. HAS ANY WASTE OR RUBBISH BEEN BURNED ON THE PROPERTY? IF SO, WHAT KIND OF WASTE WAS BURNED AND WHERE WAS THE WASTE BURNED? DEAD PIGS ARE KNOWN TO HAVE BEEN BURNED ON THE PROPERTY.

14. ARE THERE ANY CLARIFIERS, PROCESSORS, OR DISTILLATION OR NEUTRALIZATION UNITS? WHAT SUBSTANCES ARE USED/PRODUCED BY THEM? NONE KNOWN

15. ARE THERE ANY GAS OR SERVICES STATIONS ON THE PROPERTY OR ANY ADJOINING PROPERTIES? NONE KNOWN, THOUGH THERE MAY HAVE BEEN SUCH FACILITIES ON THE ADJOINING MILITARY BASE AT ONE TIME.

16. IS THERE A MAINTENANCE SHOP ON THE PROPERTY? IS 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 BASED 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 CLEANERS, PHOTO DEVELOPING, LABORATORY, JUNKYARD OR LANDFILL, OR AS A WASTE TREATMENT, STORAGE, DISPOSAL, PROCESSING, OR RECYCLING FACILITY? NO SUCH USES ARE KNOWN CURRENTLY.

IN THE PAST? THE PROPERTY WAS USED AS AN UNPERMITTED SOLID 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 THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY DAMAGED OR DISCARDED AUTOMOTIVE OR INDUSTRIAL BATTERIES, OR PESTICIDES, PAINTS, OR OTHER CHEMICALS IN INDIVIDUAL CONTAINERS OF GREATER THAN 5 GAL (19 L) IN VOLUME OR 50 GAL (190 L) IN THE AGGREGATE, 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 AUTOMOTIVE 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 GAL (208 L) OR SACKS 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 PREVIOUSLYL, ANY PITS PONDS, OR LAGOONS LOCATED ON THE PROPERTY IN CONNECTION WITH TREATMENT OR WASTE DISPOSAL? WASTE LAGOONS WERE OPERATED AS PART OF THE PIGGERY OPERATIONS. THESE RECEIVED ANIMAL WASTE.

26. TO THE BEST OF YOUR KNOWLEDGE HAVE THERE BEEN PREVIOUSLY, ANY REGISTERED STORAGE TANKS (ABOVE GROUND AND/OR UNDERGROUND) LOCATED ON THE PROPERTY? NONE KNOWN. UNREGISTERED AST'S AND MOBILE TANK TRUCKS/TRAILERS WERE PRESENT DURING POFFENROTH'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, FILL PIPES PROTRUDING FROM THE GROUND ON THE PROPERTY OR ADJACENT TO ANY STRUCTURE 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 liens 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 ETC 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: Jason Koga, A&B Properties, Inc. (808) 877-4645

Subject Property Occupant: None

Subject Property Owner: A&B Properties, Inc. Use contact information above.

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 abeen 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 conveyed 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 reasonable reflect the fair market value of the Property? If you conclude that this a difference, have you considered whether the lower purchase proce 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 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 de minimis 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 CONERNS REGARDING THE PROPERTY OR ANY ADJOINING PROPERTIES? NONE NOT PREVIOUSLY DISCLOSED.

SIGNATURE _____ DATE 3/11/11

***Please fax completed questionnaire at your earliest convenience to:*

Ms. Sharla Nakashima
EnviroServices & Training Center, LLC
505 Ward Avenue, Suite 202, Honolulu, Hawaii
tel: 839-7222 fax: 839-4455

APPENDIX VI
QUALIFICATIONS OF THE ENVIRONMENTAL PROFESSIONAL

PROFESSIONAL QUALIFICATIONS

Name: **Sharla 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

Sharla 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(35)(B). Work sites included commercial, industrial, agricultural, condemned, and residential land ranging in size from small properties (less than 2.0 acres) to larger properties (greater than 300.0 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 hollow-stem augering techniques. Contaminants investigated included petroleum/petroleum-related compounds, heavy metals, pesticides/herbicides, PCBs, and dioxins/furans.

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/locate pre-determined sample locations, document sample locations or site features, and/or identify property limits. 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 11-281. Duties included coordination and management of various subcontractors, documentation of closure (both removal and close 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 document preparation, field sampling, data assessment, contaminated media removal/remediation, confirmation sampling, and report preparation. Contaminants addressed included petroleum/petroleum-related compounds, heavy metals, pesticides/herbicides, PCBs, and dioxins/furans.

Industrial Wastewater Discharge Permitting (IWDP), Environmental Scientist. Ms. Nakashima acquired an IWDP 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.

Household Hazardous Waste (HHW) Collection, Environmental Scientist. Ms. Nakashima assisted with the collection of HHW in Honolulu, Lahaina, Wailuku, Hilo, and Kona. Tasks included identification, packaging, labeling, transportation and disposition of HHW in accordance with OSHA, EPA, and DOT protocol.

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 photothermal methods and purified horse heart myoglobin within thin layered polymer slides and organic solvents. Lab experience also included utilization of Gas Chromatogrpahy (GC) -Mass Spectrometry (MS), High Performance Liquid Chromatography (HPLC), Nuclear Magnetic Resonance (NMR), Infrared (IR) spectrometry, and Ultraviolet/Visible (UV-VIS) Spectrometer.

Site Investigation Report

SITE INVESTIGATION REPORT

Former Puunene Piggery
South Firebreak Road
Puunene, Maui, Hawaii
TMK (2) 3-8-8: Parcel 19

Prepared For:
A&B PROPERTIES, INC.
P.O. Box 266
Puunene, Hawaii 96784

Prepared By:
ENVIROSERVICES & TRAINING CENTER, LLC
505 Ward Avenue, Suite 202
Honolulu, Hawaii 96814
tel: (808) 839-7222

ETC Project No. 06-2048

October 2011

TABLE OF CONTENTS

1.0 CERTIFICATIONS AND LIMITATIONS **1**
2.0 EXECUTIVE SUMMARY **2**
3.0 INTRODUCTION AND PURPOSE **5**
4.0 BACKGROUND **7**
4.1 SITE DESCRIPTION AND LAND AREA 7
4.2 SITE GEOLOGY 7
4.3 SITE HYDROGEOLOGY 7
4.4 SURFACE WATER 8
4.5 SITE BACKGROUND 9
4.6 CURRENT AND FUTURE LAND USE 9
4.7 CONTAMINANTS OF POTENTIAL CONCERN 9
4.8 CONTAMINANT SOURCE AREAS 10
4.9 CONCEPTUAL SITE MODEL 11
4.9.1 Receptors of Concern *12*
4.9.2 Exposure Pathways *12*
A. Soil Exposure Pathway 12
B. Air Exposure Pathway 13
C. Groundwater Exposure Pathway 13
D. Sediment Exposure Pathway 13
4.10 PROJECT ACTION LEVELS 14
5.0 SUMMARY OF SITE HISTORY **15**
6.0 SUMMARY OF DATA QUALITY OBJECTIVES **17**
6.1 PROBLEM STATEMENT 17
6.2 DECISION MAKING 17
6.3 DECISION INPUTS 17
6.4 INVESTIGATION BOUNDARIES 18
6.5 DECISION RULES 18
6.6 DECISION ERROR 18
6.7 SAMPLING DESIGN 18
7.0 FIELD INVESTIGATION ACTIVITIES **20**
7.1 SELECTION OF DECISION UNITS 20
7.2 SOIL SAMPLING ACTIVITIES 20
7.3 DECONTAMINATION AND INVESTIGATION-DERIVED WASTE 20
7.4 SUMMARY OF ENVIRONMENTAL SAMPLES 21
8.0 SAMPLE CONTROL PROCEDURES **22**
8.1 SAMPLE IDENTIFICATION 22
8.2 SAMPLE CHAIN-OF-CUSTODY AND TRANSPORTATION 22
8.3 SAMPLE PRESERVATION AND HANDLING PROCEDURES 23
8.4 LABORATORY ANALYTICAL METHODS 23
8.5 LABORATORY QUALITY CONTROL 23
8.6 FIELD QUALITY CONTROL 24
9.0 FINDINGS AND DISCUSSION **25**
9.1 ANALYTICAL DATA 25
9.2 DATA QUALITY ASSESSMENT 25
9.3 INITIAL ANALYTICAL RESULTS AND DISCUSSION 25
9.4 ADDITIONAL INVESTIGATION OF DU11 27
10.0 ENVIRONMENTAL HAZARD EVALUATION **29**
10.1 ENVIRONMENTAL HAZARD EVALUATION 29
10.2 SUMMARY OF POTENTIAL ENVIRONMENTAL HAZARDS 30
11.0 CONCLUSIONS **32**

12.0 REFERENCES 33

TABLES

TABLE 1: INITIAL ACTION LEVELS 14
TABLE 1: SAMPLE HANDLING AND PRESERVATION 23
TABLE 2: ANALYTICAL RESULTS 26
TABLE 3: ANALYTICAL DATA – ADDITIONAL INVESTIGATION OF DU11 28

ATTACHMENTS

APPENDIX I: FIGURES
APPENDIX II: LABORATORY REPORTS

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: _____
Sharla Nakashima
Project Manager

Date: October 2011

2.0 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 Puunene 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 Puunene, 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 Puunene 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/televisios/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 (730 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 Puunene, 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 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 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 ten (10) multi-increment soil samples (eight primary samples, two field replicate samples) from DU11. The samples were submitted to TestAmerica – Honolulu (TA-H) 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

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 Puunene 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 Puunene, 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 Puunene 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 CMBY 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 theoliite, theoleiitic olivine basalt, and oceanite known as the Honomanu Volcano Series. The Kula Volcanic Series overlays the Honomanu Series and is comprised of hawaiite, alkalic olivine basalt, and ankaramite. 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 Waiakoa 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 substratum 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 basal 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 "Ghyben-Herzberg" 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.

The Property is underlain by the Kahului Aquifer System, which is part of the Central Aquifer Sector on the island of Oahu. The aquifer is classified by Mink and Lau, 1990, with the system identification number 60301214 (33221). This system includes an unconfined high level perched aquifer. The groundwater in this aquifer is described as having no potential use and is neither a drinking water resource nor ecologically important. The groundwater has a low salinity (250 to 1,000 mg/L Cl^-); and is considered replaceable with a high vulnerability to contamination (Mink 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 a 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 (Mink 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 (bgs). 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 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 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 contmainants 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 (COPC) 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 reclamation 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 kiawe 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, rubbish, 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, tankers, 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 what receptors are at risk, determining appropriate remedial strategies, and addressing unacceptable hazards.

The following environmental hazards were initially considered:

- Direct exposure threats 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 at or originating from a site (USEPA, 1989)." 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 adsorption 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 suspect 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 it 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 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. Table 1 presents the ALs proposed for the site investigation.

Table 1: Initial Action Levels

Constituent	Action Level
TPH-D	500
TPH-O	500
PAHs	
Acenaphthene	23
Acenaphthylene	13
Anthracene	2.5
Benzo(a)anthracene	1.5
Benzo(a)pyrene	0.15
Benzo(b)fluoranthene	1.5
Benzo(g,h,i)perylene	27
Benzo(k)fluoranthene	15
Chrysene	14
Dibenzo(a,h)anthracene	0.15
Fluoranthene	40
Fluorene	7.3
Indeno(1,2,3-cd)pyrene	1.5
Naphthalene	0.46
Phenanthrene	11
Pyrene	56
1-Methylnaphthalene	1.1
2-Methylnaphthalene	1.0
PCBs	1.1
Metals	
Arsenic	20
Barium	750
Cadmium	12
Chromium	500
Lead	200
Mercury	4.7
Selenium	10
Silver	20

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 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 former Property landowner, 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 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 Poffenroth, operator of the Property, a letter indicating several violations at the 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 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 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. Poffenroth 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 proposed 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 (DQO) 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 risk-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-mililmeter sieve. The usability of the data gathered during this investigation was not considered to be constrained by temporal boundaries since the COPC being investigated are 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 ALs 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 ALs 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 bench mark 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-useable 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:

2017 = ETC project number
X = 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/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 compliance with the respective method requirements. Table 2 below summarizes these requirements.

Table 2: Sample Handling and Preservation

Analyte	Analytical Method	Sample Container Size, Type	Preservation	Holding Time
TPH-D, TPH-O	EPA 8015 mod	1-gallon resealable polyethylene bag	Cool, 4° C	14 days
PAHs	EPA 8270C	1-gallon resealable polyethylene bag	Cool, 4° C	14 days
Metals	EPA 6010B/7471	1-gallon resealable polyethylene bag	none	6 months
PCBs	EPA 8082	1-gallon resealable polyethylene bag	Cool, 4° C	14 days

Note: Preservation and holding times in accordance with EPA SW-846 On-Line Revision 3: Test Methods for Evaluation Solid Wastes

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 Particulate Laboratory Samples* (EPA 600/R-03/027), 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, RCRA8 metals via EPA Method 6010B/7471, and PCBs via EPA Method 8082.

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 (MSD) 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 samples 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 analyses. 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 variation 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 deviations, 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.

Table 3: Analytical Results

Sample ID	2048-DU11	2048-DU12	2048-DU13	2048-DU14	2048-DU5	2048-DU6	2048-DU7	2048-DU8	2048-DU9	2048-DU10	2048-DU11	2048-DU12	2048-DU13	DOH EAL	Mean	Standard Deviation	Relative Standard Deviation (RSD)
Total Petroleum Hydrocarbons (TPH) as Diesel (D) and Oil (O)																	
TPH - Diesel (D)	2,210	4.0	61	3.8	4.9	120	NA	NA	NA	NA	NA	11	7.6	500	8.5	2,201	256.34%
TPH - Oil (O)	190	25	100	69	110	720	NA	NA	NA	NA	NA	350 A	140	500 (1,000[2])	196.7	134.2882	68.28%
Polynuclear Aromatic Hydrocarbons (PAHs)																	
Naphthalene	0.01344	0.01344	0.0231 J	0.0118 J	0.0211	NA	NA	NA	NA	NA	NA	NA	0.0131	0.01344	0.46	0.0213	0.0101	47.61%
2-Methylnaphthalene	0.0143	0.015	0.0151	0.0251 J	0.0263 J	NA	NA	NA	NA	NA	NA	NA	0.0123 J	0.0163 J	1.0	0.0210	0.0095	45.43%
1-Methylnaphthalene	0.01419	0.01419	0.01419	0.01419	0.01419	NA	NA	NA	NA	NA	NA	NA	0.0143 J	0.01419	1.1	0.0117	0.0020	17.38%
Acenaphthylene	0.009834	0.009834	0.009834	0.009834	0.009834	NA	NA	NA	NA	NA	NA	NA	0.009834	0.009834	1.3	0.0098	0.0000	0.00%
Acenaphthene	0.01082	0.01082	0.01082	0.01082	0.01082	NA	NA	NA	NA	NA	NA	NA	0.01082	0.01082	2.3	0.0108	0.0000	0.00%
Fluorene	0.009344	0.009344	0.009344	0.009344	0.009344	NA	NA	NA	NA	NA	NA	NA	0.00844 J	0.009344	7.3	0.0095	0.0016	25.38%
Phenanthrene	0.021	0.01346	0.0143 J	0.01346	0.01346	0.087	NA	NA	NA	NA	NA	NA	0.098	0.0341	11	0.0450	0.0312	73.14%
Anthracene	0.01716	0.01716	0.01716	0.01716	0.01716	0.01716	NA	NA	NA	NA	NA	NA	0.01716	0.01716	2.5	0.0172	0.0000	0.00%
Fluoranthene	0.043	0.1624	0.0226 J	0.182 J	0.01624	0.01624	NA	NA	NA	NA	NA	NA	0.14	0.218	48	0.1487	0.1272	85.58%
Pyrene	0.0531 J	0.01261	0.0117 J	0.01261	0.0211 J	0.01261	NA	NA	NA	NA	NA	NA	0.086	0.20	54	0.1010	0.0924	91.50%
Benzo(a)anthracene	0.0187 J	0.0173 J	0.0173 J	0.0173 J	0.0173 J	0.098	NA	NA	NA	NA	NA	NA	0.045	0.10	1.5	0.0549	0.0410	74.74%
Chrysene	0.0231 J	0.01168	0.0113 J	0.01168	0.0211 J	0.0591 J	NA	NA	NA	NA	NA	NA	0.0643 J	0.12	14	0.0657	0.0515	81.50%
Benzo(b)fluoranthene	0.0256 J	0.0134	0.0118 J	0.0134	0.0221 J	0.0134	NA	NA	NA	NA	NA	NA	0.089	0.11	1.5	0.0753	0.0482	64.05%
Benzo(k)fluoranthene	0.00646	0.00646	0.00646	0.00646	0.00646	0.0131	NA	NA	NA	NA	NA	NA	0.083	0.037	15	0.0429	0.0175	87.51%
Benzo(a)pyrene	0.01485	0.01485	0.01485	0.01485	0.0185 J	0.01485	NA	NA	NA	NA	NA	NA	0.0232 J	0.0934	0.15	0.0196	0.0136	58.38%
Indeno(1,2,3-cd)pyrene	0.008316	0.008316	0.008316	0.008316	0.008316	0.008316	NA	NA	NA	NA	NA	NA	0.008316	0.0303 J	1.5	0.0135	0.0129	80.54%
Dibenzo(a,h)anthracene	0.004488	0.0071 J	0.004488	0.004488	0.004488	0.004488	NA	NA	NA	NA	NA	NA	0.0117 J	0.0153 J	0.15	0.0130	0.0053	40.70%
Benzo(g,h,i)perylene	0.00993	0.00993	0.00993	0.00993	0.00993	0.0111 J	NA	NA	NA	NA	NA	NA	0.015	0.00993	27	0.0150	0.0173	115.92%
Polychlorinated Biphenyls (PCBs)																	
PCBs	0.10	0.10	0.10	0.10	0.10	0.10	NA	NA	NA	NA	NA	NA	0.10	0.10	1.1	0.1	0.0000	0.00%
RCRA 8 Metals																	
Arsenic	2.3	3.1	2.1	2.1	2.6	3.0	3.4	4.5	3.0	3.8	4.0	4.5	2.4	28	3.0	1.3077	43.59%
Barium	190	180	310	200	270	190	250	210	220	210	230	310	310	750	323.3	141.4470	3.57%
Cadmium	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	12	0.0122	0.0000	0.00%
Chromium	50	59	67	39	62	44	65	56	43	49	47	74	210	500	54.78	7.6478	14.00%
Lead	71	4.5	17	13	10	33	110	11	24	18	8.10	20	9.1	200 (400[2])	18.4	19.0701	54.36%
Selenium	2.6	0.058	2.6	1.6	0.058	1.9	1.4	2.6	2.3	1.1	0.058	1.6	3.0	10	2.40	0.7211	30.05%
Silver	6.7	4.0	7.2	8.1	7.0	6.3	6.0	6.9	7.7	10	7.5	6.3	7.2	28	7.07	0.7094	10.03%
Mercury	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	4.7	0.05	0.0000	0.00%

Notes:
Analytes presented in mg/kg
italics = Not detected above method detection limits (MDL) or MDL based
DOH EAL = March 2007 Defined DOH Environmental Action Levels (EALs) 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.
CT = Default DOH EAL pertaining to Commercial/Industrial Land Use. For TPH-O, the DOH EAL of 1,000 mg/kg pertains to leaching concerns. For Lead, the DOH EAL of 400 mg/kg pertains to direct exposure concerns
A = Analyte detected above MDL but below quantitation limits, estimated value listed
A* = Analyte detected above MDL but below quantitation limits, estimated value listed
Bold/Italics/Underlined values = Value exceeds default DOH EALs

Analytical results from ETC's March 2011 initial site investigation activities indicated that elevated concentrations of TPH-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 TPH-O concentration of 730 mg/kg was reported for the multi-incremental 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 (2,300 mg/kg) concerns associated with unrestricted land use were not exceeded. 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.

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 TestAmerica – Honolulu (TA-H) in Aiea, Hawaii with completed chain of custody documentation. ETC instructed TA-H 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 representatively sub-sampled. TA-H 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.

Table 4: Analytical Data – Additional Investigation of DU11

Sample ID	Lead
2048.DU14	37
2048.DU15	17
2048.DU16	30
2048.DU17	84
2048.DU18	23
2048.DU19	13
2048.DU20	12
2048.DU21	13
2048.DU22	36
2048.DU23	34
Mean	27.67
Standard Deviation	12.74
Relative Standard Deviation	46.05%
DOH EAL	200 (800[CI])

All results presented in mg/kg.
DOH EAL = March 2009 Default DOH EALs 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 DOH EAL for Lead of 800 mg/kg pertaining to direct exposure concerns associated with Commercial/ Industrial Land Use

Analytical data indicated that average lead concentrations for all eight DUs within DU11 were well below the project defined AL of 200 mg/kg.

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 EALs 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

Contaminant	Leaching Threat to Groundwater	Terrestrial Ecological Impacts	Residential (Unrestricted) Land Use		Commercial/Industrial Land Use	
			Direct Exposure	Gross Contamination	Direct Exposure	Gross Contamination
TPH-O	1,000	--	2,300	500	31,000	2,500
Lead	--	200	400	1,000	800	2,500

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

Decision Unit/ Contaminant	Leaching Threat to Groundwater	Terrestrial Ecological Impacts	Residential (Unrestricted) Land Use		Commercial/Industrial Land Use	
			Direct Exposure	Gross Contamination	Direct Exposure	Gross Contamination
DU6						
TPH-O	X[1]			X		
DU11						
Lead		X	X	X[1]	X	
DU3 (replicate)						
TPH-O				X[1]		

1 - Reported concentration plus RSD 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-incremental soil sample collected from DU6 and an adjusted value of 589 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 exceeded.

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 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 Puunene, 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 Angles 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 situated 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-increment 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

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- DOH. Summer 2008 (updated in March 2009). *Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater.*
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- EnviroServices & Training Center, LLC (ETC). February 2011. *Addendum – February 2011 Site Investigation Work Plan, South Firebreak Road, Puunene, Maui, Hawaii, TMK (2) 3-8-8: Parcel 19.*
- EnviroServices & Training Center, LLC (ETC). June 2011. *Addendum No. 2, February 2011 Site Investigation Work Plan, Former Puunene Piggery, South Firebreak Road, Puunene, Maui, Hawaii, TMK (2) 3-8-8: Parcel 19.*
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- Mink, John F. and Lau, Stephen L. February 1990. *Aquifer Identification and Classification for Maui: Groundwater Protection Strategy for Hawaii.*
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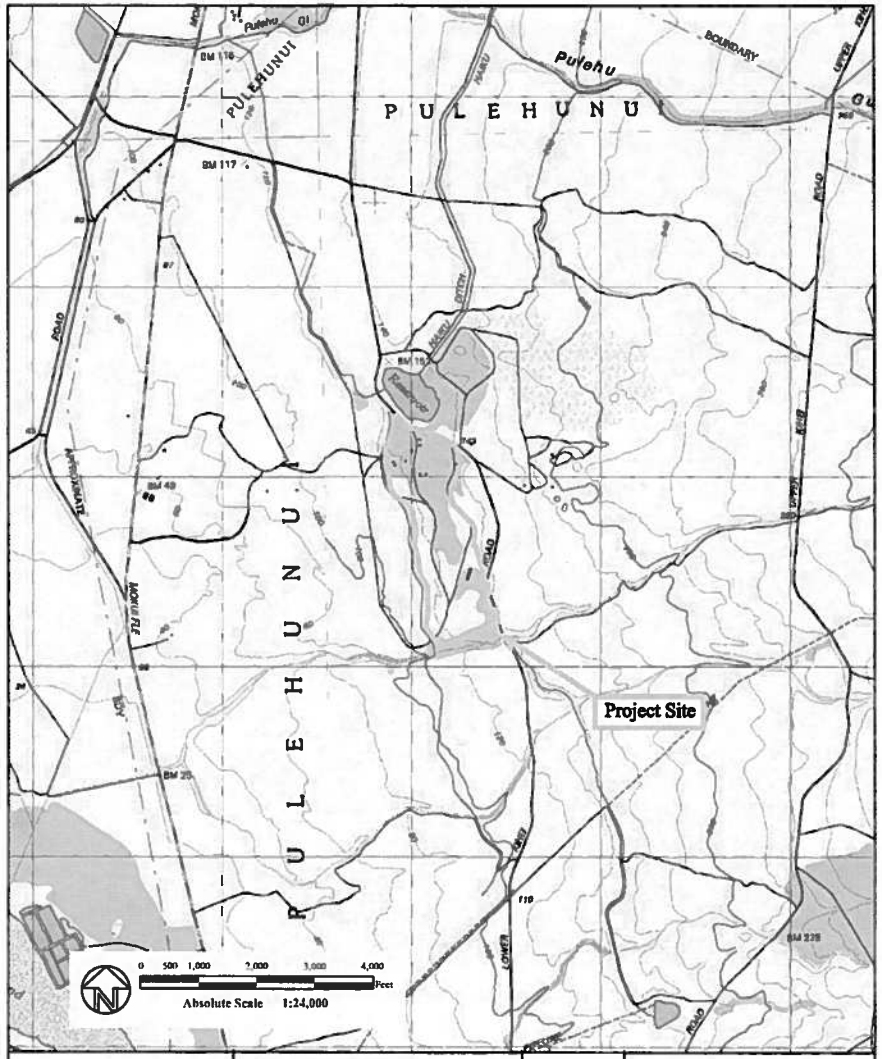
- U.S. EPA. January 2000. *Data Quality Objectives Process for Hazardous Waste Site Investigations (EPA QA/G-4) Final.* EPA/600/R-00/007.
- U.S. EPA. November 2003. *Guidance for Obtaining Representative Laboratory Analytical Subsamples from Particulate Laboratory Samples.* EPA/600/R-03/027.

APPENDIX I
Figures

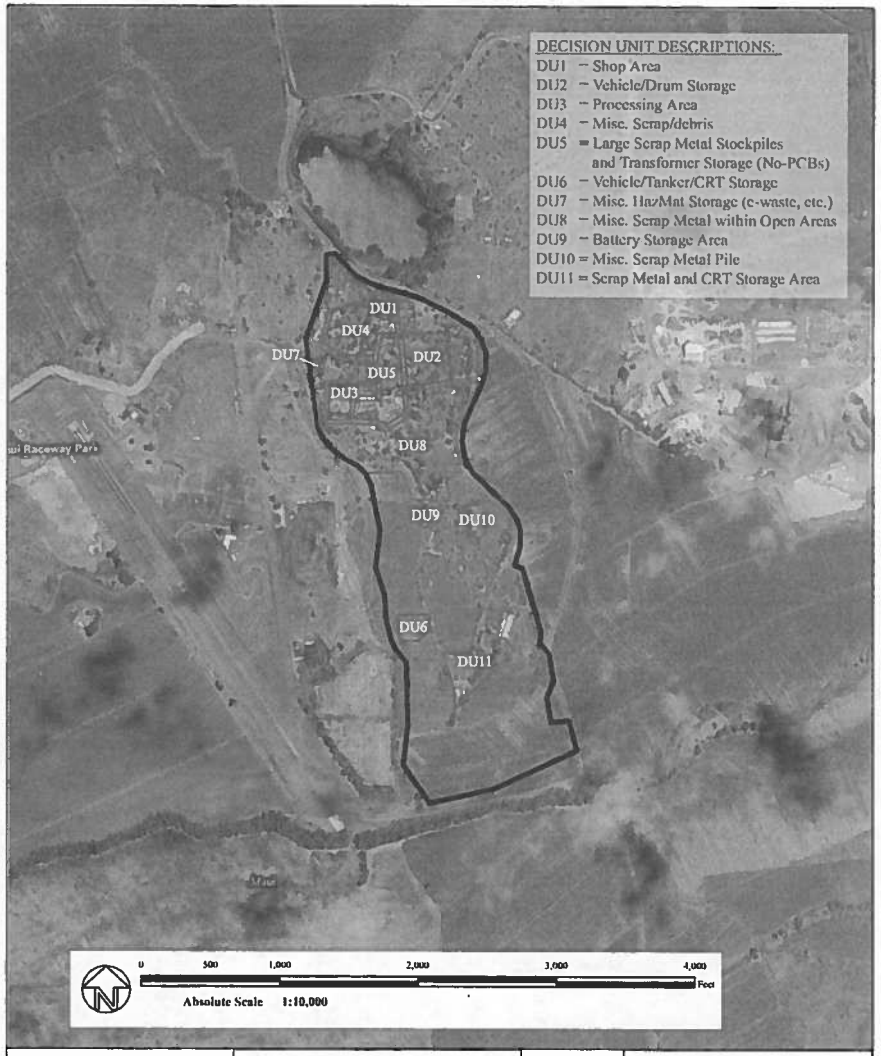


EnviroServices & Training Center, LLC

Project No. 06-2048

October 2011

Figure 1 - Site Location Map
Puunene Piggery
South Firebreak Road
Puunene, Maui, Hawaii
TMK (2) 3-8-8: Parcel 19



— DRO/RRO, PAH 16, PCBs, and RCRA 8 Metals

— RCRA 8 Metals

EnviroServices & Training Center, LLC

Project No. 06-2048

October 2011

Figure 2 - Decision Unit Layout
Puunene Piggery
South Firebreak Road
Puunene, Maui, Hawaii
TMK (2) 3-8-8: Parcel 19

EnviroServices & Training Center, LLC

Project No. 06-2048

October 2011

Figure 3 - DU11 Layout
Puunene Piggery
South Firebreak Road
Puunene, Maui, Hawaii
TMK (2) 3-8-8: Parcel 19

APPENDIX III
Laboratory Reports

Torrent
LABORATORY, INC.

EnviroServices & Training Center (ETC)
505 Ward Avenue
Suite 202
Honolulu, Hawaii 96814
Tel: 808-839-7222
Fax: 808-839-4455

RE: 06-2048 Puunene Piggery

Work Order No.: 1103019

Dear Sharla Nakashima:

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)263-5258; ext 204.

Patti Sandrock

March 10, 2011
Date

Torrent LABORATORY, INC

Date: 3/10/2011

Client: EnviroServices & Training Center (ETC)
Project: 08-2048 Puunene Piggery
Work Order: 1103019

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 TCI0109. Sample collection date and time is reflective of Hawaiian Standard Time (HST) while all anlaytical 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 PQL are qualified with the appropriate "J" flag and should be considered as estimated values.

Analytical Comments for method S_8082, QC Analytical Batch ID 404181, Note:Surrogate recovery for DCBP in the LCSD falls outside of the control limits (bias high). All affected samples are ND for the Aroclors associated with DCBP. No corrective action is required.

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU1 1103019-001

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	2.3	mg/Kg
Barium	SW6010B	1	0.0220	1.0	160	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	50	mg/Kg
Lead	SW6010B	1	0.0740	0.260	71	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	2.6	mg/Kg
Silver	SW6010B	1	0.0400	0.26	6.7	mg/Kg
TPH as Motor Oil	SW8015B(M)	3	4.95	12	190	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.014	mg/Kg
Phenanthrene	SW8270C	1	0.01346	0.0327	0.020	mg/Kg
Fluoranthene	SW8270C	1	0.01624	0.0327	0.043	mg/Kg
Pyrene	SW8270C	1	0.01261	0.0327	0.023	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.021	mg/Kg
Benzo[b]fluoranthene	SW8270C	1	0.01340	0.0327	0.026	mg/Kg

2048.DU2 1103019-002

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	3.1	mg/Kg
Barium	SW6010B	1	0.0220	1.0	180	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	59	mg/Kg
Lead	SW6010B	1	0.0740	0.260	4.5	mg/Kg
Silver	SW6010B	1	0.0400	0.26	4.9	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.015	mg/Kg
Dibenz[a,h]anthracene	SW8270C	1	0.004488	0.0327	0.0069	mg/Kg
TPH as Diesel	SW8015B(M)	1	0.759	2.0	4.0	mg/Kg
TPH as Motor Oil	SW8015B(M)	1	1.65	4.0	25	mg/Kg

Torrent LABORATORY, INC

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU3 1103019-003

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	2.1	mg/Kg
Barium	SW6010B	1	0.0220	1.0	330	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	67	mg/Kg
Lead	SW6010B	1	0.0740	0.260	17	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	2.6	mg/Kg
Silver	SW6010B	1	0.0400	0.26	7.2	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.015	mg/Kg
Phenanthrene	SW8270C	1	0.01346	0.0327	0.014	mg/Kg
Fluoranthene	SW8270C	1	0.01624	0.0327	0.026	mg/Kg
Pyrene	SW8270C	1	0.01261	0.0327	0.017	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.013	mg/Kg
Benzo[b]fluoranthene	SW8270C	1	0.01340	0.0327	0.018	mg/Kg
Dibenz[a,h]anthracene	SW8270C	1	0.004488	0.0327	0.0070	mg/Kg
TPH as Diesel	SW8015B(M)	1	0.759	2.0	6.8	mg/Kg
TPH as Motor Oil	SW8015B(M)	1	1.65	4.0	100	mg/Kg

Torrent LABORATORY, INC

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU4 1103019-004

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	2.1	mg/Kg
Barium	SW6010B	1	0.0220	1.0	200	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	39	mg/Kg
Lead	SW6010B	1	0.0740	0.260	13	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	1.6	mg/Kg
Silver	SW6010B	1	0.0400	0.26	8.1	mg/Kg
Naphthalene	SW8270C	1	0.01544	0.0327	0.023	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.020	mg/Kg
Fluoranthene	SW8270C	1	0.01624	0.0327	0.020	mg/Kg
TPH as Diesel	SW8015B(M)	1	0.759	2.0	3.8	mg/Kg
TPH as Motor Oil	SW8015B(M)	1	1.65	4.0	69	mg/Kg

2048.DU5 1103019-005

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	2.6	mg/Kg
Barium	SW6010B	1	0.0220	1.0	270	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	62	mg/Kg
Lead	SW6010B	1	0.0740	0.260	10	mg/Kg
Silver	SW6010B	1	0.0400	0.26	7.0	mg/Kg
Naphthalene	SW8270C	1	0.01544	0.0327	0.018	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.022	mg/Kg
Pyrene	SW8270C	1	0.01261	0.0327	0.021	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.021	mg/Kg
Benzo[b]fluoranthene	SW8270C	1	0.01340	0.0327	0.022	mg/Kg
TPH as Diesel	SW8015B(M)	1	0.759	2.0	4.9	mg/Kg
TPH as Motor Oil	SW8015B(M)	1	1.65	4.0	110	mg/Kg

Torrent LABORATORY, INC

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU6 1103019-006

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	3.0	mg/Kg
Barium	SW6010B	1	0.0220	1.0	190	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	44	mg/Kg
Lead	SW6010B	1	0.0740	0.260	33	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	1.9	mg/Kg
Silver	SW6010B	1	0.0400	0.26	6.3	mg/Kg
Naphthalene	SW8270C	1	0.01544	0.0327	0.021	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.026	mg/Kg
Phenanthrene	SW8270C	1	0.01346	0.0327	0.087	mg/Kg
Benz[a]anthracene	SW8270C	1	0.01973	0.0327	0.058	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.059	mg/Kg
Benzo[k]fluoranthene	SW8270C	1	0.008646	0.0327	0.020	mg/Kg
Benzo[a]pyrene	SW8270C	1	0.01485	0.0327	0.015	mg/Kg
Benzo[g,h,i]perylene	SW8270C	1	0.004950	0.0327	0.011	mg/Kg
TPH as Diesel	SW8015B(M)	10	7.59	20	130	mg/Kg
TPH as Motor Oil	SW8015B(M)	10	16.5	40	730	mg/Kg

2048.DU7 1103019-007

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	3.4	mg/Kg
Barium	SW6010B	1	0.0220	1.0	250	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	65	mg/Kg
Lead	SW6010B	1	0.0740	0.260	110	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	1.4	mg/Kg
Silver	SW6010B	1	0.0400	0.26	6.0	mg/Kg

Torrent LABORATORY, INC

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU8 1103019-008

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	4.5	mg/Kg
Barium	SW6010B	1	0.0220	1.0	210	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	56	mg/Kg
Lead	SW6010B	1	0.0740	0.260	11	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	2.6	mg/Kg
Silver	SW6010B	1	0.0400	0.26	6.9	mg/Kg

2048.DU9 1103019-009

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	3.0	mg/Kg
Barium	SW6010B	1	0.0220	1.0	220	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	43	mg/Kg
Lead	SW6010B	1	0.0740	0.260	24	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	2.3	mg/Kg
Silver	SW6010B	1	0.0400	0.26	7.7	mg/Kg

2048.DU10 1103019-010

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	3.8	mg/Kg
Barium	SW6010B	1	0.0220	1.0	210	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	49	mg/Kg
Lead	SW6010B	1	0.0740	0.260	18	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	3.1	mg/Kg
Silver	SW6010B	1	0.0400	0.26	10	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU11 — 1103019-011

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	4.0	mg/Kg
Barium	SW6010B	1	0.0220	1.0	230	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	47	mg/Kg
Lead	SW6010B	1	0.0740	0.260	830	mg/Kg
Silver	SW6010B	1	0.0400	0.26	7.5	mg/Kg

2048.DU12 — 1103019-012

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	4.5	mg/Kg
Barium	SW6010B	1	0.0220	1.0	330	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	74	mg/Kg
Lead	SW6010B	1	0.0740	0.260	29	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	1.6	mg/Kg
Silver	SW6010B	1	0.0400	0.26	6.3	mg/Kg
Naphthalene	SW8270C	1	0.01544	0.0327	0.033	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.032	mg/Kg
1-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.014	mg/Kg
Fluorene	SW8270C	1	0.005544	0.0327	0.0084	mg/Kg
Phenanthrene	SW8270C	1	0.01346	0.0327	0.080	mg/Kg
Fluoranthene	SW8270C	1	0.01624	0.0327	0.14	mg/Kg
Pyrene	SW8270C	1	0.01261	0.0327	0.086	mg/Kg
Benz[a]anthracene	SW8270C	1	0.01973	0.0327	0.045	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.064	mg/Kg
Benzo[b]fluoranthene	SW8270C	1	0.01340	0.0327	0.089	mg/Kg
Benzo[k]fluoranthene	SW8270C	1	0.008646	0.0327	0.083	mg/Kg
Benzo[a]pyrene	SW8270C	1	0.01485	0.0327	0.032	mg/Kg
Dibenz[a,h]anthracene	SW8270C	1	0.004488	0.0327	0.017	mg/Kg
Benzo[g,h,i]perylene	SW8270C	1	0.004950	0.0327	0.035	mg/Kg
TPH as Diesel	SW8015B(M)	5	3.80	9.9	11	mg/Kg
TPH as Motor Oil	SW8015B(M)	5	8.25	20	350	mg/Kg

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

2048.DU13 — 1103019-013

Parameters:	Analysis Method	DF	MDL	PQL	Results	Unit
Arsenic	SW6010B	1	0.0560	0.34	2.4	mg/Kg
Barium	SW6010B	1	0.0220	1.0	310	mg/Kg
Chromium	SW6010B	1	0.0120	1.0	78	mg/Kg
Lead	SW6010B	1	0.0740	0.260	9.1	mg/Kg
Selenium	SW6010B	1	0.0580	1.0	3.0	mg/Kg
Silver	SW6010B	1	0.0400	0.26	7.7	mg/Kg
2-Methylnaphthalene	SW8270C	1	0.01049	0.0327	0.016	mg/Kg
Phenanthrene	SW8270C	1	0.01346	0.0327	0.041	mg/Kg
Fluoranthene	SW8270C	1	0.01624	0.0327	0.28	mg/Kg
Pyrene	SW8270C	1	0.01261	0.0327	0.20	mg/Kg
Benz[a]anthracene	SW8270C	1	0.01973	0.0327	0.10	mg/Kg
Chrysene	SW8270C	1	0.01168	0.0657	0.12	mg/Kg
Benzo[b]fluoranthene	SW8270C	1	0.01340	0.0327	0.11	mg/Kg
Benzo[k]fluoranthene	SW8270C	1	0.008646	0.0327	0.037	mg/Kg
Benzo[a]pyrene	SW8270C	1	0.01485	0.0327	0.054	mg/Kg
Indeno[1,2,3-cd]pyrene	SW8270C	1	0.008316	0.0327	0.030	mg/Kg
Dibenz[a,h]anthracene	SW8270C	1	0.004488	0.0327	0.015	mg/Kg
TPH as Diesel	SW8015B(M)	2	1.52	4.0	7.6	mg/Kg
TPH as Motor Oil	SW8015B(M)	2	3.30	7.9	140	mg/Kg

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU1	**Lab Sample ID:**	1103019-001A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 9:15		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	2.3		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	160		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	50		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	71		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	2.6		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	6.7		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	92.6		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	103		%	404181	2185

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU1	**Lab Sample ID:**	1103019-001A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 9:15		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	ND		mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.014	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	0.020	J	mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	0.043		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	0.023	J	mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	ND		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.021	J	mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	0.026	J	mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	ND		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	ND		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	ND		mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	73.6		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	91.5		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/08/11	3	2.28	5.9	ND		mg/Kg	404191	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/08/11	3	4.95	12	190		mg/Kg	404191	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/08/11	3	59.7	129	77.4		mg/Kg	404191	2177

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU2	**Lab Sample ID:**	1103019-002A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 9:45		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	3.1		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	180		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	59		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	4.5		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	ND		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	4.9		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	116		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	95.2		%	404181	2185

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU2	**Lab Sample ID:**	1103019-002A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 9:45		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	ND		mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.015	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	ND		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	ND		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	ND		mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	ND		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	ND		mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	ND		mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	ND		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	ND		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	0.0069	J	mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	67.8		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	101		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/06/11	1	0.759	2.0	4.0	x	mg/Kg	404192	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/06/11	1	1.65	4.0	25		mg/Kg	404192	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/06/11	1	59.7	129	93.2		mg/Kg	404192	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU3	**Lab Sample ID:**	1103019-003A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 7:05		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	2.1		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	330		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	67		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	17		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	2.6		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	7.2		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	110		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	92.7		%	404181	2185

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU3	**Lab Sample ID:**	1103019-003A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 7:05		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	ND		mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.015	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	0.014	J	mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	0.026	J	mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	0.017	J	mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	ND		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.013	J	mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	0.018	J	mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	ND		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	ND		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	0.0070	J	mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	68.0		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	96.0		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/06/11	1	0.759	2.0	6.8	x	mg/Kg	404192	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/06/11	1	1.65	4.0	100		mg/Kg	404192	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/06/11	1	59.7	129	79.9		mg/Kg	404192	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU4	**Lab Sample ID:**	1103019-004A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 10:30		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	2.1		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	200		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	39		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	13		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	1.6		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	8.1		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	114		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	99.9		%	404181	2185

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU4	**Lab Sample ID:**	1103019-004A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 10:30		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	0.023	J	mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.020	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	ND		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	0.020	J	mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	ND		mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	ND		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	ND		mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	ND		mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	ND		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	ND		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	ND		mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	70.7		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	102		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/06/11	1	0.759	2.0	3.8	x	mg/Kg	404192	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/06/11	1	1.65	4.0	69		mg/Kg	404192	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/06/11	1	59.7	129	79.5		mg/Kg	404192	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU5	**Lab Sample ID:**	1103019-005A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 10:35		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	2.6		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	270		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	62		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	10		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	ND		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	7.0		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	115		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	88.8		%	404181	2185

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU5	**Lab Sample ID:**	1103019-005A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 10:35		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	0.018	J	mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.022	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	ND		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	ND		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	0.021	J	mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	ND		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.021	J	mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	0.022	J	mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	ND		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	ND		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	ND		mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	71.9		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	96.8		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/06/11	1	0.759	2.0	4.9	x	mg/Kg	404192	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/06/11	1	1.65	4.0	110		mg/Kg	404192	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/06/11	1	59.7	129	85.6		mg/Kg	404192	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU6	**Lab Sample ID:**	1103019-006A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 13:50		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	3.0		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	190		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	44		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	33		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	1.9		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	6.3		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	97.6		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	71.0		%	404181	2185

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU6	**Lab Sample ID:**	1103019-006A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 13:50		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	0.021	J	mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.026	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	0.087		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	ND		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	ND		mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	0.058		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.059	J	mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	ND		mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	0.020	J	mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	0.015		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	ND		mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	0.011	J	mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	73.6		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	92.2		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/08/11	10	7.59	20	130	x	mg/Kg	404191	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/08/11	10	16.5	40	730		mg/Kg	404191	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/08/11	10	59.7	129	131	S	mg/Kg	404191	2177

NOTE: Surrogate recoveries fall outside of the control limits due to matrix interference. x-Not typical of Diesel standard pattern. Diesel result is carry over from TPH as motor oil quantitation range.

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU7	**Lab Sample ID:**	1103019-007A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 11:35		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	3.4		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	250		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	65		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	110		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	1.4		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	6.0		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU8	**Lab Sample ID:**	1103019-008A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 12:15		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	4.5		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	210		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	56		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	11		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	2.6		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	6.9		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU9	**Lab Sample ID:**	1103019-009A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 12:35		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	3.0		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	220		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	43		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	24		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	2.3		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	7.7		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU10	**Lab Sample ID:**	1103019-010A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 15:00		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	3.8		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	210		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	49		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	18		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	3.1		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	10		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID: 2048.DU11
Lab Sample ID: 1103019-011A
Project Name/Location: 06-2048 Puunene Piggery
Sample Matrix: Soil
Project Number:
Date/Time Sampled: 03/01/11 / 14:00
Tag Number: 06-2048 Puunene Piggery

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	4.0		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	230		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	47		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	830		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	ND		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	7.5		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID: 2048.DU12
Lab Sample ID: 1103019-012A
Project Name/Location: 06-2048 Puunene Piggery
Sample Matrix: Soil
Project Number:
Date/Time Sampled: 03/01/11 / 7:40
Tag Number: 06-2048 Puunene Piggery

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	4.5		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	330		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	74		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	29		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	1.6		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	6.3		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	97.3		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	70.0		%	404181	2185

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU12	Lab Sample ID:	1103019-012A
Project Name/Location:	06-2048 Puunene Piggery	Sample Matrix:	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 7:40		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	0.033		mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.032	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.014	J	mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	0.0084	J	mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	0.080		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	0.14		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	0.086		mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	0.045		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.064	J	mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	0.089		mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	0.083		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	0.032	J	mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	ND		mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	0.017	J	mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	0.035		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	84.9		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	90.9		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/08/11	5	3.80	9.9	11	x	mg/Kg	404191	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/08/11	5	8.25	20	350		mg/Kg	404191	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/08/11	5	59.7	129	83.0		mg/Kg	404191	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU13	Lab Sample ID:	1103019-013A
Project Name/Location:	06-2048 Puunene Piggery	Sample Matrix:	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 8:45		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Arsenic	SW6010B	3/7/11	03/08/11	1	0.0560	0.34	2.4		mg/Kg	404180	2193
Barium	SW6010B	3/7/11	03/08/11	1	0.0220	1.0	310		mg/Kg	404180	2193
Cadmium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	ND		mg/Kg	404180	2193
Chromium	SW6010B	3/7/11	03/08/11	1	0.0120	1.0	78		mg/Kg	404180	2193
Lead	SW6010B	3/7/11	03/08/11	1	0.0740	0.260	9.1		mg/Kg	404180	2193
Selenium	SW6010B	3/7/11	03/08/11	1	0.0580	1.0	3.0		mg/Kg	404180	2193
Silver	SW6010B	3/7/11	03/08/11	1	0.0400	0.26	7.7		mg/Kg	404180	2193

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Mercury	7471B	3/8/11	03/09/11	1	0.05	0.10	ND		mg/Kg	404179	2191

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
Aroclor1016	SW8082	3/6/11	03/07/11	1	0.0230	0.10	ND		mg/Kg	404181	2185
Aroclor1221	SW8082	3/6/11	03/07/11	1	0.0920	0.20	ND		mg/Kg	404181	2185
Aroclor1232	SW8082	3/6/11	03/07/11	1	0.0460	0.10	ND		mg/Kg	404181	2185
Aroclor1242	SW8082	3/6/11	03/07/11	1	0.0430	0.10	ND		mg/Kg	404181	2185
Aroclor1248	SW8082	3/6/11	03/07/11	1	0.0360	0.10	ND		mg/Kg	404181	2185
Aroclor1254	SW8082	3/6/11	03/07/11	1	0.0240	0.10	ND		mg/Kg	404181	2185
Aroclor1260	SW8082	3/6/11	03/07/11	1	0.0270	0.10	ND		mg/Kg	404181	2185
TCMX (S)	SW8082	3/6/11	03/07/11	1	50.4	136	106		%	404181	2185
DCBP (S)	SW8082	3/6/11	03/07/11	1	55.1	113	88.8		%	404181	2185

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Sharla Nakashima
EnviroServices & Training Center (ETC)

Date Received: 03/03/11
Date Reported: 03/10/11

Client Sample ID:	2048.DU13	**Lab Sample ID:**	1103019-013A
Project Name/Location:	06-2048 Puunene Piggery	**Sample Matrix:**	Soil
Project Number:			
Date/Time Sampled:	03/01/11 / 8:45		
Tag Number:	06-2048 Puunene Piggery		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
The results shown below are reported using their MDL.											
Naphthalene	SW8270C	3/7/11	03/08/11	1	0.01544	0.0327	ND		mg/Kg	404201	2194
2-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	0.016	J	mg/Kg	404201	2194
1-Methylnaphthalene	SW8270C	3/7/11	03/08/11	1	0.01049	0.0327	ND		mg/Kg	404201	2194
Acenaphthylene	SW8270C	3/7/11	03/08/11	1	0.009834	0.0327	ND		mg/Kg	404201	2194
Acenaphthene	SW8270C	3/7/11	03/08/11	1	0.01082	0.0327	ND		mg/Kg	404201	2194
Fluorene	SW8270C	3/7/11	03/08/11	1	0.005544	0.0327	ND		mg/Kg	404201	2194
Phenanthrene	SW8270C	3/7/11	03/08/11	1	0.01346	0.0327	0.041		mg/Kg	404201	2194
Anthracene	SW8270C	3/7/11	03/08/11	1	0.01716	0.0327	ND		mg/Kg	404201	2194
Fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01624	0.0327	0.28		mg/Kg	404201	2194
Pyrene	SW8270C	3/7/11	03/08/11	1	0.01261	0.0327	0.20		mg/Kg	404201	2194
Benz[a]anthracene	SW8270C	3/7/11	03/08/11	1	0.01973	0.0327	0.10		mg/Kg	404201	2194
Chrysene	SW8270C	3/7/11	03/08/11	1	0.01168	0.0657	0.12		mg/Kg	404201	2194
Benzo[b]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.01340	0.0327	0.11		mg/Kg	404201	2194
Benzo[k]fluoranthene	SW8270C	3/7/11	03/08/11	1	0.008646	0.0327	0.037		mg/Kg	404201	2194
Benzo[a]pyrene	SW8270C	3/7/11	03/08/11	1	0.01485	0.0327	0.054		mg/Kg	404201	2194
Indeno[1,2,3-cd]pyrene	SW8270C	3/7/11	03/08/11	1	0.008316	0.0327	0.030	J	mg/Kg	404201	2194
Dibenz[a,h]anthracene	SW8270C	3/7/11	03/08/11	1	0.004488	0.0327	0.015	J	mg/Kg	404201	2194
Benzo[g,h,i]perylene	SW8270C	3/7/11	03/08/11	1	0.004950	0.0327	ND		mg/Kg	404201	2194
2-Fluorobiphenyl (S)	SW8270C	3/7/11	03/08/11	1	25	91.6	64.7		%	404201	2194
p-Terphenyl-d14 (S)	SW8270C	3/7/11	03/08/11	1	24.3	129	93.7		%	404201	2194

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results	Lab Qualifier	Unit	Analytical Batch	Prep Batch
TPH as Diesel	SW8015B(M)	3/6/11	03/08/11	2	1.52	4.0	7.6	x	mg/Kg	404191	2177
TPH as Motor Oil	SW8015B(M)	3/6/11	03/08/11	2	3.30	7.9	140		mg/Kg	404191	2177
Pentacosane (S)	SW8015B(M)	3/6/11	03/08/11	2	59.7	129	88.0		mg/Kg	404191	2177

NOTE: x-Not typical of Diesel standard pattern (unknown discrete hydrocarbon peaks present).

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	1103019	**Prep Method:**	3545_TPH	**Prep Date:**	03/06/11	**Prep Batch:**	2177
Matrix:	Soil	**Analytical Method:**	SW8015B(M)	**Analyzed Date:**	03/06/11	**Analytical Batch:**	404192
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
TPH as Diesel	0.758	2.0	ND	
TPH as Motor Oil	1.78	4.0	3.4	
Pentacosane (S)			107	

Work Order:	1103019	**Prep Method:**	3545_PCB	**Prep Date:**	03/06/11	**Prep Batch:**	2185
Matrix:	Soil	**Analytical Method:**	SW8082	**Analyzed Date:**	03/07/11	**Analytical Batch:**	404181
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Aroclor1016	0.0230	0.10	ND	
Aroclor1221	0.0920	0.20	ND	
Aroclor1232	0.0460	0.10	ND	
Aroclor1242	0.0430	0.10	ND	
Aroclor1248	0.0360	0.10	ND	
Aroclor1254	0.0240	0.10	ND	
Aroclor1260	0.0270	0.10	ND	
TCMX (S)			121	
DCBP (S)			99.3	

Work Order:	1103019	**Prep Method:**	7471_MI	**Prep Date:**	03/08/11	**Prep Batch:**	2191
Matrix:	Soil	**Analytical Method:**	7471B	**Analyzed Date:**	03/09/11	**Analytical Batch:**	404179
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Mercury	0.005	0.10	ND	

Torrent LABORATORY, INC

MB Summary Report

Work Order:	1103019	Prep Method:	3050B_MI	Prep Date:	03/07/11	Prep Batch:	2193
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	03/08/11	Analytical Batch:	404180
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Arsenic	0.0560	0.34	0.063	
Ba 233.527 R	0.0220	1.0	0.50	
Cadmium	0.0120	1.0	0.013	
Chromium	0.0120	1.0	0.091	
Lead	0.0740	0.260	0.21	
Selenium	0.0580	1.0	ND	
Silver	0.0400	1.0	ND	

Work Order:	1103019	Prep Method:	3545_PAHSIM	Prep Date:	03/07/11	Prep Batch:	2194
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	03/08/11	Analytical Batch:	404201
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Lab Qualifier
Naphthalene	0.01568	0.0332	ND	
2-Methylnaphthalene	0.01065	0.0332	ND	
1-Methylnaphthalene	0.01065	0.0332	ND	
Acenaphthylene	0.009983	0.0332	ND	
Acenaphthene	0.01099	0.0332	ND	
Fluorene	0.005628	0.0332	ND	
Phenanthrene	0.01367	0.0332	ND	
Anthracene	0.01742	0.0332	ND	
Fluoranthene	0.01648	0.0332	ND	
Pyrene	0.01280	0.0332	ND	
Benz[a]anthracene	0.02003	0.0332	ND	
Chrysene	0.01186	0.0667	ND	
Benzo[b]fluoranthene	0.01360	0.0332	ND	
Benzo[k]fluoranthene	0.008777	0.0332	ND	
Benzo[a]pyrene	0.01508	0.0332	ND	
Indeno[1,2,3-cd]pyrene	0.008442	0.0332	ND	
Dibenz[a,h]anthracene	0.004556	0.0332	ND	
Benzo[g,h,i]perylene	0.005025	0.0332	ND	
2-Fluorobiphenyl (S)			79.3	
p-Terphenyl-d14 (S)			98.6	

Torrent LABORATORY, INC

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1103019	Prep Method:	3545_TPH	Prep Date:	03/06/11	Prep Batch:	2177
Matrix:	Soil	Analytical Method:	SW8015B(M)	Analyzed Date:	03/06/11	Analytical Batch:	404192
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.758	2	ND	33.33	95.3	95.9	0.638	52.7 - 115	30	
Pentacosane (S)			3.4	100	106	106		59.7 - 129		

Work Order:	1103019	Prep Method:	3545_PCB	Prep Date:	03/06/11	Prep Batch:	2185
Matrix:	Soil	Analytical Method:	SW8082	Analyzed Date:	03/07/11	Analytical Batch:	404181
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	0.0230	0.10	ND	1	117	123	4.59	55.6 - 135	30	
Aroclor1260	0.0270	0.10	ND	0.5	118	124	5.06	65.6 - 132	30	
TCMX (S)			ND	0.25	92.9	101		68.9 - 123		
DCBP (S)			ND	0.250	114	125		69.5 - 119		,S

Work Order:	1103019	Prep Method:	7471_MI	Prep Date:	03/08/11	Prep Batch:	2191
Matrix:	Soil	Analytical Method:	7471B	Analyzed Date:	03/09/11	Analytical Batch:	404179
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Mercury	0.05	0.10	ND	0.3	98.9	101	0.532	80.5 - 133	30	

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment

Work Order:	1103019	Prep Method:	3050B_MI	Prep Date:	03/07/11	Prep Batch:	2193
Matrix:	Soil	Analytical Method:	SW6010B	Analyzed Date:	03/08/11	Analytical Batch:	404180
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Arsenic	0.056	0.34	0.063	10	98.97	101	2.2	75 - 125	30	
Ba 233.527 R	0.022	1	0.50	10	102.7	113	9.0	75 - 125	30	
Cadmium	0.012	1	0.013	10	97.02	106	8.8	75 - 125	30	
Chromium	0.012	1	0.091	10	103	113	9.3	75 - 125	30	
Lead	0.074	0.26	0.21	10	106.9	109	1.9	75 - 125	30	
Selenium	0.058	1	ND	10	94.85	97.4	2.6	75 - 125	30	
Silver	0.04	0.26	ND	10	100.1	108	7.3	75 - 125	30	

Work Order:	1103019	Prep Method:	3545_PAHSIM	Prep Date:	03/07/11	Prep Batch:	2194
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	03/08/11	Analytical Batch:	404201
Units:	mg/Kg						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Acenaphthene	0.01082	0.0327	ND	0.1667	82.0	68.5	17.9	11.9 - 106	30	
Pyrene	0.01261	0.0327	ND	0.1667	103	100	2.86	16.9 - 136	30	
2-Fluorobiphenyl (S)			ND	5	86.9	69.4		25 - 91.6		
p-Terphenyl-d14 (S)			ND	5	97.6	93.1		24.3 - 129		

Torrent LABORATORY, INC.

MS/MSD Summary Report

Raw values are used in quality control assessment

Work Order:	1103019	Prep Method:	3545_PCB	Prep Date:	03/06/11	Prep Batch:	2185
Matrix:	Soil	Analytical Method:	SW8082	Analyzed Date:	03/07/11	Analytical Batch:	404181
Spiked Sample:	1103019-002A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Aroclor1016	0.0230	0.10	0.00926	1	82.2	88.9	7.67	55.6 - 135	30	
Aroclor1260	0.0270	0.10	0.00154	0.5	76.2	85.4	11.4	65.6 - 132	30	
TCMX (S)				0.25	80.8	87.7		50.4 - 136		
DCBP (S)				0.250	90.9	97.7		55.1 - 113		

Work Order:	1103019	Prep Method:	3545_TPH	Prep Date:	03/06/11	Prep Batch:	2177
Matrix:	Soil	Analytical Method:	SW8015B(M)	Analyzed Date:	03/06/11	Analytical Batch:	404192
Spiked Sample:	1103019-002A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH as Diesel	0.76	2.0	119.7218	33.33	72.0	77.0	5.83	50.3 - 125	30	
Pentacosane (S)				100	93.1	100		57.9 - 125		

Work Order:	1103019	Prep Method:	3545_PAHSIM	Prep Date:	03/07/11	Prep Batch:	2194
Matrix:	Soil	Analytical Method:	SW8270C	Analyzed Date:	03/08/11	Analytical Batch:	404201
Spiked Sample:	1103019-002A						
Units:	mg/Kg						

Parameters	MDL	PQL	Sample Conc.	Spike Conc.	MS % Recovery	MSD % Recovery	MS/MSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Acenaphthene	0.01082	0.0327	0.0283	0.1667	67.6	74.2	9.15	11.9 - 106	30	
Pyrene	0.01261	0.0327	0	0.1667	99.4	106	6.83	16.9 - 136	30	
2-Fluorobiphenyl (S)				5	72.9	82.4		25 - 91.6		
p-Terphenyl-d14 (S)				5	94.3	101		24.3 - 129		

Torrent LABORATORY, INC.

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - mg/L and *mg/Kg* (equivalent to PPM - parts per million in liquid and *solid*), ug/L and *ug/Kg* (equivalent to PPB - parts per billion in liquid and *solid*), ug/m3, *mg.m3*, ppbv and *ppmv* (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), ug/Wipe (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the anlayte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- 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
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Torrent LABORATORY, INC.

Sample Receipt Checklist

Client Name: EnviroServices & Training Center (ETC)
Project Name: 06-2048 Puunene Piggery
Work Order No.: 1103019

Date and Time Received: 3/3/2011 12:20
Received By: NG
Physically Logged By: NG
Checklist Completed By: NG
Carrier Name: FedEx

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	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 containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes	
Container/Temp Blank temperature in compliance?	Yes	Temperature: 4 °C
Water-VOA vials have zero headspace?	No VOA vials submitted	
Water-pH acceptable upon receipt?		
pH Checked by:	pH Adjusted by:	

Torrent LABORATORY, INC

Login Summary Report

Client ID: TL5417 EnviroServices & Training Center (ETC)
QC Level:
Project Name: 06-2048 Puunene Piggery
TAT Requested: 5+ day:0
Project # :
Date Received: 3/3/2011
Report Due Date: 3/10/2011
Time Received: 12:20

Comments: 5 Day TATII (plus 1 day drying) - Results due to client no later than Friday 3/11/11. 13 soils rec'd at 3'C. All samples require Hawaii DOH MI Subsampling! Report client specific PAH compound list! Report to Sharla (sharla@gotoetc.com).

Work Order # : ***1103019***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1103019-001A	2048.DU1	03/01/11 9:15	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
							S_8270PAHSIM	
							S_8082PCB	
							S_TPHDO	
Sample Note:	All samples need to be air dried (minimum 24hr), seived and subsampled per MI Sampling SOP. 10 gm MI digestion for metals, 30 gm MI extraction for all SVOs! See client specific PAH compound list!							
1103019-002A	2048.DU2	03/01/11 9:45	Soil	08/30/11				
							S_6010BMI	
							S_8082PCB	
							S_7471HGMI	
							S_8270PAHSIM	
							S_TPHDO	
1103019-003A	2048.DU3	03/01/11 7:05	Soil	08/30/11				
							S_6010BMI	
							S_TPHDO	
							S_8082PCB	
							S_8270PAHSIM	
							S_7471HGMI	
1103019-004A	2048.DU4	03/01/11 10:30	Soil	08/30/11				
							S_6010BMI	
							S_TPHDO	
							S_8082PCB	
							S_7471HGMI	
							S_8270PAHSIM	
1103019-005A	2048.DU5	03/01/11 10:35	Soil	08/30/11				
							S_6010BMI	
							S_8082PCB	
							S_TPHDO	
							S_8270PAHSIM	
							S_7471HGMI	
1103019-006A	2048.DU6	03/01/11 13:50	Soil	08/30/11				
							S_6010BMI	
							S_TPHDO	
							S_8082PCB	

Torrent LABORATORY, INC

Login Summary Report

Client ID: TL5417 EnviroServices & Training Center (ETC)
QC Level:
Project Name: 06-2048 Puunene Piggery
TAT Requested: 5+ day:0
Project # :
Date Received: 3/3/2011
Report Due Date: 3/10/2011
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Comments: 5 Day TATII (plus 1 day drying) - Results due to client no later than Friday 3/11/11. 13 soils rec'd at 3'C. All samples require Hawaii DOH MI Subsampling! Report client specific PAH compound list! Report to Sharla (sharla@gotoetc.com)

Work Order # : ***1103019***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
							S_8270PAHSIM	
							S_7471HGMI	
1103019-007A	2048.DU7	03/01/11 11:35	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
1103019-008A	2048.DU8	03/01/11 12:15	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
1103019-009A	2048.DU9	03/01/11 12:35	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
1103019-010A	2048.DU10	03/01/11 15:00	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
1103019-011A	2048.DU11	03/01/11 14:00	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
1103019-012A	2048.DU12	03/01/11 7.40	Soil	08/30/11				
							S_6010BMI	
							S_7471HGMI	
							S_8270PAHSIM	
							S_8082PCB	
							S_TPHDO	
1103019-013A	2048.DU13	03/01/11 8:45	Soil	08/30/11				
							S_6010BMI	
							S_8270PAHSIM	
							S_TPHDO	
							S_8082PCB	
							S_7471HGMI	

Torrent LABORATORY, INC.

483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

RESET

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 1103019

Company Name: EnviroServices & Training Center, LLC
Address: 505 Ward Avenue, Suite 202
City: Honolulu | State: Hawaii | Zip Code: 96814
Telephone: 808-839-7222 | FAX: 808-839-4455
REPORT TO: Sharla Nakashima | SAMPLER: S. Nakashima/B. Lum

Location of Sampling: 06-2048 Punaena Piggery
Purpose:
Special Instructions / Comments: ** Please ONLY report the attached PAH List
P.O. #:
EMAIL: sharla@getsetc.com

TURNAROUND TIME: ☐ 10 Work Days ☐ 3 Work Days ☐ Noon - Next Day ☐ 7 Work Days ☐ 2 Work Days ☐ 2 - 8 Hours ☑ 5 Work Days ☐ 1 Work Day ☐ Other

SAMPLE TYPE: ☐ Storm Water ☐ Air ☐ Waste Water ☐ Other ☐ Ground Water ☑ Soil

REPORT FORMAT: ☐ QC Level IV ☐ EDF ☑ Excel / EDD

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	MI Subsampling	RCRA 8 Metals	PCBs (8082)	TPH-D (8015M)	TPH-O (8015M)	PAHs SIM (8270C)				REMARKS
011A	2048.DU11	3-1-11 / 1400	Soil	1	PL Bag	✓	✓								
012A	2048.DU12	3-1-11 / 740	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
013A	2048.DU13	3-1-11 / 845	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
															Temp. 4°C

	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	[signature]	Sharla Nakashima	3/2/11	10:00	[signature]	Jeanell Yoshida	3/2/11	10:00
2	[signature]	Jeanell Yoshida	3/2/11	12:00	FedEx			

Were Samples Received in Good Condition? ☑ Yes ☐ NO | Samples on Ice? ☐ Yes ☑ NO | Method of Shipment: FedEx | Sample seals intact? ☐ Yes ☐ NO ☐ N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made. Page 2 of 2

Log In By: _____ Date: _____ | Log In Reviewed By: _____ Date: _____

3. FedEx 3-3-11 12:22 p.m. NAVIN G. Shodasara 3-3-11 12:22 pm

Torrent LABORATORY, INC.

483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258
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RESET

CHAIN OF CUSTODY

• NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY •

LAB WORK ORDER NO: 1103019

Company Name: EnviroServices & Training Center, LLC
Address: 505 Ward Avenue, Suite 202
City: Honolulu | State: Hawaii | Zip Code: 96814
Telephone: 808-839-7222 | FAX: 808-839-4455
REPORT TO: Sharla Nakashima | SAMPLER: S. Nakashima/B. Lum

Location of Sampling: 06-2048 Punaena Piggery
Purpose:
Special Instructions / Comments: ** Please ONLY report the attached PAH List
P.O. #:
EMAIL: sharla@getsetc.com

TURNAROUND TIME: ☐ 10 Work Days ☐ 3 Work Days ☐ Noon - Next Day ☐ 7 Work Days ☐ 2 Work Days ☐ 2 - 8 Hours ☑ 5 Work Days ☐ 1 Work Day ☐ Other

SAMPLE TYPE: ☐ Storm Water ☐ Air ☐ Waste Water ☐ Other ☐ Ground Water ☑ Soil

REPORT FORMAT: ☐ QC Level IV ☐ EDF ☑ Excel / EDD

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	MI Subsampling	RCRA 8 Metals	PCBs (8082)	TPH-D (8015M)	TPH-O (8015M)	PAHs SIM (8270C)				REMARKS
001A	2048.DU1	3-1-11 / 915	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
002A	2048.DU2	3-1-11 / 945	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
003A	2048.DU3	3-1-11 / 705	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
004A	2048.DU4	3-1-11 / 1030	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
005A	2048.DU5	3-1-11 / 1035	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
006A	2048.DU6	3-1-11 / 1350	Soil	1	PL Bag	✓	✓	✓	✓	✓	✓				
007A	2048.DU7	3-1-11 / 1135	Soil	1	PL Bag	✓	✓								
008A	2048.DU8	3-1-11 / 1215	Soil	1	PL Bag	✓	✓								Temp. 4°C
009A	2048.DU9	3-1-11 / 1235	Soil	1	PL Bag	✓	✓								
010A	2048.DU10	3-1-11 / 1500	Soil	1	PL Bag	✓	✓								

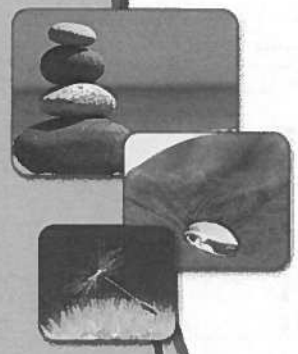
	Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1	[signature]	Sharla Nakashima	3/2/11	10:00	[signature]	Jeanell Yoshida	3/2/11	10:00
2	[signature]	Jeanell Yoshida	3/2/11	12:00	FedEx			

Were Samples Received in Good Condition? ☑ Yes ☐ NO | Samples on Ice? ☑ Yes ☐ NO | Method of Shipment: FedEx | Sample seals intact? ☐ Yes ☐ NO ☐ N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made. Page 1 of 2

Log In By: _____ Date: _____ | Log In Reviewed By: _____ Date: _____

3. FedEx 3-3-11 12:20 p.m. NAVIN G. Shodasara 3-3-11 12:20 P.M.



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Honolulu
99-193 Aiea Heights Drive, Suite 121
Aiea, HI 96701
Tel: 808-486-5227

TestAmerica Job ID: HUI0005
Client Project/Site: 06-2048
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:
09/19/2011 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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Case Narrative 4
Sample Summary 5
Detection Summary 6
Client Sample Results 7
QC Sample Results 9
QC Association 10
Chronicle 11
Certification Summary 13
Method Summary 14
Subcontract Data 15
Chain of Custody 38

Definitions/Glossary

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
D	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Job ID: HUI0005

Laboratory: TestAmerica Honolulu

Narrative

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory unless otherwise stated in the report. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.

The Chain(s) of Custody are included and are an integral part of this report. This entire report was reviewed and approved for release.

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

LABORATORY REPORT

At sample receipt, the cooler/sample was 1 degrees C.
NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Samples were prepared in accordance with the State of Hawai'i Department of Health Office of Hazard Evaluation and Emergency Response's Technical Guidance Manual for the Implementation of the Hawai'i State Contingency Plan 2009 edition Laboratory Preparation of Multi-Increment Samples.

Sample Summary

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
HUI0005-01	2048.DU14	Solid/Soil	08/30/11 15:30	09/01/11 13:22
HUI0005-02	2048.DU15	Solid/Soil	08/30/11 15:00	09/01/11 13:22
HUI0005-03	2048.DU16	Solid/Soil	08/30/11 11:00	09/01/11 13:22
HUI0005-04	2048.DU17	Solid/Soil	08/30/11 10:05	09/01/11 13:22
HUI0005-05	2048.DU18	Solid/Soil	08/30/11 14:15	09/01/11 13:22
HUI0005-06	2048.DU19	Solid/Soil	08/31/11 10:00	09/01/11 13:22
HUI0005-07	2048.DU20	Solid/Soil	08/30/11 09:20	09/01/11 13:22
HUI0005-08	2048.DU21	Solid/Soil	08/30/11 09:20	09/01/11 13:22
HUI0005-09	2048.DU22	Solid/Soil	08/30/11 10:15	09/01/11 13:22
HUI0005-10	2048.DU23	Solid/Soil	08/30/11 13:30	09/01/11 13:22

Detection Summary

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Client Sample ID: 2048.DU14 — Lab Sample ID: HUI0005-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	37		2.9		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU15 — Lab Sample ID: HUI0005-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	17		2.7		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU16 — Lab Sample ID: HUI0005-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	30		2.7		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU17 — Lab Sample ID: HUI0005-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	84		2.9		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU18 — Lab Sample ID: HUI0005-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	23		2.7		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU19 — Lab Sample ID: HUI0005-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	13		2.8		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU20 — Lab Sample ID: HUI0005-07

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	12		2.7		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU21 — Lab Sample ID: HUI0005-08

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	130		2.7		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU22 — Lab Sample ID: HUI0005-09

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	36		2.8		mg/Kg	10		6010B TMP	Total

Client Sample ID: 2048.DU23 — Lab Sample ID: HUI0005-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	34		2.7		mg/Kg	10		6010B TMP	Total

Client Sample Results

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Client Sample ID: 2048.DU14 — **Lab Sample ID: HUI0005-01**
Date Collected: 08/30/11 15:30 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	37		2.9		mg/Kg		09/15/11 13:11	09/16/11 00:03	10

Client Sample ID: 2048.DU15 — **Lab Sample ID: HUI0005-02**
Date Collected: 08/30/11 15:00 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:10	10

Client Sample ID: 2048.DU16 — **Lab Sample ID: HUI0005-03**
Date Collected: 08/30/11 11:00 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	30		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:17	10

Client Sample ID: 2048.DU17 — **Lab Sample ID: HUI0005-04**
Date Collected: 08/30/11 10:05 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	84		2.9		mg/Kg		09/15/11 13:11	09/16/11 00:24	10

Client Sample ID: 2048.DU18 — **Lab Sample ID: HUI0005-05**
Date Collected: 08/30/11 14:15 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	23		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:31	10

Client Sample ID: 2048.DU19 — **Lab Sample ID: HUI0005-06**
Date Collected: 08/31/11 10:00 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	13		2.8		mg/Kg		09/15/11 13:11	09/16/11 00:38	10

Client Sample Results

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Client Sample ID: 2048.DU20 — **Lab Sample ID: HUI0005-07**
Date Collected: 08/30/11 09:20 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	12		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:45	10

Client Sample ID: 2048.DU21 — **Lab Sample ID: HUI0005-08**
Date Collected: 08/30/11 09:20 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	130		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:52	10

Client Sample ID: 2048.DU22 — **Lab Sample ID: HUI0005-09**
Date Collected: 08/30/11 10:15 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	36		2.8		mg/Kg		09/15/11 13:11	09/16/11 01:12	10

Client Sample ID: 2048.DU23 — **Lab Sample ID: HUI0005-10**
Date Collected: 08/30/11 13:30 — Matrix: Solid/Soil
Date Received: 09/01/11 13:22

Method: 6010B TMP - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	34		2.7		mg/Kg		09/15/11 13:11	09/16/11 01:19	10

QC Sample Results

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Method: 6010B TMP - Metals (ICP)

Lab Sample ID: 95517-1 — **Client Sample ID: Method Blank**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 95447 — **Prep Batch: 95447_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		mg/Kg		09/15/11 13:13	09/15/11 22:49	1

Lab Sample ID: 95517-2 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 95447 — **Prep Batch: 95447_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Lead	50.0	47.9		mg/Kg		96	80 - 120

Lab Sample ID: 95517-3 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 95447 — **Prep Batch: 95447_P**

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Lead	50.0	47.5		mg/Kg		95	80 - 120	1	20

Lab Sample ID: 95517-4 — **Client Sample ID: Lab Control Sample**
Matrix: Soil — **Prep Type: Total**
Analysis Batch: 95447 — **Prep Batch: 95447_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Lead	152	158		mg/Kg		104	75.3 - 125.1

QC Association Summary

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

TSEA

Analysis Batch: 95447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
95517-1	Method Blank	Total	Soil	6010B TMP	95447_P
95517-2	Lab Control Sample	Total	Soil	6010B TMP	95447_P
95517-3	Lab Control Sample Dup	Total	Soil	6010B TMP	95447_P
95517-4	Lab Control Sample	Total	Soil	6010B TMP	95447_P
HUI0005-01	2048.DU14	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-02	2048.DU15	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-03	2048.DU16	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-04	2048.DU17	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-05	2048.DU18	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-06	2048.DU19	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-07	2048.DU20	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-08	2048.DU21	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-09	2048.DU22	Total	Solid/Soil	6010B TMP	95447_P
HUI0005-10	2048.DU23	Total	Solid/Soil	6010B TMP	95447_P

Prep Batch: 95447_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
95517-1	Method Blank	Total	Soil	3050B	
95517-2	Lab Control Sample	Total	Soil	3050B	
95517-3	Lab Control Sample Dup	Total	Soil	3050B	
95517-4	Lab Control Sample	Total	Soil	3050B	
HUI0005-01	2048.DU14	Total	Solid/Soil	3050B	
HUI0005-02	2048.DU15	Total	Solid/Soil	3050B	
HUI0005-03	2048.DU16	Total	Solid/Soil	3050B	
HUI0005-04	2048.DU17	Total	Solid/Soil	3050B	
HUI0005-05	2048.DU18	Total	Solid/Soil	3050B	
HUI0005-06	2048.DU19	Total	Solid/Soil	3050B	
HUI0005-07	2048.DU20	Total	Solid/Soil	3050B	
HUI0005-08	2048.DU21	Total	Solid/Soil	3050B	
HUI0005-09	2048.DU22	Total	Solid/Soil	3050B	
HUI0005-10	2048.DU23	Total	Solid/Soil	3050B	

Lab Chronicle

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Client Sample ID: 2048.DU14 — **Lab Sample ID: HUI0005-01**
Date Collected: 08/30/11 15:30 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:03	SP	TAL SEA

Client Sample ID: 2048.DU15 — **Lab Sample ID: HUI0005-02**
Date Collected: 08/30/11 15:00 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:10	SP	TAL SEA

Client Sample ID: 2048.DU16 — **Lab Sample ID: HUI0005-03**
Date Collected: 08/30/11 11:00 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:17	SP	TAL SEA

Client Sample ID: 2048.DU17 — **Lab Sample ID: HUI0005-04**
Date Collected: 08/30/11 10:05 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:24	SP	TAL SEA

Client Sample ID: 2048.DU18 — **Lab Sample ID: HUI0005-05**
Date Collected: 08/30/11 14:15 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:31	SP	TAL SEA

Client Sample ID: 2048.DU19 — **Lab Sample ID: HUI0005-06**
Date Collected: 08/31/11 10:00 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:38	SP	TAL SEA

Lab Chronicle

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Client Sample ID: 2048.DU20 — **Lab Sample ID: HUI0005-07**
Date Collected: 08/30/11 09:20 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:45	SP	TAL SEA

Client Sample ID: 2048.DU21 — **Lab Sample ID: HUI0005-08**
Date Collected: 08/30/11 09:20 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 00:52	SP	TAL SEA

Client Sample ID: 2048.DU22 — **Lab Sample ID: HUI0005-09**
Date Collected: 08/30/11 10:15 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 01:12	SP	TAL SEA

Client Sample ID: 2048.DU23 — **Lab Sample ID: HUI0005-10**
Date Collected: 08/30/11 13:30 — **Matrix: Solid/Soil**
Date Received: 09/01/11 13:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total	Prep	3050B			95447_P	09/15/11 13:11		TAL SEA
Total	Analysis	6010B TMP		10	95447	09/16/11 01:19	SP	TAL SEA

Laboratory References:
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253) 922-2310

Certification Summary

Client: EnviroServices & Training Center
Project/Site: 06-2048

TestAmerica Job ID: HUI0005

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Honolulu	Florida	NELAC	4	E87907
TestAmerica Honolulu	Hawaii	State Program	9	
TestAmerica Honolulu	L-A-B	DoD ELAP		L2250
TestAmerica Honolulu	USDA	USDA		HON-S-206
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Method Summary

Client: EnviroServices & Training Center
Project/Site: 06-2048

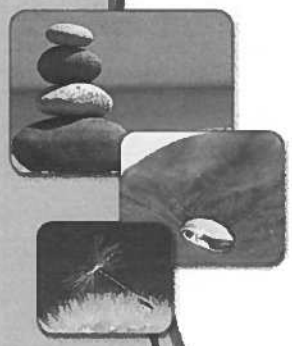
TestAmerica Job ID: HUI0005

Method	Method Description	Protocol	Laboratory
6010B TMP	Metals (ICP)		TAL SEA

Protocol References:

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253) 922-2310



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

TestAmerica Job ID: 580-28558-1
Client Project/Site: HUI0005

For:
TestAmerica Laboratories, Inc
99-193 Aiea Heights Drive
Suite 121
Aiea, Hawaii 96701

Attn: Marvin D Heskett III

Pamela R. Johnson

Authorized for release by:
09/16/2011 04:17:21 PM

Pam Johnson
Project Manager I
pamr.johnson@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.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions 3
Client Sample Results 4
QC Sample Results 14
Chronicle 15
Certification Summary 17
Sample Summary 18
Chain of Custody 19
Receipt Checklists 23

Definitions/Glossary

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit (Dioxin)
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or method detection limit if shown)
PQL	Practical Quantitation Limit
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-01
Date Collected: 08/30/11 15:30
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-1
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	37		2.9		mg/Kg		09/15/11 13:11	09/16/11 00:03	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-02
Date Collected: 08/30/11 15:00
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-2
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:10	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-03
Date Collected: 08/30/11 11:00
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-3
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	30		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:17	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-04
Date Collected: 08/30/11 10:05
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-4
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	84		2.9		mg/Kg		09/15/11 13:11	09/16/11 00:24	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-05
Date Collected: 08/30/11 14:15
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-5
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	23		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:31	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-06
Date Collected: 08/30/11 10:11
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-6
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	13		2.8		mg/Kg		09/15/11 13:11	09/16/11 00:38	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-07
Date Collected: 08/30/11 09:20
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-7
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	12		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:45	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-08
Date Collected: 08/30/11 09:20
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-8
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	130		2.7		mg/Kg		09/15/11 13:11	09/16/11 00:52	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-09
Date Collected: 08/30/11 10:15
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-9
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	38		2.8		mg/Kg		09/15/11 13:11	09/16/11 01:12	10

Client Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-10
Date Collected: 08/30/11 13:30
Date Received: 09/09/11 10:00

Lab Sample ID: 580-28558-10
Matrix: Solid

Method: 6010B - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	34		2.7		mg/Kg		09/15/11 13:11	09/16/11 01:19	10

QC Sample Results

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 580-95447/18-A
Matrix: Solid
Analysis Batch: 95517

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 95447

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		mg/Kg		09/15/11 13:13	09/15/11 22:49	1

Lab Sample ID: LCS 580-95447/19-A
Matrix: Solid
Analysis Batch: 95517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95447

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	% Rec	% Rec. Limits
Lead	50.0	47.9		mg/Kg		96	80 - 120

Lab Sample ID: LCSD 580-95447/20-A
Matrix: Solid
Analysis Batch: 95517

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 95447

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	% Rec	% Rec. Limits	RPD	RPD Limit
Lead	50.0	47.5		mg/Kg		95	80 - 120	1	20

Lab Sample ID: LCSSRM 580-95447/21-A
Matrix: Solid
Analysis Batch: 95517

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 95447

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	% Rec	% Rec. Limits
Lead	152	158		mg/Kg		104	75.3 - 125.1

Lab Chronicle

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-01 — **Lab Sample ID: 580-28558-1**
Date Collected: 08/30/11 15:30 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:03	SP	TAL SEA

Client Sample ID: HUI0005-02 — **Lab Sample ID: 580-28558-2**
Date Collected: 08/30/11 15:00 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:10	SP	TAL SEA

Client Sample ID: HUI0005-03 — **Lab Sample ID: 580-28558-3**
Date Collected: 08/30/11 11:00 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:17	SP	TAL SEA

Client Sample ID: HUI0005-04 — **Lab Sample ID: 580-28558-4**
Date Collected: 08/30/11 10:05 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:24	SP	TAL SEA

Client Sample ID: HUI0005-05 — **Lab Sample ID: 580-28558-5**
Date Collected: 08/30/11 14:15 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:31	SP	TAL SEA

Client Sample ID: HUI0005-06 — **Lab Sample ID: 580-28558-6**
Date Collected: 08/30/11 10:11 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:38	SP	TAL SEA

Lab Chronicle

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Client Sample ID: HUI0005-07 — **Lab Sample ID: 580-28558-7**
Date Collected: 08/30/11 09:20 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:45	SP	TAL SEA

Client Sample ID: HUI0005-08 — **Lab Sample ID: 580-28558-8**
Date Collected: 08/30/11 09:20 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 00:52	SP	TAL SEA

Client Sample ID: HUI0005-09 — **Lab Sample ID: 580-28558-9**
Date Collected: 08/30/11 10:15 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 01:12	SP	TAL SEA

Client Sample ID: HUI0005-10 — **Lab Sample ID: 580-28558-10**
Date Collected: 08/30/11 13:30 — Matrix: Solid
Date Received: 09/09/11 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared Or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			95447	09/15/11 13:11	PAB	TAL SEA
Total/NA	Analysis	6010B		10	95517	09/16/11 01:19	SP	TAL SEA

Laboratory References:
TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Certification Summary

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Laboratory	Authority	Program	EPA Region	Certification ID
TestAmerica Seattle	Alaska	Alaska UST	10	UST-022
TestAmerica Seattle	Alaska	TA-Port Heiden Mobile Lab	10	UST-093
TestAmerica Seattle	California	NELAC	9	1115CA
TestAmerica Seattle	Florida	NELAC	4	E871074
TestAmerica Seattle	L-A-B	DoD ELAP		L2236
TestAmerica Seattle	L-A-B	ISO/IEC 17025		L2236
TestAmerica Seattle	Louisiana	NELAC	6	05016
TestAmerica Seattle	Montana	MT DEQ UST	8	N/A
TestAmerica Seattle	Oregon	NELAC	10	WA100007
TestAmerica Seattle	USDA	USDA		P330-11-00222
TestAmerica Seattle	Washington	State Program	10	C553

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

Sample Summary

Client: TestAmerica Laboratories, Inc
Project/Site: HUI0005

TestAmerica Job ID: 580-28558-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-28558-1	HUI0005-01	Solid	08/30/11 15:30	09/09/11 10:00
580-28558-2	HUI0005-02	Solid	08/30/11 15:00	09/09/11 10:00
580-28558-3	HUI0005-03	Solid	08/30/11 11:00	09/09/11 10:00
580-28558-4	HUI0005-04	Solid	08/30/11 10:05	09/09/11 10:00
580-28558-5	HUI0005-05	Solid	08/30/11 14:15	09/09/11 10:00
580-28558-6	HUI0005-06	Solid	08/30/11 10:11	09/09/11 10:00
580-28558-7	HUI0005-07	Solid	08/30/11 09:20	09/09/11 10:00
580-28558-8	HUI0005-08	Solid	08/30/11 09:20	09/09/11 10:00
580-28558-9	HUI0005-09	Solid	08/30/11 10:15	09/09/11 10:00
580-28558-10	HUI0005-10	Solid	08/30/11 13:30	09/09/11 10:00

Subcontract Order - TestAmerica Honolulu (HUI0005)

28558

Please enter the following code into the Job PO Number field for automated UDZ transfer files: **Sub HON HUI0005**

SENDING LABORATORY:	RECEIVING LABORATORY:
TestAmerica Honolulu	TestAmerica Seattle
99-193 Aiea Heights Drive, Suite 121	5755 8th Street East
Aiea, HI 96701	Tacoma,, WA 98424
Phone: 808-486-5227	Phone :(253) 922-2310
Fax: 808-486-2456	Fax: 253
Project Manager: Marvin D. Heskett III	Project Location: Hawaii
Client: EnviroServices & Training Center	Receipt Temperature: °C Ice: Y / N

Copy from HUI0004.

Analysis	Units	Due	Expires	Interlab Price	Surch	Comments
Sample ID: HUI0005-01 (2048.DU14 - Solid/Soil) Sampled: 08/30/11 15:30						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 15:30	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-02 (2048.DU15 - Solid/Soil) Sampled: 08/30/11 15:00						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 15:00	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-03 (2048.DU16 - Solid/Soil) Sampled: 08/30/11 11:00						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 11:00	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-04 (2048.DU17 - Solid/Soil) Sampled: 08/30/11 10:05						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 10:05	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						

Released By	Date/Time	Received By	Date/Time
		Cathy Gamble	9/14/11 10:00
Released By	Date/Time	Received By	Date/Time

Page 1 of 2

Subcontract Order - TestAmerica Honolulu (HUI0005)

28558

Please enter the following code into the Job PO Number field for automated UDZ transfer files: **Sub HON HUI0005**

Analysis	Units	Due	Expires	Interlab Price	Surch	Comments
Sample ID: HUI0005-05 (2048.DU18 - Solid/Soil) Sampled: 08/30/11 14:15						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 14:15	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-06 (2048.DU19 - Solid/Soil) Sampled: 08/31/11 10:00						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/27/12 10:00	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-07 (2048.DU20 - Solid/Soil) Sampled: 08/30/11 09:20						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 09:20	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-08 (2048.DU21 - Solid/Soil) Sampled: 08/30/11 09:20						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 09:20	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-09 (2048.DU22 - Solid/Soil) Sampled: 08/30/11 10:15						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 10:15	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						
Sample ID: HUI0005-10 (2048.DU23 - Solid/Soil) Sampled: 08/30/11 13:30						
Lead 10g Total SW 6010B	mg/kg	09/16/11	02/26/12 13:30	$22.50	0%	
Containers Supplied: Incremental Sub-sample (analyze entire content) (A)						

Page 2 of 2

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

INTERNAL RECORD OF COMMUNICATION FORM

TODAYS DATE: 09/07/11 TIME: 1620

PROJECT MANAGER: Steven Garcia

PROJECT STATUS:	COMMUNICATION VIA:
___ upcoming	___ telephone
X received today	___ facsimile
___ in progress	___ e-mail
___ completed	___ COC form
___ on hold	___ other ___
___ other ___	

CLIENT: TA-Honolulu

CONTACT: Marvin Heskett

WORK ORDER NUMBER: IUI0475 / HUI0005

PROJECT ID: Enviro Services Training center

MESSAGE: Please Fed Ex these 10 samples (12 jars) to TA- ~~Denver~~ Seattle

Thank you.

[signature]

Cooler/TB Dig/IR cor 0.9 unc 0.6 Al
Cooler Dsc Box @ Lab —
Wet/Packs Packing bubble
w/co Fedex P.O.

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 lead 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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
17461 Derian Suite #100
Irvine CA 92614
Tel 949 261 1022 x274 Fax 949 261 3297

9/7/2011

Login Sample Receipt Checklist

Client: TestAmerica Laboratories, Inc

Job Number: 580-28558-1

Login Number: 28558
List Number: 1
Creator: Gamble, Cathy

List Source: TestAmerica Seattle

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Honolulu
99-193 Aiea Heights Drive Suite 121 • Aiea, HI 96701-3900
808-486-LABS (5227) • Fax 808-486-2456

Chain of Custody / Analysis Request Form

LABORATORY USE ONLY
LAB JOB NO. H10005
LOCATION
CONTAINERS

Report to: Sharla Nakashima
Company name: EnviroServices & Training Center, LLC
Address: 808 Ward Avenue, Suite 202
City: Honolulu State: HI Zip: 96814
Phone: 808-839-7222 Fax: 808-839-4455
Sampler: S.Nakashima/B.Lum # samples in shipment

Project Identification
Job name: A&B Piggery
Job number: 01-2048
P.O. Number
Contact email address: sharla@ejotecc.com
Data Results Needed: START

Indicate analyses requested: Multi-incremental subsample; Total Lead

Item No.	Client sample ID	Date / time released	Released by (print / sign)	Delivery method	Date / time received	Received by (print / sign)	Company / Agency affiliation	Sampling Date	Sampling Time	No. of containers	Preservation method	Laboratory ID no.	Condition noted
1	2048.DU14	8/1/11 / 1000	Sharla Nakashima	hand	8/1/11 / 1000	J. Yoshida	environmicro	8/30/11	1500	1	ICE	H10005-01	good/intact
2	2048.DU15								1500	1		-02	
3	2048.DU16								1100	1		-03	
4	2048.DU17								1005	1		-04	
5	2048.DU18							8/31/11	1415	1		-05	
6	2048.DU19								1000	1		-06	
7	2048.DU20							8/30/11	920	1		-07	
8	2048.DU21								920	1		-08	
9	2048.DU22								1015	1		-09	
10	2048.DU23								1200	1		-10	

Comments: multi-incremental subsampling to 2 mm soil particle size.

Released by (print / sign): Sharla Nakashima / J. Yoshida
Received by (print / sign): J. Yoshida / M Kesteff
Date / time received: 9/1/11 1000 / 9/1/11 1322
Temp: 1°C

Please check one:
☐ Dispose by lab
☐ Return to client
☐ Archive

Page 1 of 1

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COC REV 04/2006
Distribution: White - TestAmerica Yellow - TestAmerica Pink - Client

TestAmerica

Rush TAT Confirmation (Initial/Date) N/A

Sample Receipt Checklist

Client Name: ETC

Date/ Time Received: 9/1/11 13:22

Received By: Marvin Hesko II

Matrices: Soil

Carrier: Hand

Airbill# :

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Chain of Custody present?	Yes ☑	No ☐	☐
Chain of Custody Signed when relinquished and received?	Yes ☑	No ☐	
Chain of Custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sample containers on ice?	Yes ☑	No ☐	Type: wet
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Water - VOA Vials have Zero Headspace?	Yes ☐	No ☐	No VOA vials present: ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Checked: ☑
pH Adjusted?	Yes ☐	No ☑	Final pH:
Encores / MI-VOC / 5035 Vials Present?	Yes ☐	No ☑	Location:
Sample Filtration Needed?	Yes ☐	No ☑	Filtered in Field: ☐
Dry Weight Corrected Results?	Yes ☐	No ☑	Take Action: ☐
DODQSM / QAPP Project?	Yes ☐	No ☑	Type:

Temperature Blank Present? Yes ☐ No ☐

Sample Container Temperature: 1 °C

Comments/ Sampling Handling Notes:

Environmental Document Review

MALAMA
Environmental

November 16, 2011

Blanca Lafolette
CMBY 2011 Investments, LLC
P.O. Box 220
Kihei, 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 Firebreak Road – TMK (2) 3-8-008:19

Dear Ms. Lafolette:

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 commented 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 Puunene Naval Air Station. Military operations likely ceased in the late 1940s, and thereafter the subject site was used for sugarcane cultivation and as a plantation camp. The property owner, Alexander and Baldwin, Inc. (A&B), leased the site to a farmer who operated a pig farm beginning in the 1960s. A new tenant, Mr. Larry Poffenroth took over piggery operations in 1995. Mr. Poffenroth began an unpermitted solid 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 (DUs) 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 totally 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 Puunene 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 that to be a source for stormwater migration of lead or perhaps a source of transported fill for level grading 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 50 multi-incremental sampling (MIS) surface samples would be collected from a single DU along the perimeter of the southern boundary from the top 6-inches of the soil. It was also concluded that 10 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 Vuich 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 concentration 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 DU 23) 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

P.O. Box 880487 Pukalani Hawaii 96788-0487 • Phone (808)876-0500 • Fax (808)876-1900 • web: www.malamaenvironmental .com

two field replicate MIS from one of the eight DUs for use as a batch quality control. MEV confirms that the samples were collected in an appropriate manner according to *Interim Final - Technical Guidance Manual for the Implementation of the Hawaii State Contingency Plan* (TGM) and the DOH'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:

Sample ID	Lead
2048.DU14	37
2048.DU15	17
2048.DU16	30
2048.DU17	84
2048.DU18	23
2048.DU19	13
2048.DU20	12
2048.DU21	13
2048.DU22	36
2048.DU23	34
Mean	27.67
Standard Deviation	12.74
Relative Standard Deviation	46.05%
DOH EAL	200 (800[CI])

All results presented in mg/kg.
DOH EAL = March 2009 Default DOH EALs 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 DOH EAL for Lead of 800 mg/kg pertaining to direct exposure concerns associated with Commercial/ Industrial Land Use.

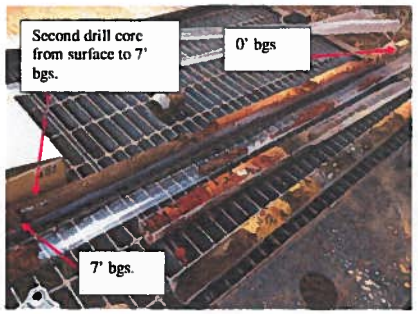
According to the laboratory results from the additional total lead concentration investigation of DU11, it was determined that the average total lead concentration for all subdivided DUs were well below the EALs of 200 milligrams/kilograms (mg/kg) for unrestricted land use within the EHE manual requirement 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 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.
MEV concurs with this concluding statement for the particle fraction of the soil that is less than 2 millimeters.

Former Military Gunnery

The secondary portion of the sampling conducted by ETC consisted of the surface and subsurface soil sampling for lead at the former military gunnery located along the southern property boundary. On August 30th, 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 DOH 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 at the SE corner of the property.

ETC personnel beginning the subsurface sample collection with the track drill rig



Example of drill core subsurface soil material from the surface to 7 feet below ground surface (bgs)

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 yellow/tan silt which appears to be more leached of nutrients. It is evident from examining the first two core samples that the soil horizons change from the first drill sample to the second one. Maybe this occurs due to the samples being taken so close to a drainange 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 tilling 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.

The laboratory results for the former gunnery are shown below:

Table 1: Analytical Data – Multi-Incremental Surface Soil Samples

Sample ID	2048.SS1	2048.SS2	2048.SS3	DOH EAL
Total Lead (mg/kg)	*<9.9*	*<10*	*<10*	200 (800[CI])
Mean Total Lead	8.75			
Standard Deviation	0.068			
Relative Standard Deviation	0.78%			

Notes: *Italics* = Not detected above method detection limits (MDLs); MDL listed.
DOH EAL = default DOH Environmental Action Level for unrestricted land use.
CI = Default DOH EAL pertaining to Commercial/Industrial Land Use.
For Lead, the DOH EAL of 800 mg/kg pertains to direct exposure concerns.

Table 2: Analytical Data – Discrete Subsurface Soil Samples

Sample ID	Sample Depth (ft)	Total Lead
2048.B1.60	4.5 - 5.0	*<10*
2048.B1a.108	8.5 - 9.0	*<9.9*
2048.B2.60	4.5 - 5.0	*<10*
2048.B2.90	7.0 - 7.5	*<9.8*
2048.B3.48	3.5 - 4.0	*<9.9*
2048.B3.120	9.5 - 10	*<9.9*
2048.B4.36	2.5 - 3.0	*<10*
2048.B4.60	4.5 - 5.0	*<9.9*
2048.B4.84	6.5 - 7.0	*<9.9*
2048.B5.60	4.5 - 5.0	4.4
2048.B5.102	8.0 - 8.5	*<9.9*
2048.B6.60	4.5 - 5.0	*<9.9*
2048.B6.96	7.5 - 8.0	*<9.9*
2048.B7.48	3.5 - 4.0	*<10*
2048.B7.84	6.5 - 7.0	4.6
2048.B8.48	3.5 - 4.0	*<10*
2048.B8.96	7.5 - 8.0	*<9.9*
2048.B9.60	4.5 - 5.0	*<9.9*
2048.B9.108	8.5 - 9.0	*<10*
2048.B10.48	3.5 - 4.0	*<10*
2048.B10.84	6.5 - 7.0	*<10*
DOH EAL		200 (800[CI])

Notes: *Italics* = Not detected above method detection limits (MDLs); MDL listed.
DOH EAL = default DOH Environmental Action Level for unrestricted land use.
CI = Default DOH EAL pertaining to Commercial/Industrial Land Use.
For Lead, the DOH EAL of 800 mg/kg pertains to direct exposure concerns.

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

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 Puunene Piggery, 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 R. Mathis, B.S. Geology, **Date** 11/16/11
Project Coordinator

- Environmental Scientist

John S. Vulch, M.S. Geological Engineering, **Date** 11/16/11
Project Supervisor

- Registered Environmental Assessor
  Registration No. 1433 (State of California)
- Professional Geologist (California)
- Certified Environmental Manager (Nevada)

Dept. of Health "No Further Action" Letter

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
ENVIRONMENTAL MANAGEMENT DIVISION
SOLID AND HAZARDOUS WASTE BRANCH
919 ALA MOANA BOULEVARD, #212
HONOLULU, HAWAII 96814

In reply, please refer to:
EMD/SHWB

January 9, 2012

S0105TN

Mr. Sean O'Keefe
A&B Properties, Inc.
P.O. Box 266
Puunene, Hawaii 96784

Dear Mr. O'Keefe:

SUBJECT: No Further Action, Former Puunene Piggery
TMK 2-3-8-8:19
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

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,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

APPENDIX M

Market Study

PREPARED FOR: **CMBY 2011 INVESTMENT, LLC**

C/O MS. BLANCA LAFOLETTE
Project Coordinator
Pacific Rim Land, Inc.
1300 North Holopono Street, Suite 201
P.O Box 220
Kihei, Hawaii 96753

EFFECTIVE DATE: **July 1, 2011**

A COUNSELING REPORT FOR THE PROPOSED PUUNENE HEAVY INDUSTRIAL SUBDIVISION, WAILUKU, ISLAND OF MAUI, HAWAII

ACM CONSULTANTS, INC.

ACM CONSULTANTS, INC.

A Real Estate Appraisal, Research & Advisory Group

August 11, 2011 11-9079A

CMBY 2011 Investment, LLC
c/o Ms. Blanca Lafolette, Project Coordinator
Pacific Rim Land, Inc.
1300 North Holopono 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) 3-8-08-019

Dear Ms. Lafolette:

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 Mokulele 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

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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 construction costs for the land, the sale of individual 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 investigations, 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.

Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Shane M. Fukuda
Certified General Appraiser,
State of Hawaii, CGA-810
Expiration: December 31, 2011

TABLE OF CONTENTS

Page
PART I – INTRODUCTION ii
A. EXECUTIVE SUMMARY ii
B. PURPOSE OF THE REPORT iii
C. INTENDED USE OF THE REPORT iii
D. INTENDED USER OF THE REPORT iv
E. SCOPE OF THE REPORT iv
F. STATEMENT OF COMPETENCY iv
G. EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS iv
H. CONFIDENTIALITY PROVISION v
I. CERTIFICATION vi
PART II – FACTUAL DATA 1
A. REGIONAL DATA - MAUI COUNTY 1
B. NEIGHBORHOOD DESCRIPTION 17
C. PROJECT DATA 25
PART III – ANALYSIS AND CONCLUSION 34
A. MARKET STUDY 34
B. ECONOMIC IMPACT ANALYSIS AND PUBLIC COST/BENEFIT ASSESSMENT 48
PART IV - EXHIBITS AND ADDENDA

EXHIBITS
Exhibit A Photographs of the Subject
Exhibit B Claritas Demographic Data
Exhibit C Current County of Maui M-2 Heavy Industrial District Zoning Ordinance
Exhibit D Draft Bill for Proposed County of Maui M-3 Industrial District
Exhibit E Draft Bill for Proposed County of Maui M-2 Light Industrial District

ADDENDA
Definitions
Limiting and Contingent Conditions
Qualifications of the Consultant

TABLES
Table 1 – Real Property Tax and Assessments 29
Table 2 – Summary of Commercial and Industrial Developments on Maui 35
Table 3 – Historical Trend of 30 Year, Fixed Mortgage Rates 42

PART I – INTRODUCTION

A. EXECUTIVE SUMMARY

Background

The proposed Puunene 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 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.

Study Objectives

ACM Consultants, Inc. has been retained by CMBY 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 product;
- 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

(Agriculture 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 a current market study of this 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 Otomo 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 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 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.

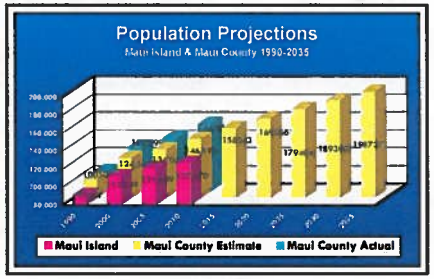
Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Shane M. Fukuda
Certified General Appraiser,
State of Hawaii, CGA-810
Expiration: December 31, 2011

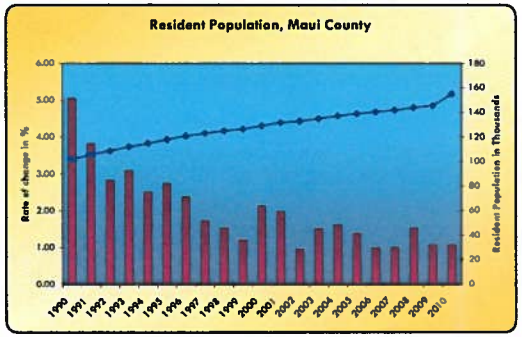
PART II – FACTUAL DATA

A. REGIONAL DATA - MAUI COUNTY

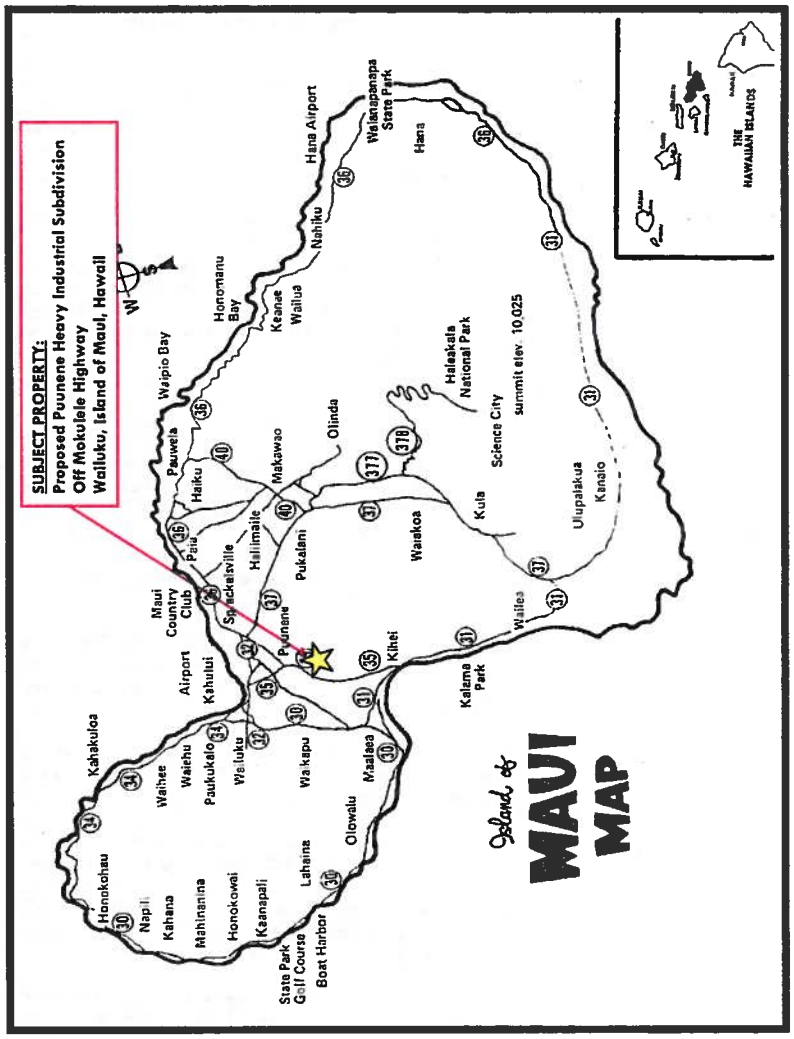
Maui County is the third most populous of the four counties of Hawaii, with a total resident population of 154,834 (2010 Census); a change of 20.12 percent from 2000 and 52.23 percent since 1990. Maui County consists of the islands of Maui, Molokai, Lanai, and Kahoolawe. Ninety percent (90%) of County 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 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: UHERO Economic Information Service



Like all the Hawaiian Islands, Maui, Molokai and Lanai are blessed by warm air temperatures year-round, and ocean waters that range from 72-77°F in winter to 77-81°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 Haleakala 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 Condé Nast Traveler magazine.

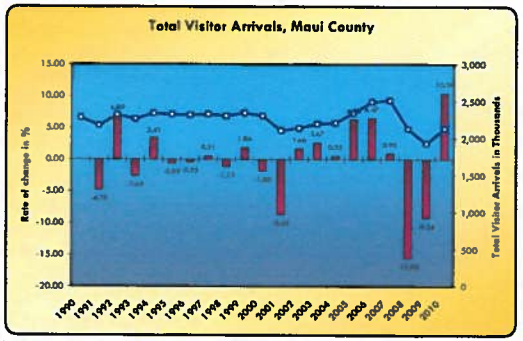
Visitor Industry

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 Condé 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 Honua Spa (2nd); Four Seasons Resort Lanai at Manele Bay (4th); Four Seasons Resort Lanai, The Lodge at Koele (5th); Fairmont Kea Lani (9th); Grand Wailea (11th); Ritz-Carlton Kapalua (tied 15th); Hyatt Regency Maui Resort & Spa (tied 15th); and Westin Maui Resort & Spa (tied 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.

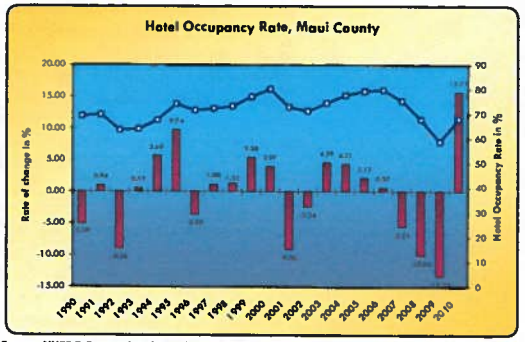
Tracking the tourism counts during this decade begins with the effects of the September 11, 2001 terrorist attacks on this country which had a drastic impact on the tourism industry. The final Maui visitor count for 2001 was 2,104,480. In 2002, the visitor count rebounded slightly to 2,139,427 as the visitors slowly returned during the mid to latter part of the year. Visitor totals from 2003 to 2007 indicate positive increases. As a result of the dismal economic conditions in 2008 and 2009, total visitor arrivals declined by 15.58 percent (2,129,040) and 9.24 percent (1,932,360), respectively, in those

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 2,132,860, as the economic conditions began to show signs of stability.



Source: UHERO 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 78.25 percent. Meanwhile, Kauai showed occupancy of 59.11 percent and Big Island at 56.44 percent. Maui's occupancy rate increased by 15.71 percent from 2009 to 2010; the first increase witnessed in several years. The hotel occupancy rate generally follows the trend of total visitor arrivals.



Source: UHERO 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 Waikele 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 Shops 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 Piilani 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 Barnes and Noble, Foodland Farms, Office Max, Outback Steakhouse, Melting Pot, 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 Nui 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/Wailuku, and the resort areas of Lahaina/Kaanapali and Kihei/Wailea. The Maui Ocean Center anchors the 18-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, Kaanapali, and Wailea are virtually comprised solely of luxury housing. Areas such as Kahului have no luxury housing and Wailuku 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.

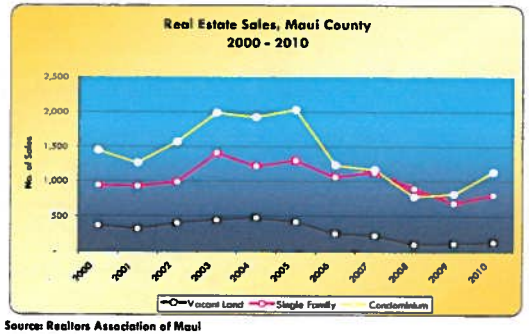
Owner-occupied housing on Maui runs about 56 percent of all occupied housing units. The total housing stock has been growing at a rate of about 1,000 units a year in the 1980's. The total accelerated to 1,500-2,000 new units in the late 1980's, well short of demand. The Maui population has expanded tremendously 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 $574,760 in 2008, $627,887 in 2007, $697,450 in 2006, and $678,321 in 2005. Years 2005, 2006, and 2007 are considered the height 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 continues 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.

Year	Vacant Land	Single Family	Condominium
1990	298	560	1,459
1991	116	430	593
1992	120	382	496
1993	121	361	461
1994	148	404	592
1995	118	331	495
1996	126	451	577
1997	182	507	812
1998	276	641	999
1999	408	965	1,348
2000	372	951	1,456
2001	318	938	1,274
2002	402	997	1,578
2003	447	1,420	2,001
2004	477	1,228	1,935
2005	421	1,311	2,041
2006	255	1,066	1,247
2007	226	1,138	1,179
2008	97	907	788
2009	110	693	826
2010	127	814	1,147



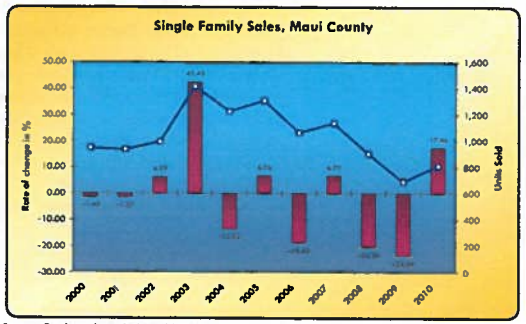
Source: Realtors Association of Maui

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.

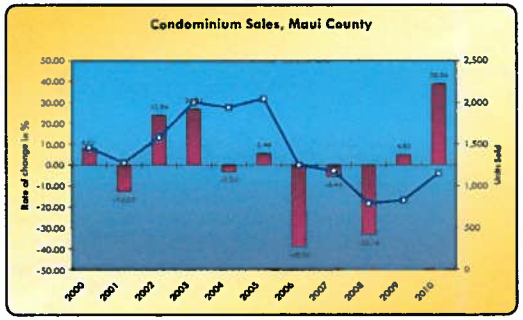
The following graph further illustrates the single-family sales volume history for Maui County from 2000 to 2010.



Source: Realtors Association of Maui

Similarly, condominium sales had experienced significant increases since 1999 in terms of units sold, achieving a new high in 2002 and a slight decrease in 2003. In 1999, 1,348 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 sales volume, as condominium sales plunged over 38 percent, followed by another 5 percent fall in 2007. For 2008, sales volume dived 33 percent. This was however off set by a 38 percent increase in 2010. Again, this is due to the falling unit prices which have attracted market participants.

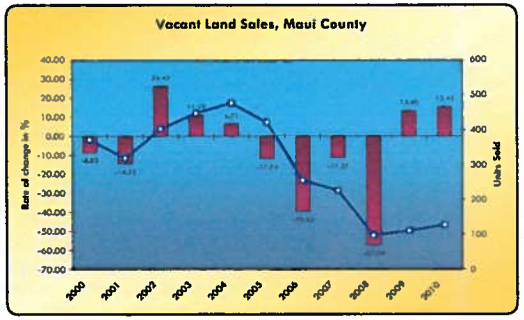
The following graph further illustrates the condominium sales volume history for Maui County from 2000 to 2010.



Source: Realtors Association of Maui

Land sales increased steadily between 2001 and 2004, but dropped 11 percent in 2005 with only 421 sales, then another 39 percent to 255 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, realtors 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.



Source: Realtors Association of Maui

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 oceanfront 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 mid part of this decade, benefitted from a robust economy and building climate.

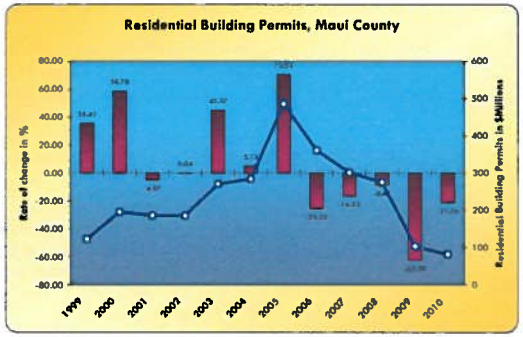
Three new commercial centers were built in 2000. The Wailea Shopping Village had been demolished and was replaced with The Shops at Wailea, which includes 150,000 square feet of upscale retail and restaurant space. Also, the 150,000 square foot Piilani Village shopping center was built at the same time and is anchored by a 55,000 square foot Safeway store, one of the largest Safeway in the state. The Ma'alaea 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 dollars) 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 lessened the ability to feasibly create new housing projects.



Source: UHERO Economic Information Service

In Central Maui, the majority of the residential construction is within the Kehalani and Maui Lani project districts, 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; Akolea and Cottages, both consisting of house and lot packages; Villas at Kehalani and Milo Court, which are townhouse condominium developments. Presently, there are four ongoing projects at Maui Lani. They include Na Hoku and Traditions (single-family homes), Sand Hills Estates (house lots), and Parkways (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 Waikapu Gardens. Approximately half of the houses met County affordable housing pricing requirements. This project was welcomed by the community as "affordable" prices were stated to be below $300,000. This project gained approval by the Maui Nui Affordable Housing Taskforce which was set up in response to the growing need for affordable housing on Maui.

Up to 2006, Kihei had also seen an upswing in residential development brought upon by ongoing residential projects including Ke Ali`i Ocean Villas (townhouse condominiums) and Moana Estates (single-family homes) by Towne Development, Kamali`i Alayna (single-family homes) by Betsill Brothers, Inc., and Signature Homes' Hokulani Golf Villas (residential condominiums). Other current South Maui projects are Kilohana Waena (house lots) and Kai Ani (townhouse condominiums). Similar to Central Maui, the developers of ongoing projects have slowed construction while continuing to market their units; whereas, previous Kihei developments were often sold out 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-occupants. 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.

Retailing

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 Farms, 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, Pier One Imports, Burger King and Starbucks Coffee.

Wal-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, Bally, Fendi, Tiffany & Co., Banana Republic, and Georgiou. Restaurants in this mall include Ruth Chris Steak House, Tommy Bahama Café and Emporium, and Longhi's. Other retailers include Crazy Shirts, Hot Topix, Gap, Wolf Camera, and Whalers General Store.

Agriculture

Agriculture on Maui is dominated by larger operations like Hali'imaile 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 operation to rely solely on the more profitable fresh fruit segment. Downsizing 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 arm, citing continued annual losses. However, a new company, Haliimaile 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 diversion; however, there have been opposition to

this continued practice. HC&S continues to re-evaluate its operations to remain viable, including consideration of potential biofuels 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 imparted to this economy an important, if underestimated, non-pecuniary benefit; 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 affects others for better or worse, without those others paying or being compensated for activity.

Anyone who doubts that logic now has only to drive the West Maui coast from Olowalu to Kaanapali and look mauka, 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 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 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 alfalfa, as well as taro.

High-Tech

Maui's contribution to Hawaii's fledgling high-tech industry remains pre-eminent in the state. It also represents genuine diversification of the economy. The Maui Research and Technology Park in Kihei has all of it's 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 Betsill Brothers. Since its completion in 2008, 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 $462,821 in 2010, down from $498,708 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 40 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 they are to contain five or more units or lots. Under this ordinance, if the average sales price is projected to be less than $600,000, 40 percent of the total units must be priced to meet the various affordable categories. If the average sales price in the project is $600,000 or more, then 50 percent of the units must be affordably 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 50 percent of the units must be affordably 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 professionals 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; residential 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

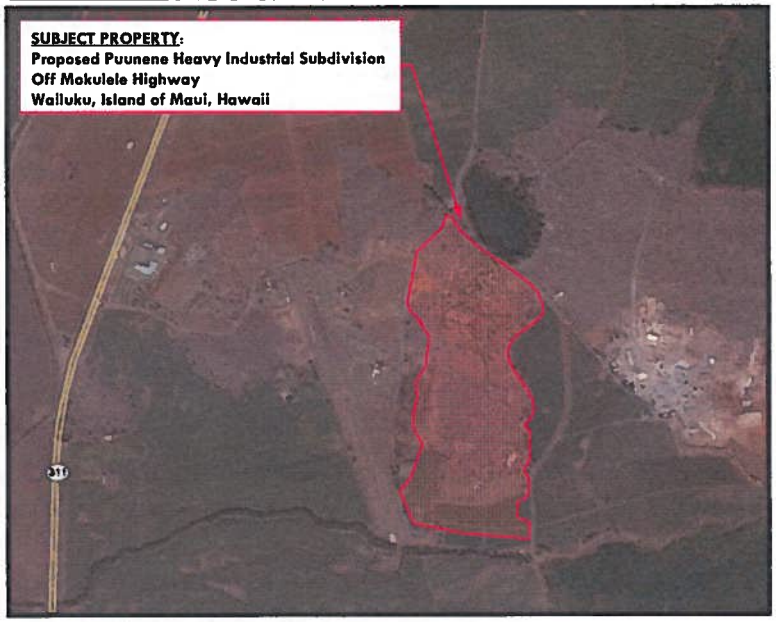
The Proposed Project is designated by the Kihei-Makena Community Plan, but is considered to be in the Wailuku District by the State of Hawaii. Furthermore, its primary industrial market is expected to originate from Central Maui. As such, the following neighborhood description describes the Central Maui 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-Kahului. 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 contained 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-Kahului neighborhood. The boundaries of the Wailuku-Kahului region are the northern shoreline from Poelua Bay to Baldwin Park on the north, Kailua Gulch and Lowrie Ditch on the east, Spanish Road to Waikapu Road to Honoapiilani Highway to Pohakea 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 Waihee to the north and Waikapu and Puunene to the southeast. Agricultural lands are adjacent on the lower slopes of the West Maui Mountains and in the central plain south and east of Kahului. This green border 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.



Not to Scale...For Illustrative Purposes Only!

NEIGHBORHOOD MAP

The major thoroughfares through Kahului and Wailuku are Kaahumanu Avenue which begins in Kahului and provides primary access to Wailuku as well as Lahaina and Kihei; Hana Highway, which is actually a continuation of Kaahumanu Avenue, leads from Kahului to the eastern or "upcountry" portions of the island; and Puunene Avenue which provides access to all major areas in Kahului and ultimately leads to Kuihelani Highway which provides by-pass access to Lahaina and Kihei. The Kaahumanu Avenue also runs into Main Street, and via secondary access, runs into Waiehu 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 Maui College also located on Kaahumanu 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, intermixed 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 Kehalani Project District. The residential areas in Kahului are also varied. The older projects feature wide curvilinear streets and larger lots; where as the newer subdivisions, primarily within the Maui Lani Project District, features smaller lots, narrow roadways, and some zero lot line development. There are also several gated communities with golf-course frontage.

Kahului

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 are 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 Lani Project District development will include up to 3,000 new 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 Lani 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 Lani include Traditions, a 153 house-and-lot single-family subdivision and the proposed Parkways at Maui Lani, a 210-lot single-family subdivision.

Wailuku

In Wailuku, the older residential homes are mixed with small businesses throughout central Wailuku Town. There are three primary residential subdivisions on the outskirts of the town including Wailuku Heights, Waiehu Terrace, Waiehu 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 Kehalani Project District. Single-family residential developments in this area include the Ohia and Maunaleo subdivisions. These projects, by Towne Development and Stanford Carr Development, were sold strictly as house-and-lot packages. Kehalani Gardens and Iliahi at Kehalani, 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 Kehalani 2006 and 2007. These included Koa at Kehalani (72 residential lots) and Akolea at Kehalani (97-unit house and lot subdivision), developed by Towne Development. In 2008, Stanford Carr Development developed the Cottages at Kehalani (114-unit house and lot subdivision).

More recent construction in the Kehalani Project District included Milo Court, a 97-unit duplex-style condominium developed by Towne Development, and the Villas at Kehalani a 103-unit townhouse condominium developed by Stanford Carr Development.

In addition to construction in the Kehalani Project District, residential development spread southerly to the Waikapu a small community in Wailuku proper. Jesse Spencer completed the last home in Waikapu Gardens at the end of 2008, a 410-unit affordable housing project. In 2007, two house lot subdivisions also came to market in Waikapu, Waiolani Pikake (37 lots) by KSD Hawaii and Waiolani Mauka (105 lots) by Scott Nunokawa. Another unique subdivision that was constructed in the Wailuku area is the Wailuku Country Estates Subdivision, which consisted of 184 agriculture lots located near the Puuohala 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 spaces and higher vacancies, as well as reduced rental rates.

Kahului

There are four major shopping centers in Kahului. Maui Mall, opened in late 1971 contains a gross leasable area of 181,500 square feet on a 25-acre site. It is anchored by tenants such as Longs Drug Store, and the Maui Mall Megaplex, by Wallace Theater Corporation. Star Market closed its doors in March 2008, but was replaced by a Whole Foods supermarket in 2010. The largest center, Queen Kaahumanu Center, opened in 1973 and had 300,000 square feet of gross leasable area. Extensive renovations were completed in 1995, which included a two-level shopping wing, a six-screen movie theater, expanding the major stores, renovating the existing mall and adding a parking structure and access road. The project expanded the center to 500,000 square feet. It is currently anchored by Macy's and Sears. The Maui Marketplace on Dairy Road is home to a number of big-box retailers including Lowes Hardware, Sports Authority, Office Max, Petco, Pier One Imports, Starbucks Coffee, Jamba Juice, Bank of Hawaii and Burger King. Lastly, Kahului Shopping Center, the oldest major shopping center which opened in 1951, was partially destroyed by fire in 2005 and plans are underway to redevelop the entire block into the Kahului Town Center. This development will consist of retail, office and condominium living.

In addition to these centers, Kahului is home to other large retailers including Costco, 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 serviced the 5,000 person grass 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 Garden.

Wailuku

The hub of commercial activity in Wailuku is concentrated in an area along Market Street and Main Street. Known as Old Wailuku Town, this neighborhood is characterized by older, low-rise buildings consisting of small, individual shops and offices. Civic uses 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 Suites, the Trask Building, and Wells Professional Plaza. Wailuku's office market is

also feeling the affects of the economic slowdown with evidence of higher vacancies and decreasing 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 of them all is 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 with 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 Hookele 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 Mokulele Highway.

Wailuku

Existing industrial subdivisions in Wailuku include Wailuku Industrial Park, The Millyard, Waiko Baseyard and Consolidated Baseyard. The oldest of which is the Wailuku Industrial Park, an improved light industrial subdivision with 74, fee 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 1985 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 2006, the Waiko Baseyard in Waikapu consists of 19 lots on approximately 15 acres of land. This subdivision was immediately sold prior to subdivision completion. Consolidated Baseyards, also in Waikapu, 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 within both subdivisions 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 Lani Village Center. This project completed construction in 2009 and features 78 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, 76 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, 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

ENVIRONS

The Puunene Heavy Industrial Subdivision (the "Proposed Project) is a proposed heavy industrial subdivision with up to 28 lots, 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 Cement quarry, the Maui Army National Guard Armory, and the Maui Humane Society are located nearby. Central Maui Baseyard, a light/heavy industrial yard storage development, 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 many 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 8140, Land Commission Award Number 5230 to Keaweamahi) situate, lying and being at Pulehunui, District of Wailuku, Island and County of Maui, State of Hawaii, being LOT 2 of the PUA'A SUBDIVISION, per 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 2,265.99 feet north and 17,073.08 feet east and running by azimuths measured clockwise from true South:

1. 199° 00' 428.45 feet Lot 3 of the Pua'a Subdivision to a pipe;

2. 179° 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 515.00 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 362.00 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:

348° 30' 476.18 feet to a pipe;

11. 313°00' 225.00 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:

13. 23° 00' 40.00 feet along same to a pipe;

14. 289°00' 70.00 feet along same to a pipe;

15. 346°00' 400.00 feet along same to a pipe;

16. 10° 00' 130.00 feet along same to a pipe;

17. 320°00' 130.00 feet along same to a pipe;

18. 350°00' 200.00 feet along same to a pipe;

19. 20°00' 160.00 feet along same to a pipe;

20. 350°00' 170.00 feet along same to a pipe;

21. 268°00' 130.00 feet along same to a pipe;

22. 347°00' 230.00 feet along same to a pipe;

23. 67° 00' 620.00 feet along same to a pipe;

24. 79° 00' 470.00 feet along same to a pipe;

25. 147°00' 378.30 feet along Lot 2-B-3 of the subdivision of Lot 2-B of the Land of Pulehunui to a pipe;

26. 190°00' 223.81 feet along Lot 1 of the Pua'a Subdivision to a pipe;

27. 179°00' 470.00 feet along same to a pipe;

28. 140°00' 185.00 feet along same to a pipe;

29. 167°00' 220.00 feet along same to a pipe;

30. 179°00' 157.00 feet along same to a pipe;

31. 164°00' 236.18 feet along same to a pipe;

32. 189°00' 220.00 feet along same to a pipe;

33. 168°00' 340.00 feet along same to a pipe;

34. Thence along same on a curve to the left with a radius of 306.26 feet, the chord azimuth and distance being:

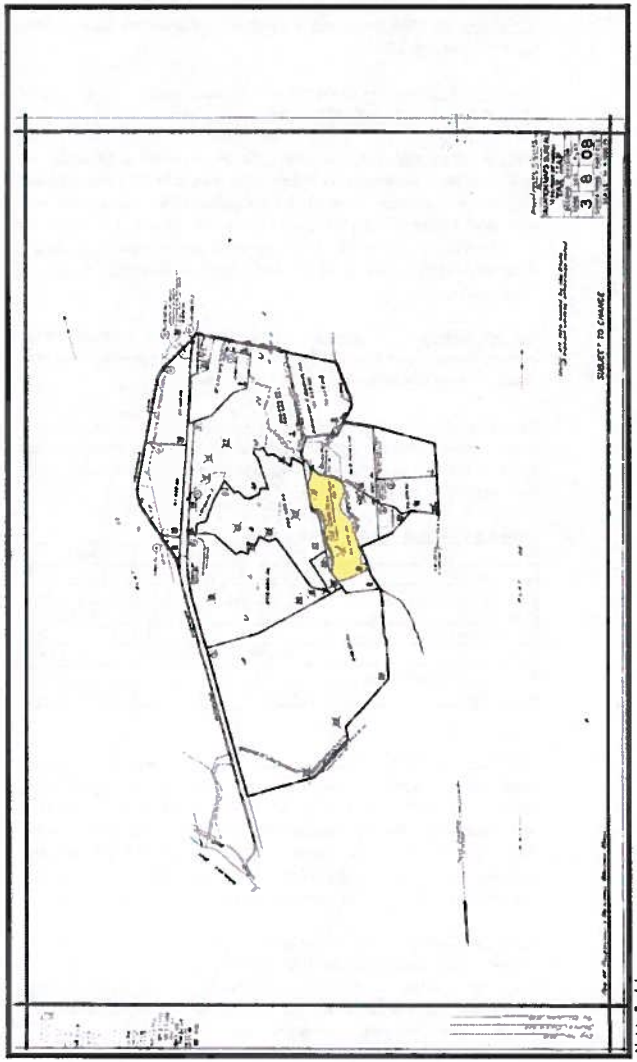
145°00' 239.33 feet to a pipe;

35. Thence along same on a curve to the right with a radius of 420.00 feet, the chord azimuth and distance being:

139°19' 250.03 feet to a pipe;

36. 173°11' 30" 663.31 feet along Lot 2-B-2 of the Subdivision of Lot 2-B of the Land of Pulehunui to the point of beginning and containing an area of 86.030 acres, more or less.

The State of Hawaii Tax Map further identifies the subject parcel as Division 2, Zone 3, Section 8, Plat 07, Parcel 102.



Not to Scale

TAX MAP

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 CMBY 2011 Investment, LLC.

Transaction History: Public records indicate that Proposed Project was conveyed from Alexander & Baldwin, Inc. to CMBY 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. 11-044566. 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 2009 and 2011.

Table 1 – Real Property Tax and Assessments

Year	2011	2010	2009
Land (Market):	$2,322,800	$2,580,900	$2,839,000
Land (Agricultural):	$43,000	$43,000	$43,000
Building:	$507,400	$536,300	$520,600
Exemptions:	$0	$0	$0
Total:	$550,400	$579,300	$563,600
Rate/$1,000 (Agricultural):	$5.80	$5.00	$4.50
R. P. Taxes:	$3,192.32	$2,896.50	$2,536.20

For 2011-2012, the County of Maui Real Property Tax Division records show the subject parcel's market assessment at $2,830,200; however, is being taxed at $550,400, due to its dedicated agricultural use. The tax rate per $1,000 valuation is $5.80 for Pitt 500 (Agricultural). Based on this rate, the subject's real property tax amounts to $3,192.32 ($550,400 ÷ 1,000 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 Kihei-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:

Size and Shape: The Proposed Project has a land area of 86.030 acres and has a highly irregular shape.

Topography and Soil Condition: 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 Alae cobbly 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. Tanaka Engineers, Inc., "Land of Pulehunui 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 Kamaaina Road, South Firebreak Road and Lower Kihei 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 Kihei 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 with A&B, via an easement around the northern and eastern sides of Reservoir 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 encumbered 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 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.

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 piggery use, the subject property was partly used for cultivation of sugarcane and also as a plantation 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 Pu'unene 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

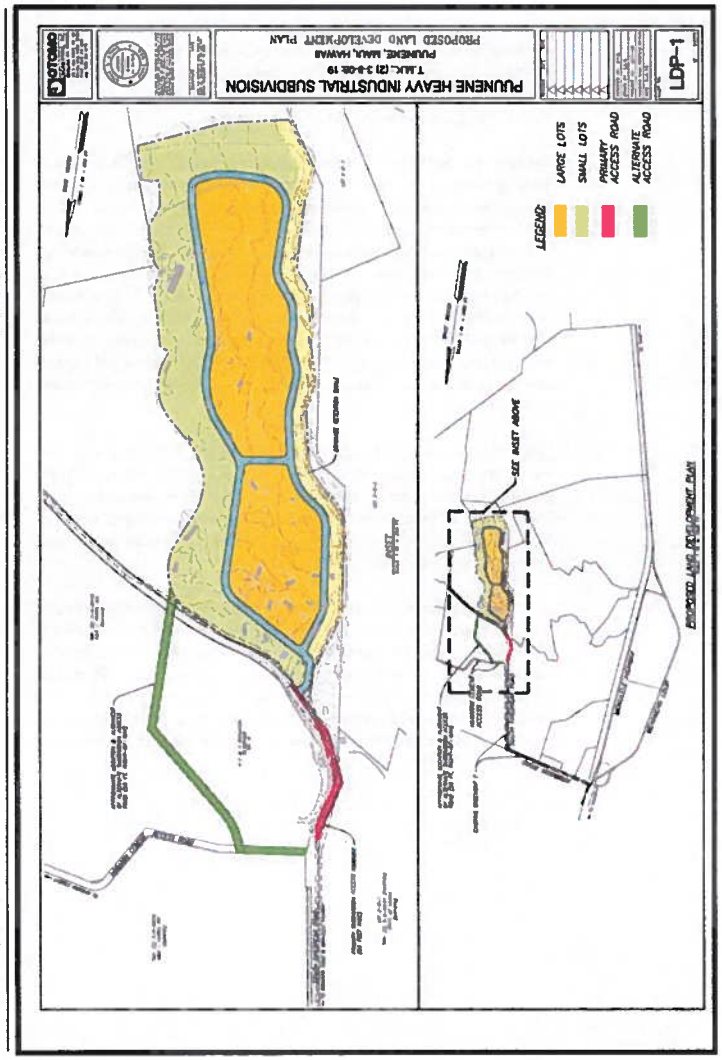
Land & Improvements: The Proposed Project is envisioned as a 28-lot heavy industrial subdivision to be developed on approximately 86.030 acres east of Mokulele Highway, District of Wailuku, Island

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 baseyards. 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.



PROPOSED LAND DEVELOPMENT PLAN

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 IA and IB; Airport

Triangle; Wakea Industrial Subdivision and Central Maui Baseyard. Wailuku's industrial projects include the Wailuku Industrial Park, The Millyard, Waiko Baseyard, Consolidated Baseyards Subdivision, and the Maui Lani Village Center.

Table 2 – Summary of Commercial and Industrial Development Projects on Maui

Project Name	Location	Gross Project Area In Acres	Primary Users
EXISTING (Central Maui)			
Maui Industrial Park, Hana Highway and Dairy Road Industrial Subdivisions	Kahului	136	Mixed-Use, Light/Heavy Industrial
Kamehameha Parkway Subdivision	Kahului	62	Commercial, Mixed-use, Light Industrial
Traingle Square Subdivision	Kahului	13	Retail & Commercial
Maui Business Park, Phase 1A & 1-B	Kahului	78	Commercial, Mixed-use, Light Industrial
Wakea Industrial Subdivision	Kahului	12	Commercial, Mixed-use, Light Industrial
Central Maui Baseyard	Kahului	52	Light/Heavy Industrial
Wailuku Industrial Park	Wailuku	55	Commercial, Mixed-use, Light Industrial
The Millyard Subdivision	Wailuku	30	Commercial, Mixed-use, Light Industrial
Waiko Baseyard Subdivision	Wailuku	15	Light Industrial
Consolidated Baseyard Subdivision	Wailuku	23	Light Industrial
Maui Lani Village Center	Wailuku	110	Commercial, Mixed-use, Light Industrial
	Total	586	
EXISTING (South Maui)			
Kihei Commercial Center	Kihei	16	Commercial, Mixed-use, Light Industrial
Piilani Business Park	Kihei	7	Commercial, Mixed-use, Light Industrial
Kihei Business Park	Kihei	14	Retail & Commercial
	Total	37	
EXISTING (West Maui)			
Wili Ko Industrial Subdivision	Lahaina	37	Commercial, Mixed-use, Light Industrial
Lahaina Business Park (Phases I and II)	Lahaina	41	Mixed-Use, Light Industrial
	Total	78	
PROPOSED			
Puunene Heavy Industrial Park (SUBJECT)	Wailuku	86	Heavy Industrial
Maui Business Park, Phase II	Kahului	179	Commercial, Mixed-Use, Light Industrial
Waiko Industrial Park	Wailuku	31	Light Industrial
Waiale Master Plan	Kahului	16.3	Mixed-Use, Light Industrial
	Kahului	23	Commercial
Waikapu Light Industrial	Wailuku	9	Light Industrial
Kaonoulu Business Park	Kihei	75	Commercial, Mixed-Use, Light Industrial
	Total	419	

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 users, 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 upon the Proposed Project.

HEAVY INDUSTRIAL SUPPLY CHARACTERISTICS

The Central Maui region contains approximately 442 acres of land zoned Heavy Industrial District. The Hawaiian Commercial & Sugar mill in Puunene occupies about 40 acres, while the future power generation plant site for Maui Electric Company was said 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 Wakea Industrial Subdivision, Airport Industrial Subdivision, as well as portions of The Millyard and Maui (Kahului) Industrial Subdivision. The land underlying Queen Kaahumanu Center, Maui Mall, and the former Maui Land and Pineapple Company cannery is zoned for heavy industrial use, as are the Hobron Avenue area and two adjacent properties at the corner of Kaahumanu 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 Imi 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 Imi Kala Street and Eha Street.

Photograph 3

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 Wakea Avenue and is situated between Queen Kaahumanu Center (at left) and a gas station (at right).

Photograph 4

Photograph 4 depicts a heavy industrial area on the northern side Wakea Avenue that is currently being marketed. The property was formerly utilized by Maui Land & Pineapple Company for their cannery operation. Single family residences and senior housing are located across Wakea Avenue, while Queen Kaahumanu Center is to the adjacent north.

Photograph 5

The heavy industrial lot depicted in Photograph 5 is bounded by Haleakala Highway, Koloa Street and Kele Street. Neighboring properties include commercial retail/office projects and car dealerships.

Photograph 6

Photograph 6 depicts an available 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 Costco (at right) is located across Haleakala Highway.

Photograph 7

The heavy industrial lot depicted in 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 to 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 has shown 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, Waiko Baseyard, Consolidated Baseyards and Maui Lani 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.

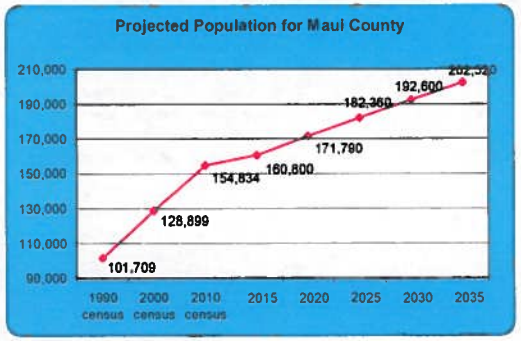
HEAVY INDUSTRIAL DEMAND CHARACTERISTICS

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.

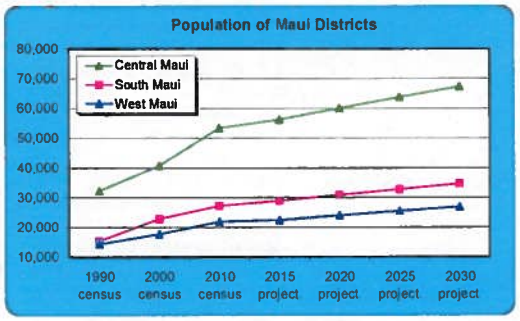
Population

Population growth on Maui over the last past 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 26.73 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 154,834 (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.



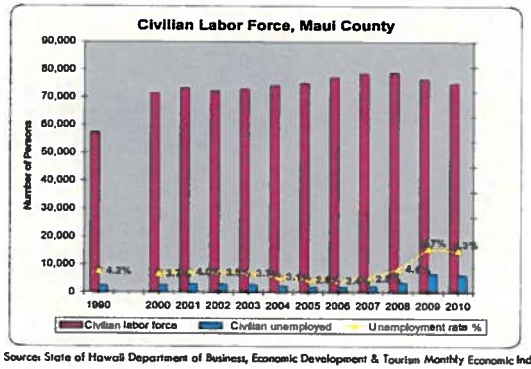
Central Maui's population grew by approximately 26 percent from 32,310 people in the 1990 census to 40,867 people in the 2000 census. The 2010 census showed an increase to 53,456 people, up about 31 percent from the 2000 census. Central Maui has consistently maintained over 30 percent of the total population 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.



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 month-over-month gains beginning May 2008. 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.



Source: State of Hawaii Department of Business, Economic Development & Tourism Monthly Economic Indicators

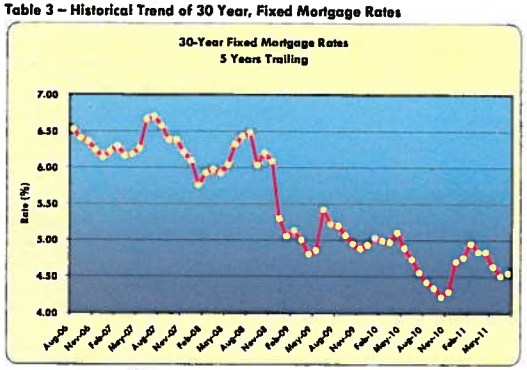
Household income figures have also been increasing. The estimated median annual household income for Maui in 2010 was $76,000 (*Source: U.S. Department of Housing and Urban Development*), a rise of approximately 53 percent over the 1999 median household income of $49,489 (*Source: US Census 2000*) and 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 3 – Historical Trend of 30 Year, Fixed Mortgage Rates



Source: Freddie Mac-Primary Mortgage Survey

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, Waiko Baseyard Subdivision, Consolidated Baseyards and Maui Lani 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 manufacturers; concrete or cement products manufacturers; lumber yards; machine shops; oil storage plants; planing mills; petroleum products manufacturers or wholesale petroleum storage operations; 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 automobile 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 83 percent of the island's total. Its proximity to the air and sea ports has resulted in the conglomeration 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 successfully 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 operation.

Stacked Zoning

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, Costco 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 Hobron 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 an interior lot that sits behind a retail strip center, a fuel center/car wash facility and a proposed medical office complex that have frontage 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 Wakea Avenue, Kahului Beach Road and near the Millyard, 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 Mokulele 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 land 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 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.

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.

Development of Waiko 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 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. (Refer to **Table 4**)

Table 4 – Absorption of Industrial Land (1991-2011)

Subdivision/Parcel	Tax Map Key	Year Introduced	Absorbed Land Area (Acres)
Kamehameha Pkwy	(II) 3-7-Plat 12	1991	19.34
Airport Triangle (incl. Kmart/Costco)	(II) 3-8-Plat 79	1992-1994	42.23
Maui Business Park 1-A	(II) 3-8-Plat 80	1995	39.65
Maui Business Park 1-B	(II) 3-8-Plat 84	2000	31.95
Waiko Baseyard	(II) 3-5-Plat 27	2006	12.50
Consolidated Baseyards	(II) 3-8-Plat 94	2007	19.98
Maui Lani Village Center	(II) 3-8-Plat 97	2009	9.10
		Total in Acres:	174.75
Average acres absorbed per year (20 Year Period to Present) =			8.74

Although the number of heavy industrial users is less than light industrial users, many heavy industrial uses can require substantial amounts of land to function efficiently. Examples of this include towing and vehicle storage base yards; industrial fabricators; 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 eight (28) 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/office facilities in the project. This was shown to be a recurring issue for other heavy industrial areas in Central Maui. Makulele 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

Baseyard approximately one mile to the north. These users already generate odor, dust, smoke, gas, noise, vibration, etc. from their various operations and are not anticipated to object to similar intrusions from the Proposed Project.

As discussed previously, the Proposed Project is recognized by the December 2010 Draft Maui Island Plan and has been included in its Urban Growth Boundary. Furthermore, the current Kihei-Makena Community Plan has classified approximately 561 acres adjacent to the subject parcel as Project District 10 "Old Pu'unene 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 Puunene Heavy Industrial Subdivision would be consistent with the County of Maui's long-range planning goals for the area.

In light of the aforementioned supply and demand considerations, as well as other factors currently influencing the heavy industrial real estate market in Central Maui, it is anticipated that the Proposed Project will be well received. The Consultant is of the opinion that the heavy industrial lots within the proposed Puunene Heavy Industrial Subdivision can be sold within a 10-year period, which would translate into an absorption rate of approximately **6.6 acres per annum.**

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 counseling 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 assignment, 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, they 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-land 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 $307,000 and building construction costs of $125 per square foot, the average development cost per building is estimated to be $6,232,000, 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 $17,504,000 per year.

For the purposes of this analysis, it has been assumed that the aforementioned costs are inclusive of all site work, roads, utilities and landscaping. It also includes the cost of hiring the civil and electrical engineers, soil engineer, environmental engineer, archaeologist, 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 during this period were estimated at about $10,044,000 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 2,869,733 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 *subdivision construction*, less personal consumption expenditures. Thus, the intermediate sales during the *subdivision construction* were forecasted to be $15,935,000 per year. When added to the final sales, the taxable expenditures and sales amounted to $18,064,000 annually.

Final sales generated by the subsequent *lot build-out* totaled $10,411,000 per year and were considered to be from the sales of the individual developer lots, plus 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 $2,206,000 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 considers both direct and indirect sales at all levels of business. For example, in addition to the profit to the Developer, there will be profit expectancies 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 $1,962,000 per annum, based on statistics gleaned from the State of Hawaii Department of Labor and Industrial Relations (DLIR) and 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 $703,000 annually. Total direct and indirect payroll attributed to the *subdivision construction* was forecasted to be $3,871,000 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 amounted to 73 residents per year. Oahu residents supported by indirect jobs created by this development 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 amounted to 158 residents per year. Oahu residents supported by indirect jobs created by this development were estimated to be 80 residents per year. In all, 392 residents per year on Maui and Oahu will potentially be supported by the *lot build-out*.

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 12. In all, 61 households on Maui and Oahu will potentially be supported annually by the *subdivision construction*.

52 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 26. In all, 132 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.

Economic Impacts at Stabilization

Employment and Wages

As discussed previously, the average lot size within the Puunene Heavy Industrial Subdivision will be 2.353 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 500 square foot per employee ratio, the subdivision is estimated to have about 1,736 employees upon stabilization. Assuming an average annual wage of $38,025 per employee, the annual wages of the subdivision workforce is estimated to be $66,011,000.

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 $6,232,000, or $174,504,000 for the entire subdivision.

Public Costs/Benefits Related to Development Activities

County of Maui

Typically, the County accumulates revenue from developments in the form of fees, such as for permits and impacts 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 to 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 $2,357,000, the conveyance tax due to the development lot sales 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 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 Mokulele 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 Mokulele Highway.

Regardless, it is assumed that the Developer would bear the majority of improvement costs necessary for project development.

Public Costs/Benefits at Stabilization

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 $165,895,000. 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 Puunene Heavy Industrial Subdivision is slated to be built on State of Hawaii Tax Map Key: (2) 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 populace; 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 at their job site, the proportionate annual cost for County services was estimated at $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. On 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 $13,201,000.

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 expectancy 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 $359 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 28 heavy industrial lots. These investments 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 affect 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 contain 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

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

ACM 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
Henry Perrine Baldwin High School, 1989

APPRAISAL EDUCATION

Appraisal Institute

Course 501GD 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 Practices and Ethics*
Chicago, Illinois – December 2009

Seminar *Online Small Hotel/Motel Valuation*
Chicago, Illinois – December 2009

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 12.0*
Honolulu, Hawaii – July 2005

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	*Easement 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	*Highest and Best Use Applications* Honolulu, Hawaii - September 1997
Seminar	*Detrimental 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 Leased 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

<u>The American Society of Farm Managers and Rural Appraisers, Inc.</u>

Seminar	*Agricultural Lease Valuation* Honolulu, Hawaii – March 2006

<u>Maui Coastal Land Trust</u>

Seminar	*Understanding the New Tax Incentives: Conservation Easements & Other Charitable Contributions* Wailuku, Hawaii – June 2007

<u>Society of Real Estate Appraisers</u>

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

<u>American Institute of Real Estate Appraisers</u>

Seminar	*Rates, Ratios and Reasonableness* 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 - 1990
Seminar	*Capitalization Overview - Part B* Honolulu, Hawaii – 1990
Seminar	*Accrued Depreciation* Honolulu, Hawaii - 1990

<u>International Right of Way Association</u>

Course 101	*Appraisal* Las Vegas, Nevada - October, 1998
Course 101	*Negotiation* Las Vegas, Nevada - October 1998

<u>National Business Institute, Inc.</u>

Seminar	*Commercial Real Estate Leasing In Hawaii* Honolulu, Hawaii - 1989

<u>American Arbitration Association</u>

Seminar	*Real Estate Dispute Resolution - Mediation and Arbitration* Kahului, Maui, Hawaii - October, 1990

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, 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
Alii 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&B Commercial Company; a division of Alexander & Baldwin, Inc. - 1979 to 1985
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
Iolani 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	*Online Valuation of Green Residential Properties* Chicago, Illinois – July 2010
Seminar	*Hotel Valuation* Honolulu, Hawaii – February 2010
Seminar	*Online Small Hotel/Motel Valuation* Chicago, Illinois – November 2009
Seminar	*Business Practices and Ethics* Honolulu, Hawaii – September 2009
Seminar	*Hawaii Lands, Historical Review* Lihue, Hawaii – August 2009
Seminar	*Appraisal Challenges: Declining Markets and Sales Concessions* Cambria, California – 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 400	*7-Hour National USPAP Update Course* Honolulu, Hawaii – October 2005
Seminar	*Case Studies in Limited Partnership and Partial Interest Valuation* Honolulu, Hawaii – May 2005
Seminar	*Appraisal Consulting: A Solutions Approach for Professionals* Honolulu, Hawaii – February 2005
Seminar	*Real Estate Finance, Value and Investment Performance* Honolulu, Hawaii – February 2005
Seminar	*Fannie Mae Residential Presentation* 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	*Scope of Work: Expanding Your Range of Services* Chicago, Illinois - August 2003
Course 400	*National Uniform Standards 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 Parts I and II* Honolulu, Hawaii - July 2002
Seminar	*Future of Appraisal Profession from a Global Perspective* Honolulu, Hawaii - July 2002

- 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 2-2(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 appraisal and providing sufficient information so that the client and the users of the report will understand the appraisal and not be misled or confused.

Summary Appraisal Report: A written report prepared under Standards Rule 2-2(b) or 8-2(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 2-2(c), 8-2(c), or 10-2(b). 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 set forth under Standards Rule 5 of the Uniform Standards of Professional Appraisal Practice for a Counseling Report. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The Consultant is not responsible for unauthorized 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 XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

2. No responsibility is assumed for legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated in this report.

3. The property analyzed is free and clear of any or all liens and encumbrances unless otherwise stated in this report.

4. Responsible ownership and competent property management are assumed unless otherwise 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 assumed to be correct. Any plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.

7. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No 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 stated in this report.

9. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a non-conformity has been stated, defined, and considered in this counseling report.

10. It is assumed that all required licenses, 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 estimates contained in this report are based.

11. Any sketch 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. No guarantee as to accuracy is expressed or implied unless otherwise stated in this report. No survey has been made for the purpose of this report.

12. It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless otherwise stated in this report.

13. The Consultant is not qualified to detect hazardous waste and/or toxic materials. Any comment by the Consultant that might suggest the possibility of the presence of such substances should not be taken as confirmation of the presence of hazardous waste and/or toxic materials. Such determination would require investigation by a qualified expert in the field of environmental assessment. The presence of substances such as asbestos, urea-formaldehyde foam insulation, or other potentially hazardous materials may affect the value of the property. The Consultant's value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value unless otherwise stated in this report. No responsibility is assumed for any environmental conditions, or for any expertise or engineering knowledge required to discover them. The Consultant's descriptions and resulting comments are the result of the routine observations made during the analysis process.

14. Unless otherwise stated in this report, the subject property is evaluated without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the Americans with Disabilities Act. The presence of architectural and communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.

15. Any proposed improvements are assumed to be completed in a good workmanlike manner in accordance with the submitted plans and specification.

16. The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.

17. Possession of this report, or a copy thereof, does not carry with it the right of publication. It may not be used for any purpose by any person other than the party to whom it is addressed without the written consent of the consultant, and in any event, only with property written qualification and only in its entirety.

18. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the Consultant, or the firm with which the Consultant is connected) shall be disseminated to the public through advertising, public relations, news sales, or other media without prior written consent and approval of the Consultant.

ACCEPTANCE OF, AND/OR USE OF THIS APPRAISAL REPORT BY CLIENT OR ANY THIRD PARTY CONSTITUTES ACCEPTANCE OF THE ACM CONSULTANTS, INC., CERTIFICATION, LIMITING AND CONTINGENT CONDITIONS. CONSULTANT LIABILITY EXTENDS ONLY TO STATED CLIENT, NOT SUBSEQUENT PARTIES OR USERS OF ANY TYPE, and the total liability of Consultant(s) and firm is limited to the amount of fee received by Consultant.

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 "mauka" and "makai" are commonly used in the islands as indicators of direction. The word "mauka" 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 results in the highest value. The four criteria the highest and best use must meet are legal permissibility, 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 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 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 lessor (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 revaluation, 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 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 fees or concessions granted by anyone associated with the transaction.

Market Value The major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continual refinement is essential to the growth of the appraisal profession.

The most 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 precisely revealed 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 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 and open 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 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;
- Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

ADDENDA

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 (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 value; 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, 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.

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 deeding pens,	
u. Tannery or the curing or storage of raw hides,	

(Prior code § 8-1.13(b))

19.26.050 ~~Yards~~ Development Standards.

	M-2	Notes and exceptions
Minimum Lot Area (Square feet)	10,000	
Minimum Lot Width (in feet)	75	
Maximum Building Height (in feet)	90	Except that vent pipes, fans, chimneys, antennae, and equipment on roofs shall not exceed 149 feet.
Minimum Yard Setback (in feet)		
Front	0 or the same as the adjoining zoning category which ever is greater	Where the set back of the adjoining non-industrial zoned parcel is less than 15 feet, a minim set back of 15 feet shall be applied.
Side and Rear	0 or the same as the adjoining zoning category which ever is greater	
Side and Rear above 15 feet	0 or the same as the adjoining zoning category which ever is greater	
Free standing antenna or wind turbine structures height and setback	Maximum height of 90 feet and shall be set back 1 foot for every foot in height from all property lines.	

~~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 § 8-1.12(e))

19.26.060 **Rule making authority.** The planning director may adopt rules to clarify and implement this chapter.

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 permit(s).

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~~2.Alcohol manufacture;~~
~~3.Automobile wrecking, 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 for 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 linoleum manufacture;~~
~~18.Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;~~
~~19.Petroleum products manufacture or wholesale storage of petroleum;~~
~~20.Planing 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 these 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 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.~~

9.26.030 Accessory uses and structures ~~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))~~

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:

Uses	Notes and exceptions
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. Security/watchman or custodian outbuildings	

19.26.040 Special Uses ~~Area regulations.~~
~~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))

Special Uses	
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,	

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 regulation~~ Special Uses
19.26.050 ~~Yards~~ Development Standards
19.26.060 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:

Use	Notes and Exceptions
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 wrecking, 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;	such establishment shall not be nearer than eight feet from any other property line for 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 linoleum manufacture;	
18. Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;	
19. Petroleum products manufacture or wholesale storage of petroleum;	
20. Planing 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 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;	

~~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;~~

(in feet)		chimneys, antennae, and equipment on roofs shall not exceed 199 feet.
Minimum Yard Setback (in feet)		
Front	none	
Side and Rear	0 or the same as the adjoining zoning category which ever is greater	
Side and Rear above 15 feet	0 or the same as the adjoining zoning category which ever is greater	
Free standing antenna or wind turbine structures height and setback	Maximum height of 199 feet and shall be set back 1 foot for every foot in height from all property lines.	
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.

EXHIBIT E
Draft Bill for Proposed County of Maui
M-2 Light Industrial District

Asphalt manufacture of refueling and asphaltic concrete plant,	
Automobile wrecking,	
Blast furnace or coke oven,	
Boiler and steel works;	
Brick, tile or terra cotta manufacture;	
Canneries,	
Cement, lime, gypsum, or plaster of paris manufacture,	
Chemical manufacture;	
Concrete or cement products manufacture;	
Crematories, morgues	
Energy systems, power plants, substations, and utility facilities, major	
Explosives manufacture or storage,	
Factories;	
Fertilizer manufacture,	
Fish canneries,	
Foundries;	
Freight classification yard (railroad);	
Garbage, offal or dead animals reduction or dumping,	
Gas manufacture,	
Glue manufacture,	
Heavy equipment storage, servicing, and sales	
Junk establishment used for storing, depositing, keeping junk or similar goods for business purposes,	
Land fill, solid waste processing and disposal	
Lime kilns	
Lumber yard and wood treatment facilities;	
Machine shops;	
Oil storage plants;	
Oilcloth or linoleum manufacture;	
Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;	
Petroleum or bio fuel product manufacturing or wholesale storage of petroleum or bio fuels;	
Petroleum refinery,	
Planing mill;	
Plastic manufacture;	
Quarry or stone mill,	
Railroad repair shops;	
Recycling processing facilities	
Rock, sand or gravel or earth excavation, crushing or distribution,	
Rolling mills;	
Saw mill,	
Ship works;	

Slaughter of animals,	
Soap manufacture;	
Stock yard or feeding pens,	
Sugar mills and refineries;	
Tannery or the curing or storage of raw hides.	
Telecommunication towers, antenna and equipment	
Wood treatment plants,	
In general those 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;

19.25.030 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:

Uses	Notes and exceptions
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	

19.25.040 Special uses.

Reserved

19.25.050 Development Standards

	M-3	Notes and exceptions
Minimum Lot Area (Square feet)	10,000	
Minimum Lot Width (in feet)	75	
Maximum Building Height	90	Except that vent pipes, fans,

EXHIBIT D

Draft Bill for Proposed County of Maui
M-3 Industrial District

ORDINANCE NO. _____
DRAFT 3/3/11

BILL NO. _____ (2010)

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

19.25.010 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 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 hereafter erected, structurally altered, replaced, or enlarged except for one or more of the following uses:

Use	Notes and exceptions
Acetylene gas manufacture or bulk storage,	
Acid manufacture,	
Alcohol manufacture;	
Ammonia, bleaching powder or chlorine manufacture,	

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(a))

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. Laundromats;
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(b))

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))

31. Haberdasheries and women's apparel shops;
32. Hardware and garden supply stores;
33. Ice cream and milk manufacturing plants employing not more than twenty-five persons;
34. Jewelry stores or fine art shops, including interior decorating;
35. Libraries;
36. Marinas;
37. Miniature golf courses;
38. Museums;
39. Music conservatories or music studios;
40. News and magazine stands;
41. Nurseries (flower or plants); provided, that all incidental equipment and supplies, including fertilizers and empty cans, are kept within enclosed buildings;
42. Nursing and convalescent homes;
43. Parcel delivery stations;
44. Pet shops, not involving the treatment or boarding of animals;
45. Photo studios;
46. Physical culture studios;
47. Plumbing shops within wholly enclosed buildings and employing not more than five persons;
48. Printing, lithography or publishing shops;
49. Private clubs or fraternal organizations;
50. Private schools or business colleges;
51. Professional and financial buildings;
52. Public parking areas;
53. Radio and television stations;
54. Religious, benevolent, and philanthropic societies;
55. Restaurants, cafes or bars, including drive-ins;
56. Sanitariums;
57. Shoe stores;
58. Sign-painting shops within wholly enclosed buildings and employing not more than five persons;
59. Skating shops;
60. Tailor shops;
61. Trade schools;
62. Used car lots; provided all repair and maintenance is conducted within a wholly enclosed building;
63. Mortuaries, subject to the approval of the commission;
64. 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 walls so erected;
65. Bed and breakfast homes, subject to the restrictions and standards of section 19.64.030 of this title;
66. 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 area; 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))

19.20.050 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 19.18

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 § 8-1.9(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 billiard 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 repairing; provided all auto repairing 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 masseurs;
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. 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 selfsustaining type without guys;
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 operation 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. Wearing 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

Sections:

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 nuisance 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. Awning 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(c))

19.26.050 Yards.

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 § 8-1.12(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 § 8-1.12(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, toiletries, 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 stamps;
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;

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

19.26.010 Generally.

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.

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 wrecking, 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 for 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 linoleum manufacture;
18. Paint, oil (including linseed), shellac, turpentine, lacquer, or varnish manufacture;
19. Petroleum products manufacture or wholesale storage of petroleum;
20. Planing 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 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 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 deeding 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))

19.26.040 Area regulations.

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))

Pop-Facts: Demographic Snapshot 2010 Report

Appendix: Area Listing

Area Name:

Type: List - Place Reporting Detail: Aggregate Reporting Level: Place

Geography Code	Geography Name	Geography Code	Geography Name
1522700	Kahului CDP	1575510	Waihee-Waiehu CDP
1575950	Waikapu CDP	1577450	Wailuku CDP

Project Information:

Site: 1

Order Number: 969114179

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EXHIBIT C

Current County of Maui M-2 Heavy Industrial District Zoning Ordinance

Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Pop 16+ by Occupation Classification	21,397	
Blue Collar	4,775	22.32
White Collar	10,953	51.19
Service and Farm	5,669	26.49
2010 Est. Workers Age 16+, Transp. To Work	20,957	
Drove Alone	15,014	71.64
Car Pooled	3,830	18.28
Public Transportation	474	2.26
Walked	400	1.91
Bicycle	59	0.28
Other Means	464	2.21
Worked at Home	716	3.42
2010 Est. Workers Age 16+ by Travel Time to Work *		
Less than 15 Minutes	9,000	
15 - 29 Minutes	5,176	
30 - 44 Minutes	3,622	
45 - 59 Minutes	1,772	
60 or more Minutes	889	
2010 Est. Avg Travel Time to Work in Minutes	22.96	
2010 Est. Tenure of Occupied Housing Units	14,735	
Owner Occupied	9,000	61.08
Renter Occupied	5,735	38.92
2010 Owner Occ. HUs: Avg. Length of Residence	19	
2010 Renter Occ. HUs: Avg. Length of Residence	9	

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. All Owner-Occupied Housing Values	9,000	
Value Less than $20,000	1	0.01
Value $20,000 - $39,999	26	0.29
Value $40,000 - $59,999	74	0.82
Value $60,000 - $79,999	35	0.39
Value $80,000 - $99,999	38	0.42
Value $100,000 - $149,999	60	0.67
Value $150,000 - $199,999	214	2.38
Value $200,000 - $299,999	878	9.76
Value $300,000 - $399,999	1,430	15.89
Value $400,000 - $499,999	1,927	21.41
Value $500,000 - $749,999	3,104	34.49
Value $750,000 - $999,999	814	9.04
Value $1,000,000 or more	399	4.43
2010 Est. Median All Owner-Occupied Housing Value	$490,482	
2010 Est. Housing Units by Units in Structure	15,348	
1 Unit Attached	984	6.41
1 Unit Detached	10,542	68.69
2 Units	490	3.19
3 or 4 Units	545	3.55
5 to 19 Units	1,892	12.33
20 to 49 Units	468	3.05
50 or More Units	399	2.60
Mobile Home or Trailer	28	0.18
Boat, RV, Van, etc.	0	0.00
2010 Est. Housing Units by Year Structure Built	15,348	
Housing Unit Built 2000 or later	2,402	15.65
Housing Unit Built 1990 to 1999	3,146	20.50
Housing Unit Built 1980 to 1989	2,377	15.49
Housing Unit Built 1970 to 1979	2,586	16.85
Housing Unit Built 1960 to 1969	2,305	15.02
Housing Unit Built 1950 to 1959	1,367	8.91
Housing Unit Built 1940 to 1949	497	3.24
Housing Unit Built 1939 or Earlier	668	4.35
2010 Est. Median Year Structure Built **	1981	

*This row intentionally left blank. No total category data is available.

**1939 will appear when at least half of the Housing Units in this reports area were built in 1939 or earlier.

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Households by Presence of People	14,735	
Households with 1 or more People under Age 18:	5,877	39.88
Married-Couple Family	4,009	68.22
Other Family, Male Householder	472	8.03
Other Family, Female Householder	1,388	23.62
Nonfamily, Male Householder	3	0.05
Nonfamily, Female Householder	5	0.09
Households no People under Age 18:	8,858	60.12
Married-Couple Family	3,664	41.36
Other Family, Male Householder	378	4.27
Other Family, Female Householder	785	8.86
Nonfamily, Male Householder	1,890	21.34
Nonfamily, Female Householder	2,141	24.17
2010 Est. Households by Number of Vehicles	14,735	
No Vehicles	1,015	6.89
1 Vehicle	4,451	30.21
2 Vehicles	5,283	35.85
3 Vehicles	2,300	15.61
4 Vehicles	1,070	7.26
5 or more Vehicles	616	4.18
2010 Est. Average Number of Vehicles	2.03	
Family Households		
2015 Projection	11,589	
2010 Estimate	10,921	
2000 Census	9,312	
1990 Census	7,549	
Growth 2010-2015	6.12%	
Growth 2000-2010	17.28%	
Growth 1990-2000	23.35%	
2010 Est. Families by Poverty Status	10,921	
2010 Families at or Above Poverty	10,291	94.23
2010 Families at or Above Poverty with Children	5,416	49.59
2010 Families Below Poverty	630	5.77
2010 Families Below Poverty with Children	499	4.57

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Pop Age 16+ by Employment Status	36,937	
In Armed Forces	150	0.41
Civilian - Employed	22,730	61.54
Civilian - Unemployed	1,221	3.31
Not in Labor Force	12,836	34.75
2010 Est. Civ Employed Pop 16+ Class of Worker	21,397	
For-Profit Private Workers	14,966	69.94
Non-Profit Private Workers	1,252	5.85
Local Government Workers	1,170	5.47
State Government Workers	2,324	10.86
Federal Government Workers	401	1.87
Self-Emp Workers	1,205	5.63
Unpaid Family Workers	79	0.37
2010 Est. Civ Employed Pop 16+ by Occupation	21,397	
Architect/Engineer	382	1.79
Arts/Entertain/Sports	324	1.51
Building Grounds Maint	1,888	8.82
Business/Financial Ops	498	2.33
Community/Soc Svcs	293	1.37
Computer/Mathematical	110	0.51
Construction/Extraction	1,519	7.10
Edu/Training/Library	1,016	4.75
Farm/Fish/Forestry	315	1.47
Food Prep/Serving	1,478	6.91
Health Practitioner/Tec	807	3.77
Healthcare Support	564	2.64
Maintenance Repair	1,085	5.07
Legal	186	0.87
Life/Phys/Soc Science	146	0.68
Management	1,355	6.33
Office/Admin Support	3,012	14.08
Production	826	3.86
Protective Svcs	807	3.77
Sales/Related	2,824	13.20
Personal Care/Svc	617	2.88
Transportation/Moving	1,345	6.29

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
Households		
2015 Projection	15,593	
2010 Estimate	14,735	
2000 Census	12,626	
1990 Census	9,953	
Growth 2010-2015	5.82%	
Growth 2000-2010	16.70%	
Growth 1990-2000	26.86%	
2010 Est. Households by Household Type	14,735	
Family Households	10,921	74.12
Nonfamily Households	3,814	25.88
2010 Est. Group Quarters Population	937	
2010 HHs by Ethnicity, Hispanic/Latino	1,186	8.05
2010 Est. HHs by HH Income	14,735	
Income Less than $15,000	1,351	9.17
Income $15,000 - $24,999	1,288	8.74
Income $25,000 - $34,999	1,150	7.80
Income $35,000 - $49,999	1,797	12.20
Income $50,000 - $74,999	2,955	20.05
Income $75,000 - $99,999	2,328	15.80
Income $100,000 - $124,999	1,388	9.42
Income $125,000 - $149,999	928	6.30
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	

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Median HH Inc by Single Race Class. or Ethn		
White Alone	57,933	
Black or African American Alone	50,466	
American Indian and Alaska Native Alone	60,417	
Asian Alone	73,339	
Native Hawaiian and Other Pacific Islander Alone	57,698	
Some Other Race Alone	73,877	
Two or More Races	61,999	
Hispanic or Latino	44,619	
Not Hispanic or Latino	66,688	
2010 Est. Family HH Type, Presence Own Children	10,921	
Married-Couple Family, own children	3,524	32.27
Married-Couple Family, no own children	4,280	39.19
Male Householder, own children	309	2.83
Male Householder, no own children	572	5.24
Female Householder, own children	1,008	9.23
Female Householder, no own children	1,228	11.24
2010 Est. Households by Household Size	14,735	
1-person household	3,078	20.89
2-person household	3,908	26.52
3-person household	2,610	17.71
4-person household	2,252	15.28
5-person household	1,340	9.09
6-person household	723	4.91
7 or more person household	824	5.59
2010 Est. Average Household Size	3.11	

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Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Male Population by Age	23,694	
Age 0 - 4	1,747	7.37
Age 5 - 9	1,517	6.40
Age 10 - 14	1,485	6.27
Age 15 - 17	937	3.95
Age 18 - 20	856	3.61
Age 21 - 24	1,125	4.75
Age 25 - 34	4,061	17.14
Age 35 - 44	3,425	14.46
Age 45 - 54	3,021	12.75
Age 55 - 64	2,646	11.17
Age 65 - 74	1,423	6.01
Age 75 - 84	1,016	4.29
Age 85 and over	435	1.84
2010 Est. Median Age, Male	35.35	
2010 Est. Average Age, Male	37.10	
2010 Est. Female Population by Age	23,101	
Age 0 - 4	1,620	7.01
Age 5 - 9	1,437	6.22
Age 10 - 14	1,452	6.29
Age 15 - 17	903	3.91
Age 18 - 20	692	3.00
Age 21 - 24	1,032	4.47
Age 25 - 34	3,274	14.17
Age 35 - 44	3,037	13.15
Age 45 - 54	3,041	13.16
Age 55 - 64	2,706	11.71
Age 65 - 74	1,748	7.57
Age 75 - 84	1,403	6.07
Age 85 and over	756	3.27
2010 Est. Median Age, Female	38.76	
2010 Est. Average Age, Female	39.80	

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Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Pop Age 15+ by Marital Status	37,537	
Total, Never Married	11,963	31.87
Males, Never Married	6,997	18.64
Females, Never Married	4,966	13.23
Married, Spouse present	16,993	45.27
Married, Spouse absent	2,676	7.13
Widowed	2,447	6.52
Males Widowed	490	1.31
Females Widowed	1,957	5.21
Divorced	3,458	9.21
Males Divorced	1,569	4.18
Females Divorced	1,889	5.03
2010 Est. Pop. Age 25+ by Edu. Attainment	31,992	
Less than 9th grade	2,757	8.62
Some High School, no diploma	2,365	7.39
High School Graduate (or GED)	11,515	35.99
Some College, no degree	6,245	19.52
Associate Degree	3,065	9.58
Bachelor's Degree	4,389	13.72
Master's Degree	1,127	3.52
Professional School Degree	491	1.53
Doctorate Degree	38	0.12
2010 Est Pop Age 25+ by Edu. Attain. Hisp. or Lat	2,684	
Less than 9th grade	99	3.69
Some High School, no diploma	364	13.56
High School Graduate (or GED)	1,360	50.67
Some College, no degree	444	16.54
Associate Degree	196	7.30
Bachelor's Degree	111	4.14
Graduate or Professional Degree	110	4.10

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Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Pop. Asian Alone Race by Cat	20,346	
Chinese, except Taiwanese	472	2.32
Filipino	10,764	52.90
Japanese	7,319	35.97
Asian Indian	26	0.13
Korean	451	2.22
Vietnamese	131	0.64
Cambodian	3	0.01
Hmong	0	0.00
Laotian	22	0.11
Thai	23	0.11
All Other Asian Races Including 2+ Category	1,135	5.58
2010 Est. Population by Ancestry	46,795	
Pop, Arab	38	0.08
Pop, Czech	25	0.05
Pop, Danish	14	0.03
Pop, Dutch	73	0.16
Pop, English	814	1.74
Pop, French (except Basque)	284	0.61
Pop, French Canadian	145	0.31
Pop, German	801	1.71
Pop, Greek	1	0.00
Pop, Hungarian	76	0.16
Pop, Irish	712	1.52
Pop, Italian	669	1.43
Pop, Lithuanian	14	0.03
Pop, United States or American	209	0.45
Pop, Norwegian	152	0.32
Pop, Polish	183	0.39
Pop, Portuguese	1,514	3.24
Pop, Russian	36	0.08
Pop, Scottish	165	0.35
Pop, Scotch-Irish	156	0.33
Pop, Slovak	1	0.00
Pop, Subsaharan African	19	0.04
Pop, Swedish	187	0.40
Pop, Swiss	18	0.04
Pop, Ukrainian	1	0.00
Pop, Welsh	80	0.17
Pop, West Indian (exc Hisp groups)	41	0.09
Pop, Other ancestries	38,217	81.67

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
2010 Est. Population by Ancestry		
Pop, Ancestry Unclassified	2,150	4.59
2010 Est. Pop Age 5+ by Language Spoken At Home	43,428	
Speak Only English at Home	32,768	75.45
Speak Asian/Pac. Isl. Lang. at Home	9,355	21.54
Speak IndoEuropean Language at Home	385	0.89
Speak Spanish at Home	913	2.10
Speak Other Language at Home	7	0.02
2010 Est. Population by Sex	46,795	
Male	23,694	50.63
Female	23,101	49.37
2010 Est. Population by Age	46,795	
Age 0 - 4	3,367	7.20
Age 5 - 9	2,954	6.31
Age 10 - 14	2,937	6.28
Age 15 - 17	1,840	3.93
Age 18 - 20	1,548	3.31
Age 21 - 24	2,157	4.61
Age 25 - 34	7,335	15.67
Age 35 - 44	6,462	13.81
Age 45 - 54	6,062	12.95
Age 55 - 64	5,352	11.44
Age 65 - 74	3,171	6.78
Age 75 - 84	2,419	5.17
Age 85 and over	1,191	2.55
Age 16 and over	36,937	78.93
Age 18 and over	35,697	76.28
Age 21 and over	34,149	72.98
Age 65 and over	6,781	14.49
2010 Est. Median Age	36.95	
2010 Est. Average Age	38.40	

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Pop-Facts: Demographic Snapshot 2010 Report

Place, (see appendix for geographies), aggregate

Description	Total Place	%
Population		
2015 Projection	49,269	
2010 Estimate	46,795	
2000 Census	40,867	
1990 Census	32,310	
Growth 2010-2015	5.29%	
Growth 2000-2010	14.51%	
Growth 1990-2000	26.48%	
2010 Est. Pop by Single Race Class	46,795	
White Alone	7,916	16.92
Black or African American Alone	241	0.52
Amer. Indian and Alaska Native Alone	203	0.43
Asian Alone	20,346	43.48
Native Hawaiian and Other Pac. Isl. Alone	5,222	11.16
Some Other Race Alone	686	1.47
Two or More Races	12,181	26.03
2010 Est. Pop Hisp or Latino by Origin	46,795	
Not Hispanic or Latino	41,668	89.04
Hispanic or Latino:	5,127	10.96
Mexican	1,499	29.24
Puerto Rican	2,135	41.64
Cuban	7	0.14
All Other Hispanic or Latino	1,486	28.98
2010 Est. Hisp or Latino by Single Race Class	5,127	
White Alone	880	17.16
Black or African American Alone	6	0.12
American Indian and Alaska Native Alone	66	1.29
Asian Alone	580	11.31
Native Hawaiian and Other Pacific Islander Alone	307	5.99
Some Other Race Alone	632	12.33
Two or More Races	2,656	51.80

CENTRAL MAUI

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County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. All Owner-Occupied Housing Values	29,265	
Value Less than $20,000	67	0.23
Value $20,000 - $39,999	53	0.18
Value $40,000 - $59,999	130	0.44
Value $60,000 - $79,999	66	0.23
Value $80,000 - $99,999	82	0.28
Value $100,000 - $149,999	300	1.03
Value $150,000 - $199,999	625	2.14
Value $200,000 - $299,999	2,989	10.21
Value $300,000 - $399,999	3,835	13.10
Value $400,000 - $499,999	4,622	15.79
Value $500,000 - $749,999	8,863	30.29
Value $750,000 - $999,999	3,625	12.39
Value $1,000,000 or more	4,008	13.70
2010 Est. Median All Owner-Occupied Housing Value	$552,572	
2010 Est. Housing Units by Units in Structure	66,980	
1 Unit Attached	2,868	4.28
1 Unit Detached	37,488	55.97
2 Units	3,871	5.78
3 or 4 Units	2,482	3.71
5 to 19 Units	8,881	13.26
20 to 49 Units	4,302	6.42
50 or More Units	7,024	10.49
Mobile Home or Trailer	64	0.10
Boat, RV, Van, etc.	0	0.00
2010 Est. Housing Units by Year Structure Built	66,980	
Housing Unit Built 2000 or later	11,064	16.52
Housing Unit Built 1990 to 1999	13,092	19.55
Housing Unit Built 1980 to 1989	14,033	20.95
Housing Unit Built 1970 to 1979	16,550	24.71
Housing Unit Built 1960 to 1969	5,562	8.30
Housing Unit Built 1950 to 1959	2,756	4.11
Housing Unit Built 1940 to 1949	1,645	2.46
Housing Unit Built 1939 or Earlier	2,278	3.40
2010 Est. Median Year Structure Built **	1983	

**1939 will appear when at least half of the Housing Units in this reports area were built in 1939 or earlier.

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Appendix: Area Listing

Area Name:

Type: List - County Reporting Detail: Aggregate Reporting Level: County

Geography Code	Geography Name	Geography Code	Geography Name
15009	Maui County, HI		

Project Information:

Site: 1

Order Number: 969072959

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Pop Age 16+ by Employment Status	116,907	
In Armed Forces	396	0.34
Civilian - Employed	77,635	66.41
Civilian - Unemployed	3,734	3.19
Not in Labor Force	35,142	30.06
2010 Est. Civ Employed Pop 16+ Class of Worker	74,231	
For-Profit Private Workers	50,672	68.26
Non-Profit Private Workers	4,052	5.46
Local Government Workers	2,815	3.79
State Government Workers	6,815	9.18
Federal Government Workers	1,363	1.84
Self-Emp Workers	8,207	11.06
Unpaid Family Workers	307	0.41
2010 Est. Civ Employed Pop 16+ by Occupation	74,231	
Architect/Engineer	958	1.29
Arts/Entertain/Sports	2,212	2.98
Building Grounds Maint	5,559	7.49
Business/Financial Ops	1,742	2.35
Community/Soc Svcs	1,249	1.68
Computer/Mathematical	501	0.67
Construction/Extraction	6,380	8.59
Edu/Training/Library	4,083	5.50
Farm/Fish/Forestry	880	1.19
Food Prep/Serving	6,994	9.42
Health Practitioner/Tec	2,753	3.71
Healthcare Support	1,620	2.18
Maintenance Repair	2,864	3.86
Legal	539	0.73
Life/Phys/Soc Science	518	0.70
Management	6,545	8.82
Office/Admin Support	8,824	11.89
Production	2,145	2.89
Protective Svcs	2,472	3.33
Sales/Related	8,881	11.96
Personal Care/Svc	2,800	3.77
Transportation/Moving	3,712	5.00

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Pop 16+ by Occupation Classification	74,231	
Blue Collar	15,101	20.34
White Collar	38,805	52.28
Service and Farm	20,325	27.38
2010 Est. Workers Age 16+, Transp. To Work	72,261	
Drove Alone	50,850	70.37
Car Pooled	10,971	15.18
Public Transportation	1,361	1.88
Walked	1,986	2.75
Bicycle	461	0.64
Other Means	1,541	2.13
Worked at Home	5,091	7.05
2010 Est. Workers Age 16+ by Travel Time to Work	72,261	
Less than 15 Minutes	26,723	36.98
15 - 29 Minutes	21,220	29.37
30 - 44 Minutes	12,554	17.37
45 - 59 Minutes	4,876	6.75
60 or more Minutes	3,324	4.60
2010 Est. Avg Travel Time to Work in Minutes	22.72	
2010 Est. Tenure of Occupied Housing Units	50,880	
Owner Occupied	29,265	57.52
Renter Occupied	21,615	42.48
2010 Owner Occ. HUs: Avg. Length of Residence	17	
2010 Renter Occ. HUs: Avg. Length of Residence	8	

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Median HH Inc by Single Race Class, or Ethn		
White Alone	67,201	
Black or African American Alone	57,839	
American Indian and Alaska Native Alone	55,000	
Asian Alone	73,355	
Native Hawaiian and Other Pacific Islander Alone	57,608	
Some Other Race Alone	47,914	
Two or More Races	62,030	
Hispanic or Latino	53,365	
Not Hispanic or Latino	67,580	
2010 Est. Family HH Type, Presence Own Children	34,948	
Married-Couple Family, own children	11,017	31.52
Married-Couple Family, no own children	14,837	42.45
Male Householder, own children	1,152	3.30
Male Householder, no own children	1,686	4.82
Female Householder, own children	3,127	8.95
Female Householder, no own children	3,129	8.95
2010 Est. Households by Household Size	50,880	
1-person household	11,722	23.04
2-person household	15,854	31.16
3-person household	8,725	17.15
4-person household	6,925	13.61
5-person household	3,722	7.32
6-person household	1,988	3.91
7 or more person household	1,944	3.82
2010 Est. Average Household Size	2.84	

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Households by Presence of People	50,880	
Households with 1 or more People under Age 18:	17,967	35.31
Married-Couple Family	12,183	23.94
Other Family, Male Householder	1,657	3.26
Other Family, Female Householder	4,089	8.04
Nonfamily, Male Householder	24	0.05
Nonfamily, Female Householder	14	0.03
Households no People under Age 18:	32,913	64.69
Married-Couple Family	12,978	25.51
Other Family, Male Householder	1,105	2.17
Other Family, Female Householder	1,996	3.92
Nonfamily, Male Householder	8,770	17.24
Nonfamily, Female Householder	8,064	15.85
2010 Est. Households by Number of Vehicles	50,880	
No Vehicles	2,629	5.17
1 Vehicle	15,744	30.94
2 Vehicles	19,766	38.85
3 Vehicles	7,584	14.91
4 Vehicles	3,316	6.52
5 or more Vehicles	1,841	3.62
2010 Est. Average Number of Vehicles	2.01	
Family Households		
2015 Projection	37,102	
2010 Estimate	34,948	
2000 Census	29,899	
1990 Census	23,537	
Growth 2010-2015	6.16%	
Growth 2000-2010	16.89%	
Growth 1990-2000	27.03%	
2010 Est. Families by Poverty Status	34,948	
2010 Families at or Above Poverty	33,167	94.90
2010 Families at or Above Poverty with Children	16,990	48.62
2010 Families Below Poverty	1,781	5.10
2010 Families Below Poverty with Children	1,345	3.85

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Pop Age 15+ by Marital Status	118,748	
Total, Never Married	37,238	31.36
Males, Never Married	21,914	18.45
Females, Never Married	15,324	12.90
Married, Spouse present	54,591	45.97
Married, Spouse absent	6,861	5.78
Widowed	6,128	5.16
Males Widowed	1,208	1.02
Females Widowed	4,920	4.14
Divorced	13,930	11.73
Males Divorced	6,403	5.39
Females Divorced	7,527	6.34
2010 Est. Pop. Age 25+ by Edu. Attainment	101,837	
Less than 9th grade	5,342	5.25
Some High School, no diploma	6,039	5.93
High School Graduate (or GED)	33,352	32.75
Some College, no degree	22,833	22.42
Associate Degree	9,806	9.63
Bachelor's Degree	16,576	16.28
Master's Degree	5,208	5.11
Professional School Degree	2,101	2.06
Doctorate Degree	580	0.57
2010 Est Pop Age 25+ by Edu. Attain. Hisp. or Lat	101,837	
Less than 9th grade	269	0.26
Some High School, no diploma	1,258	1.24
High School Graduate (or GED)	3,740	3.67
Some College, no degree	1,409	1.38
Associate Degree	569	0.56
Bachelor's Degree	250	0.25
Master's Degree	292	0.29

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
Households		
2015 Projection	54,018	
2010 Estimate	50,880	
2000 Census	43,507	
1990 Census	33,145	
Growth 2010-2015	6.17%	
Growth 2000-2010	16.95%	
Growth 1990-2000	31.26%	
2010 Est. Households by Household Type	50,880	
Family Households	34,948	68.69
Nonfamily Households	15,932	31.31
2010 Est. Group Quarters Population	1,608	
2010 HHs by Ethnicity, Hispanic/Latino	3,585	7.05
2010 Est. HHs by HH Income	50,880	
Income Less than $15,000	4,374	8.60
Income $15,000 - $24,999	3,869	7.60
Income $25,000 - $34,999	4,201	8.26
Income $35,000 - $49,999	6,485	12.75
Income $50,000 - $74,999	9,847	19.35
Income $75,000 - $99,999	8,241	16.20
Income $100,000 - $124,999	4,520	8.88
Income $125,000 - $149,999	3,216	6.32
Income $150,000 - $199,999	3,251	6.39
Income $200,000 - $499,999	2,340	4.60
Income $500,000 and more	536	1.05
2010 Est. Average Household Income	$85,521	
2010 Est. Median Household Income	$66,530	
2010 Est. Per Capita Income	$30,004	

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Population by Ancestry		
Pop, Ancestry Unclassified	7,098	4.86
2010 Est. Pop Age 5+ by Language Spoken At Home	136,459	
Speak Only English at Home	109,296	80.09
Speak Asian/Pac. Isl. Lang. at Home	20,876	15.30
Speak IndoEuropean Language at Home	2,669	1.96
Speak Spanish at Home	3,585	2.63
Speak Other Language at Home	33	0.02
2010 Est. Population by Sex	146,193	
Male	74,631	51.05
Female	71,562	48.95
2010 Est. Population by Age	146,193	
Age 0 - 4	9,734	6.66
Age 5 - 9	8,979	6.14
Age 10 - 14	8,732	5.97
Age 15 - 17	5,643	3.86
Age 18 - 20	4,645	3.18
Age 21 - 24	6,623	4.53
Age 25 - 34	21,519	14.72
Age 35 - 44	21,211	14.51
Age 45 - 54	22,098	15.12
Age 55 - 64	18,620	12.74
Age 65 - 74	9,895	6.77
Age 75 - 84	5,686	3.89
Age 85 and over	2,808	1.92
Age 16 and over	116,907	79.97
Age 18 and over	113,105	77.37
Age 21 and over	108,460	74.19
Age 65 and over	18,389	12.58
2010 Est. Median Age	38.40	
2010 Est. Average Age	38.60	

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Male Population by Age	74,631	
Age 0 - 4	5,031	6.74
Age 5 - 9	4,610	6.18
Age 10 - 14	4,417	5.92
Age 15 - 17	2,877	3.85
Age 18 - 20	2,416	3.24
Age 21 - 24	3,457	4.63
Age 25 - 34	11,890	15.93
Age 35 - 44	11,278	15.11
Age 45 - 54	10,979	14.71
Age 55 - 64	9,388	12.58
Age 65 - 74	4,740	6.35
Age 75 - 84	2,474	3.31
Age 85 and over	1,074	1.44
2010 Est. Median Age, Male	37.32	
2010 Est. Average Age, Male	37.70	
2010 Est. Female Population by Age	71,562	
Age 0 - 4	4,703	6.57
Age 5 - 9	4,369	6.11
Age 10 - 14	4,315	6.03
Age 15 - 17	2,766	3.87
Age 18 - 20	2,229	3.11
Age 21 - 24	3,166	4.42
Age 25 - 34	9,629	13.46
Age 35 - 44	9,933	13.88
Age 45 - 54	11,119	15.54
Age 55 - 64	9,232	12.90
Age 65 - 74	5,155	7.20
Age 75 - 84	3,212	4.49
Age 85 and over	1,734	2.42
2010 Est. Median Age, Female	39.64	
2010 Est. Average Age, Female	39.50	

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
Population		
2015 Projection	153,962	
2010 Estimate	146,193	
2000 Census	128,094	
1990 Census	100,374	
Growth 2010-2015	5.31%	
Growth 2000-2010	14.13%	
Growth 1990-2000	27.62%	
2010 Est. Pop by Single Race Class	146,193	
White Alone	54,988	37.61
Black or African American Alone	1,361	0.93
Amer. Indian and Alaska Native Alone	731	0.50
Asian Alone	40,388	27.63
Native Hawaiian and Other Pac. Isl. Alone	14,700	10.06
Some Other Race Alone	2,443	1.67
Two or More Races	31,582	21.60
2010 Est. Pop Hisp or Latino by Origin	146,193	
Not Hispanic or Latino	131,667	90.06
Hispanic or Latino:	14,526	9.94
Mexican	5,914	40.71
Puerto Rican	4,581	31.54
Cuban	55	0.38
All Other Hispanic or Latino	3,976	27.37
2010 Est. Hisp or Latino by Single Race Class	14,526	
White Alone	3,628	24.98
Black or African American Alone	30	0.21
American Indian and Alaska Native Alone	175	1.20
Asian Alone	1,331	9.16
Native Hawaiian and Other Pacific Islander Alone	804	5.53
Some Other Race Alone	2,224	15.31
Two or More Races	6,334	43.60

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Pop-Facts: Demographic Snapshot Report

County, (see appendix for geographies), aggregate

Description	Total County	%
2010 Est. Pop. Asian Alone Race by Cat	40,388	
Chinese, except Taiwanese	1,191	2.95
Filipino	22,491	55.69
Japanese	12,829	31.76
Asian Indian	110	0.27
Korean	812	2.01
Vietnamese	332	0.82
Cambodian	10	0.02
Hmong	0	0.00
Laotian	49	0.12
Thai	81	0.20
All Other Asian Races Including 2+ Category	2,483	6.15
2010 Est. Population by Ancestry	146,193	
Pop, Arab	145	0.10
Pop, Czech	180	0.12
Pop, Danish	485	0.33
Pop, Dutch	1,000	0.68
Pop, English	6,800	4.65
Pop, French (except Basque)	2,059	1.41
Pop, French Canadian	582	0.40
Pop, German	6,384	4.37
Pop, Greek	123	0.08
Pop, Hungarian	666	0.46
Pop, Irish	5,553	3.80
Pop, Italian	5,796	3.96
Pop, Lithuanian	179	0.12
Pop, United States or American	1,540	1.05
Pop, Norwegian	1,106	0.76
Pop, Polish	1,742	1.19
Pop, Portuguese	4,494	3.07
Pop, Russian	566	0.39
Pop, Scottish	1,801	1.23
Pop, Scotch-Irish	1,353	0.93
Pop, Slovak	13	0.01
Pop, Subsaharan African	84	0.06
Pop, Swedish	1,407	0.96
Pop, Swiss	567	0.39
Pop, Ukrainian	65	0.04
Pop, Welsh	857	0.59
Pop, West Indian (exc Hisp groups)	186	0.13
Pop, Other ancestries	93,362	63.86

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EXHIBIT B

Claritas Demographic Data

MAUI COUNTY

Photograph No. 5

View of proposed entrance to subdivision. The camera is facing southerly.

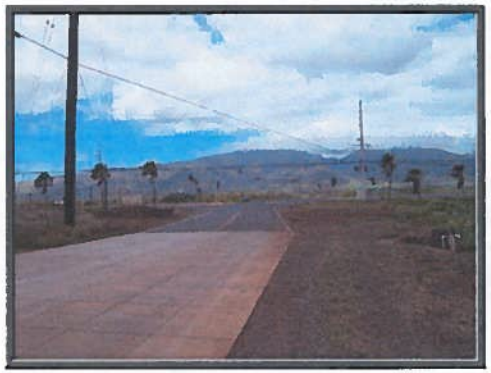
Photograph No. 6

View of Lower Kihei Road and South Fire Break Road, portions of which will become access easements in favor of the subject. The camera is facing northwesterly.

PHOTOGRAPHS OF THE SUBJECT

Photograph No. 7

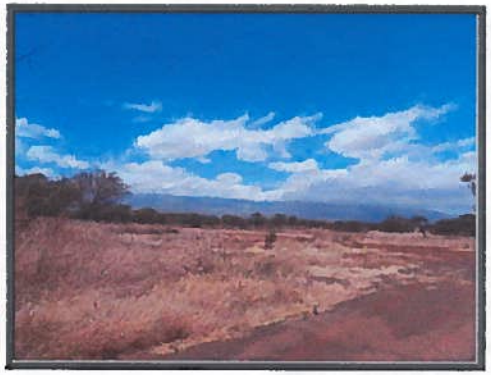
View of Kamaaina Road, a portion of which will become an access easement in favor of the subject. The camera is facing easterly.



Photograph No. 8

View of intersection of Kamaaina Road and Mokulele Highway. The camera is facing westerly.

PHOTOGRAPHS OF THE SUBJECT



Photograph No. 1

View of northerly portion of subject.
The camera is facing southeasterly.

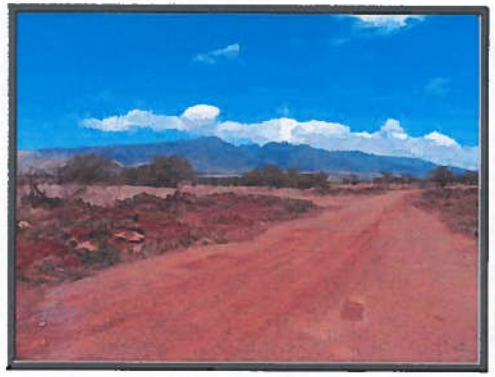
Photograph No. 2

View of southern portion of subject.
The camera is facing northerly.

PHOTOGRAPHS OF THE SUBJECT

Photograph No. 3

View of easterly portion of subject.
The camera is facing northeasterly.



Photograph No. 4

View of westerly portion of subject.
The camera is facing northwesterly.

PHOTOGRAPHS OF THE SUBJECT

APPENDIX N

Agricultural Impact Assessment

PREPARED FOR: **CMBY 2011 INVESTMENT, LLC**

C/O MS. BLANCA LAFOLETTE
Project Coordinator
Pacific Rim Land, Inc.
1300 North Holopono Street, Suite 201
P.O Box 220
Kihei, Hawaii 96753

EFFECTIVE DATE: **July 1, 2011**

AN AGRICULTURAL IMPACT ASSESSMENT FOR THE PROPOSED
PUUNENE HEAVY INDUSTRIAL SUBDIVISION, WAILUKU, ISLAND OF MAUI, HAWAII

ACM CONSULTANTS, INC.

ACM CONSULTANTS, INC.
A Real Estate Appraisal, Research & Advisory Group

October 6, 2011 11-9079A

CMBY 2011 Investment, LLC
c/o Ms. Blanca Lafolette, 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 Puunene Heavy Industrial Subdivision in Wailuku, Island and County of Maui; TMK (2) 3-8-008:019

Dear Ms. Lafolette:

In accordance with your request, we have inspected the above-referenced property in order to provide an agricultural impact assessment for the proposed Puunene 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 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 Mokulele 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 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.

2073 Wells Street, Suite 100 ◆ Wailuku, Maui, HI 96793 ◆ Telephone: (808) 242-6481 ◆ Fax: (808) 242-1852

Ms. Blanca Lafolette
October 6, 2011
Page 2

Thank you for allowing us the opportunity to work on this interesting assignment.

Respectfully submitted,
ACM Consultants, Inc.

Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Shane M. Fukuda
Certified General Appraiser,
State of Hawaii, CGA-810
Expiration: December 31, 2011

TABLE OF CONTENTS

Page
PART I – INTRODUCTION ii
A. EXECUTIVE SUMMARY ii
B. PURPOSE OF THE REPORT iii
C. INTENDED USE OF THE REPORT iv
D. INTENDED USER OF THE REPORT iv
E. SCOPE OF THE REPORT iv
F. STATEMENT OF COMPETENCY iv
G. EXTRAORDINARY ASSUMPTIONS AND HYPOTHETICAL CONDITIONS iv
H. CONFIDENTIALITY PROVISION v
I. CERTIFICATION vi
PART II – FACTUAL DATA 1
A. AGRICULTURAL OVERVIEW 1
B. AGRICULTURAL REGIONS AND PRODUCTS 2
D. AGRICULTURAL LAND OWNERSHIP 3
E. FARMING TRENDS 5
F. REGIONAL CHARACTERISTICS 8
G. SUBJECT CHARACTERISTICS 9
PART III – AGRICULTURAL IMPACTS AND CONCLUSION 14
A. REGIONAL AGRICULTURAL SUPPLY 14
B. NEIGHBORING OPERATIONS 14
C. ON-SITE OPERATIONS 15
D. AGRICULTURAL ECONOMIC IMPACTS 15
E. GOVERNMENTAL POLICY 16
F. OFFSETTING BENEFITS 16
G. CONCLUSION 17
PART IV - EXHIBITS AND ADDENDA

EXHIBITS
Exhibit A Photographs of the Subject
Exhibit B Selected Maps of the Subject

ADDENDA
Definitions
Limiting and Contingent Conditions
Qualifications of the Consultant

PART I – INTRODUCTION

A. EXECUTIVE SUMMARY

Background

The proposed Puunene 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 Mokulele 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 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.

Study Objectives

ACM Consultants, Inc. has been retained by CMBY 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 impacts to agriculture. Based on the consultant's research, removal of the subject parcel's 86 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 agribusiness operation is highly unlikely.

Adjacent uses 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 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 intrusions caused by the Proposed Project's heavy industrial users 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 Kihei-Makena Community Plan has classified the area adjacent to the subject parcel (approximately 561 acres), as Project District 10 "Old Pu'unene 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; 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 (Agriculture 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 and County 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 Otomo 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 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 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 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 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.

Glenn K. Kunihisa, MAI, CRE
Certified General Appraiser,
State of Hawaii, CGA-039
Expiration: December 31, 2011

Shane M. Fukuda
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:

	Island	County	State
State of Hawaii			1,930,224
Maui County		402,354	
Maui	244,088		
Molokai	111,627		
Lanai	46,639		
Honolulu City & County		128,810	
Oahu	128,810		
Hawaii County		1,214,040	
Hawaii	1,214,040		
Kauai County		185,020	
Kauai	139,320		
Niihau	45,700		

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 declines 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 sell-off 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 Monsanto,

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:

Region	Agricultural Products
Hana	Bananas, Cattle, Flowers, Herbs, Hogs, Nursery Products, Tropical Specialty Fruits, Taro, Vegetables
Kahului/ Wailuku	Bananas, Cattle, Flowers, Hogs, Nursery Products, Pineapples, Seed Crops, Sugarcane, Taro, Vegetables
Kihei	Cattle, Nursery Products, Seed Crops, Sheep
Kula	Avocados, Bananas, Cattle, Flowers, Herbs, Hogs, Papayas, Pineapples, Tropical Specialty Fruits, Vegetables
Lahaina	Bananas, Cattle, Coffee, Nursery Products, Papayas, Pineapples, Seed Crops, Vegetables
Lanai	Bananas, Cattle, Herbs, Papayas
Molokai	Aquaculture, Bananas, Cattle, Coffee, Flowers, Herbs, Hogs, Nursery Products, Papayas, Seed Crops, Taro, Tropical Specialty Fruits, Vegetables

Source: Statistics of Hawaii Agriculture, 2009- State of Hawaii Department of Agriculture

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:

Region	Agricultural Products
Kahuku	Aquaculture, Bananas, Cattle, Flowers, Nursery Products, Papayas, Taro, Vegetables, Watermelon
Kunia	Bananas, Flowers, Herbs, Melons, Nursery Products, Pineapples, Seed Crops, Vegetables, Watercress
Waialua	Aquaculture, Bananas, Cattle, Coffee, Flowers, Lotus Root, Nursery Products, Papayas, Pineapples, Seed Crops, Taro, Tropical Specialty Fruits, Vegetables
Waianae	Flowers, Herbs, Hogs, Nursery Products, Poultry, Vegetables
Waimanalo	Bananas, Flowers, Nursery Products, Poultry, Vegetables

Source: Statistics of Hawaii Agriculture, 2009- State of Hawaii Department of Agriculture

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:

Region	Agricultural Products
Hilo	Citrus, Flowers, Guavas, Macadamia Nuts, Nursery Products, Tropical Specialty Fruits, Vegetables
Honokaa	Bananas, Cattle, Coffee, Forestry, Ginger Root, Macadamia Nuts, Papayas, Taro, Tropical Specialty Fruits, Vegetables
Kamuela	Cattle, Flowers, Nursery Products, Vegetables
Kapaau	Cattle, Flowers, Macadamia Nuts, Nursery Products, Poultry, Sheep
Kealakekua	Aquaculture, Avocados, Cattle, Coffee, Flowers, Forestry, Honey, Macadamia Nuts, Nursery Products, Vegetables
Pahala	Cattle, Citrus, Coffee, Forestry, Macadamia Nuts
Pahoa	Anthuriums, Bananas, Citrus, Flowers, Guavas, Macadamia Nuts, Nursery Products, Papayas, Tropical Specialty Fruits, Vegetables

Source: Statistics of Hawaii Agriculture, 2009- State of Hawaii Department of Agriculture

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:

Region	Agricultural Products
Hanalei	Bananas, Cattle, Guavas, Papayas, Taro, Tropical Specialty Fruits, Vegetables
Hanapepe	Aquaculture, Bananas, Cattle, Coffee, Flowers, Hogs, Honey, Nursery Products, Seed Crops, Sugarcane, Taro
Waitua	Bananas, Cattle Flowers, Nursery Products, Vegetables

Source: Statistics of Hawaii 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 idle 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)

<u>County of Maui, Agricultural Zoned Vacant Land</u>

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):
Alexander & Baldwin, Alpha Omega Holding LLC, Bernice Pauahi Bishop Estate Trust, Cooke Land Company, County of Maui, Dunbar Ranch Partners, Howard Dunnam Trust, East Maui Irrigation Company, Haleakala Ranch, Hana Acquisition Partners LLC, Hana Forest Reserve Corporation, Hawaiian Home Lands, Kaanapali Land Management Corporation, Kaupo Ranch, Kawela Plantation, Homeowners Association, Kualapuu Ag Company LLC, Kula 1800 Investment Partners, Maui Land & Pineapple Company, Molokai Properties, Molokai Ranch, Nu'u Mauka LLC, Pu'u O Hoku Ranch, State of Hawaii, Ulupalakua Ranch, and United States of America

<u>City and County of Honolulu, Agricultural Zoned Vacant Land</u>

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):
Bernice Pauahi Bishop Estate Trust, Castle & Cooke, City & County of Honolulu, Dillingham Ranch Aina LLC, Dole Food Company, George Galbraith Trust, Hawaiian Home Lands, James Campbell Company, James Campbell Trust, Kualoa Ranch, Pioneer Hi-Bred International, Robinson Kunia Land LLC, State of Hawaii, Syngenta Hawaii LLC, and United States of America

<u>County of Hawaii, Agricultural Zoned Vacant Land</u>

Number of Parcels:	61,233 parcels
Total Acreage:	861,904 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, Bernice Pauahi Bishop Estate Trust, Bridge Aina Lea LLC, Bridge Puako LLC, Cambium Pahala, County of Hawaii, EWM Enterprises LP, David Greenwell Trust, Tobi Haleen Trust, Hawaiian Home Lands, Hokukano Ranch, HPAC LLC, Kapua Orchards Estates LLC, Piikoi Kawananakoa, Kilauea Trust I, Kohala Preserve Conservation Trust, Kukaiau Ranch LLC, Lanihau Properties LLC, Mauna Loa Macadamia Orchards LP, Monika Mallick, Peter Matsuura Trust, Maulua Investments LLC, MC Candless Land & Cattle, The Nature Conservancy, New Moon Foundation, Edmund Olson Trust, Parker Land Trust, Parker Ranch, Teresa Prekaski, Priest (Monk) of Bang San Ho Temple, The Queen Emma Foundation, Roman Catholic Church, Sands of South Kona LLC, Show Family Hawaii LLC, Linda Shum, South Kona LLC, SRBIC LLC, Elizabeth Stack, State of Hawaii, Tokyu Corporation, United States of America, W H Shipman, Waikii Ranch, Waikoloa

Mauka LLC, Waikoloa 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):
Bette Midler Family Trust, Bernice Pauahi Bishop Estate Trust, Ben Dyre Family Limited Partnership, Canpartners Realty Holding Company, Gay & Robinson, Grove Farm Company, Jurassic Kahili Ranch LLC, Knudsen Trust, Lihue Plantation Company, McBryde Sugar Company, State of Hawaii, Visionary LLC, John & Marilyn Wells Family Trust

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 leasehold owners, with the leased fee interest 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 on market. In this light, although there are currently over 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, 329 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 1.5 to 13.8 percent between Censuses.

Census Year	Land in Farms (Acres)	Change from Previous (Acres)	Change from Previous (%)
1978	1,988,282	N/A	N/A
1982	1,957,501	-30,781	-1.5%
1987	1,721,521	-235,980	-12.1%
1992	1,588,843	-132,678	-7.7%
1997	1,439,071	-149,772	-9.4%
2002	1,300,499	-138,572	-9.6%
2007	1,121,329	-179,170	-13.8%

Number of Farms

There were 7,521 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.

Census Year	Number of Farms	Change from Previous	Change from Previous (%)
1978	4,310	N/A	N/A
1982	4,595	285	6.6%
1987	4,870	275	6.0%
1992	5,336	466	9.6%
1997	5,473	137	2.6%
2002	5,398	-75	-1.4%
2007	7,521	2,123	39.3%

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.

Census Year	Average Farm Size (Acres)	Change from Previous (Acres)	Change from Previous (%)
1978	461	N/A	N/A
1982	426	-35	-7.6%
1987	353	-73	-17.1%
1992	298	-55	-15.6%
1997	263	-35	-11.7%
2002	241	-22	-8.4%
2007	149	-92	-38.2%

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 25.0 percent between Censuses.

Census Year	Product Market Value Avg/Farm	Change from Previous	Change from Previous (%)
1978	$97,274	N/A	N/A
1982	$121,569	$24,295	25.0%
1987	$125,203	$3,634	3.0%
1992	$103,458	-$21,745	-17.4%
1997	$90,798	-$12,660	-12.2%
2002	$98,819	$8,021	8.8%
2007	$68,292	-$30,527	-30.9%

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 to follow, seed corn production value in 2009 was greater than the rest of the top 10 commodities combined:

2009 Rank	Commodity	Production Value Year 2008	Production Value Year 2009	Change from Previous ($)	Change from Previous (%)
1	Seed Crops	$176,990,000	$222,560,000	$45,570,000	25.7%
2	Sugarcane	$44,200,000	$44,200,000	$0	0.0%
3	Coffee	$29,580,000	$31,320,000	$1,740,000	5.9%
4	Macadamia Nuts	$33,500,000	$29,400,000	-$4,100,000	-12.2%
5	Cattle	$24,305,000	$28,945,000	$4,640,000	19.1%
6	Algae	$15,740,000	$16,995,000	$1,255,000	8.0%
7	Papayas	$14,393,000	$14,186,000	-$207,000	-1.4%
8	Bananas	$8,004,000	$10,175,000	$2,171,000	27.1%
9	Eggs	$8,678,000	$8,759,000	$81,000	0.9%
10	Milk	$5,460,000	$7,491,000	$2,031,000	37.2%

Rounding out the top 20 commodities for 2009 were basil, sweet potatoes, potted palms, potted dendrobiums, cut anthuriums, hogs, head cabbage, potted dracaena, taro and ginger root. 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 historically been dominated by larger operations like Maui Land & Pineapple Company and Alexander & Baldwin's Hawaii Commercial and Sugar (HC&S).

Pineapple now faces more foreign competition from places like Thailand. In 2007, Maui Land & Pineapple Company shut down the canning portion of its operation to rely solely on the more profitable fresh fruit segment. Downsizing 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 arm, citing continued annual losses. However, a new company, Haliimaile Pineapple Company, was formed the following week and immediately took over 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 were drought conditions on Maui between 2007 and 2009, contributing to low yields. According to HC&S, future viability is heavily dependent on continued stream diversion; however, there have been opposition to this continued practice. HC&S continues to re-evaluate its operations to remain viable, including consideration of potential biofuels 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 imparted to this economy an important, if underestimated, non-pecuniary benefit; 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 affects others for better or worse, without those others paying or being compensated for activity.

Anyone who doubts that logic now has only to drive the West Maui coast from Olowalu to Kaanapali and look mauka, 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 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 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 alfalfa, as well as taro.

G. SUBJECT CHARACTERISTICS

Environs

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 Cement quarry, the Maui Army National Guard Armory, and the Maui Humane Society are located nearby. Central Maui Baseyard, a light/heavy industrial yard storage development, 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 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, 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 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 Pulehunui 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 Kamaaina Road, South Firebreak Road and Lower Kihei 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 Kihei 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 with A&B, via an easement around the northern and eastern sides of Reservoir 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 subject parcel is encumbered 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 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 (WID2), with some parts of Alae cobbly sandy loam, 3 to 7 percent slopes (AcB).

Soil Ratings: The USDA National Conservation Research Service Land Capability Grouping (non-irrigated) for the subject parcel indicated soil consisting primarily of Subclass VIIs with some parts designated Subclass VIs. Subclass VIIs 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 VIs 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 Hawaii (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 Hawaii 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 site.

Solar Radiation: 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 translated into an average of 5.2 to 5.8 peak sun hours daily.

Rainfall: Recording stations closest to the Proposed Project are located in Kahului 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 Kahului 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 Kahului and Makena. USDC National Oceanographic and Atmospheric Administration temperature data showed that between 1997 and 2009 the annual temperature recorded at the Kahului 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

State of Hawaii: As depicted on State of Hawaii 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 District.

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 M-2 or M-3 Heavy Industrial District would be needed for the Proposed Project.

Kihei-Makena Community Plan: As shown on Kihei-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 assimilated with Project District 10, if feasible.

The current Kihei-Makena Community Plan (1998) describes the area adjacent to the subject Parcel as Project District 10 (Old Pu'unene 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 Uses: 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 piggery 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 Mokulele 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 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.

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 inferior potential for feasible 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 355,786 acres reported in 1992 Ag Census, the 2009 figure represented a decrease of over 125,000 acres, or approximately 35 percent of the total Maui County farm land. 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-hundredths 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, consolidation 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 actually 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 agribusinesses. 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 intrusions 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 VII with some parts designated Class VI. 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 reduce 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 Kihei-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 be 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 Kihei-Makena Community Plan has classified approximately 561 acres adjacent to the subject parcel, as Project District 10 "Old Pu'unene 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 Kihei-Makena Community Plan has classified approximately 561 acres adjacent to the subject parcel as Project District 10 "Old Pu'unene 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 light of the potential heavy industrial users expected to occupy this development, there may be an increase in odor, dust, smoke, gas, noise, vibration, etc. Since the surrounding users already produce some of these intrusions themselves, these impacts to the subject parcel and adjacent operations is foreseen as being mutually acceptable.

Changes to current land use controls will be needed, prior to the proposed development of the subject parcel. State and County classifications for the subject parcel currently suggest an agricultural use. Generally, the purpose of the agricultural classifications is to preserve agricultural land, as well as to foster the growth and diversification of agriculture. These uses are based on the premise 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; poor subject soil quality; and complementary surrounding uses, the agricultural impacts attributed to the proposed 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.

EXHIBITS

EXHIBIT A

Photographs of the Subject Site

Photograph No. 1

View of northerly portion of subject.
The camera is facing southeasterly.

Photograph No. 2

View of southern portion of subject.
The camera is facing northerly.

PHOTOGRAPHS OF THE SUBJECT

Photograph No. 3

View of easterly portion of subject.
The camera is facing northeasterly.

Photograph No. 4

View of westerly portion of subject.
The camera is facing northwesterly.

PHOTOGRAPHS OF THE SUBJECT

Photograph No. 5

View of proposed entrance to subdivision. The camera is facing southerly.

Photograph No. 6

View of Lower Kihei Road and South Fire Break Road, portions of which will become access easements in favor of the subject. The camera is facing northwesterly.

PHOTOGRAPHS OF THE SUBJECT

Photograph No. 7

View of Kamaaina Road, a portion of which will become an access easement in favor of the subject. The camera is facing easterly.

Photograph No. 8

View of intersection of Kamaaina Road and Mokulele Highway. The camera is facing westerly.

PHOTOGRAPHS OF THE SUBJECT

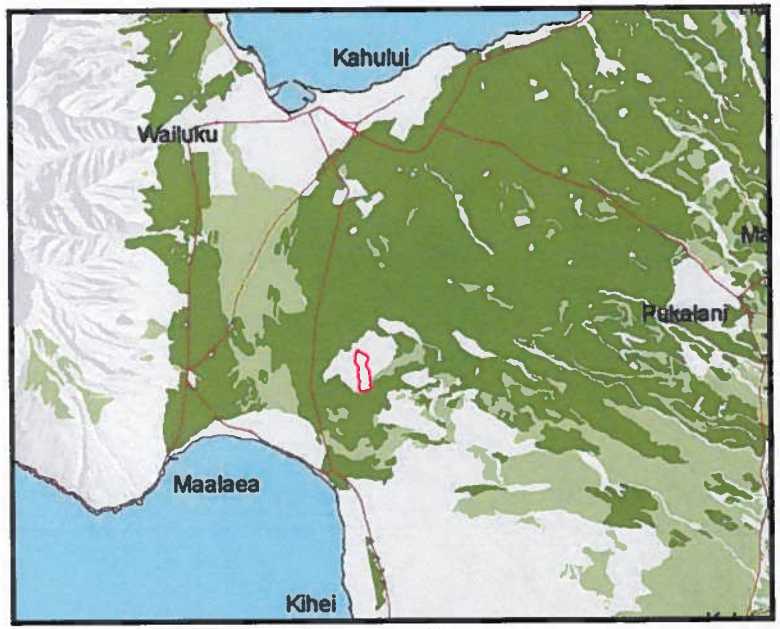
Not to scale...Area shown is approximate and for illustrative purposes only!
Source: USDA Natural Resources Conservation Service (Unconfirmed)

WEB SOIL SURVEY MAP

EXHIBIT B
Selected Maps of the Subject

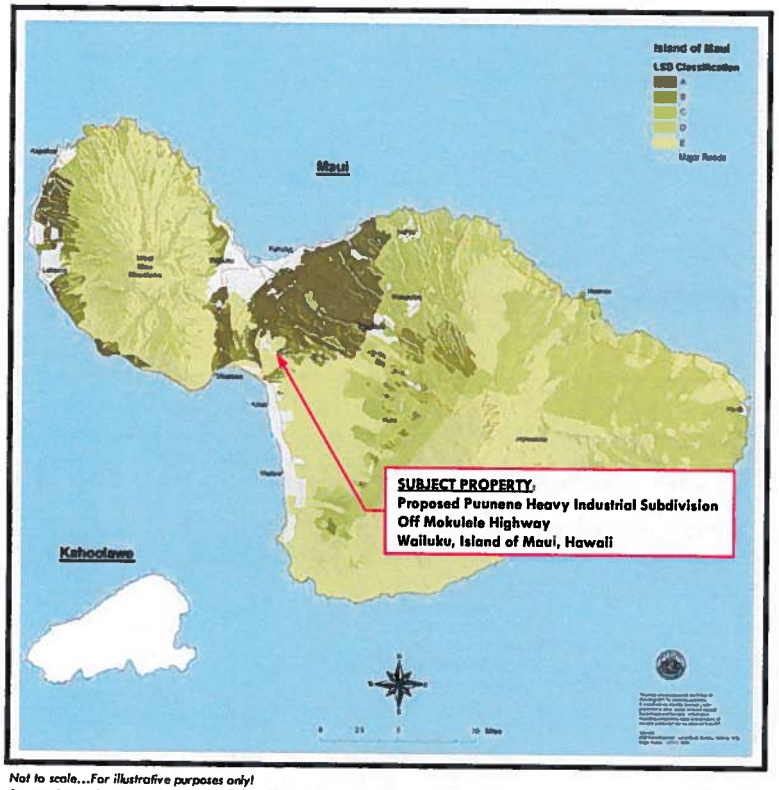
Not to scale...For illustrative purposes only!
Source: State of Hawaii Office of Planning (Unconfirmed)

AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAII MAP



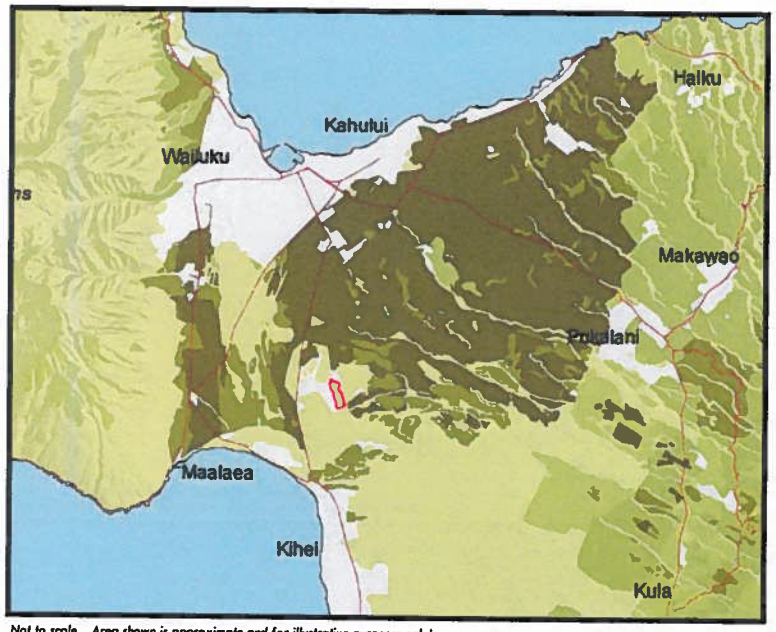
Not to scale...Area shown is approximate and for illustrative purposes only!
Source: State of Hawaii Office of Planning (Unconfirmed)

PORTION OF ALISH MAP



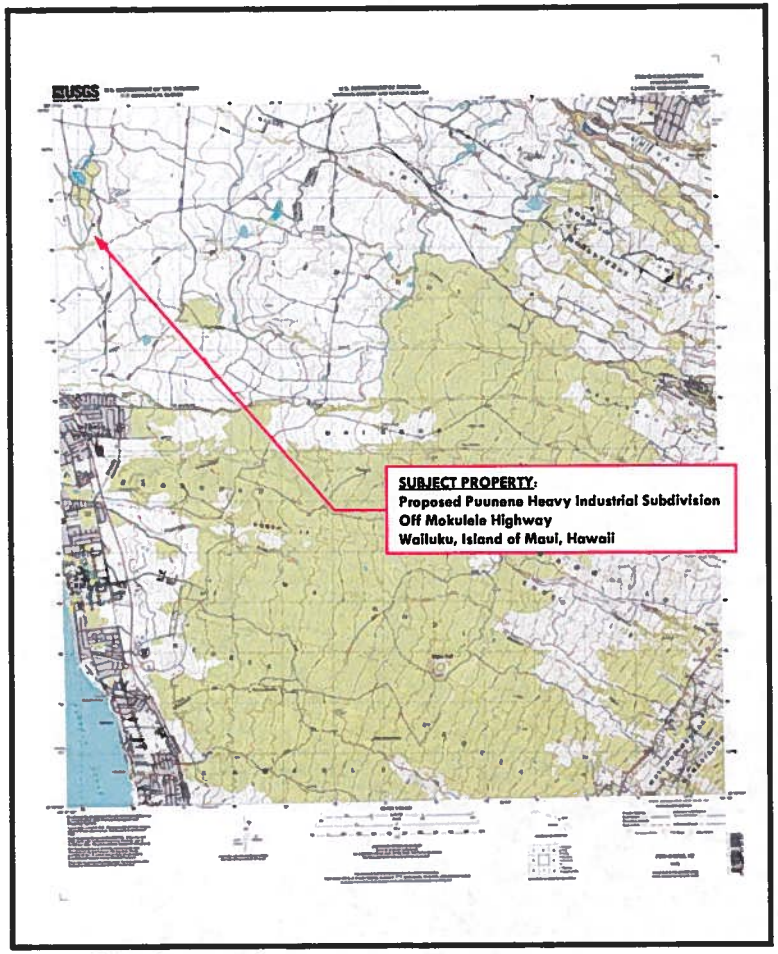
Not to scale...For illustrative purposes only!
Source: State of Hawaii Office of Planning (Unconfirmed)

LAND STUDY BUREAU CLASSIFICATION MAP



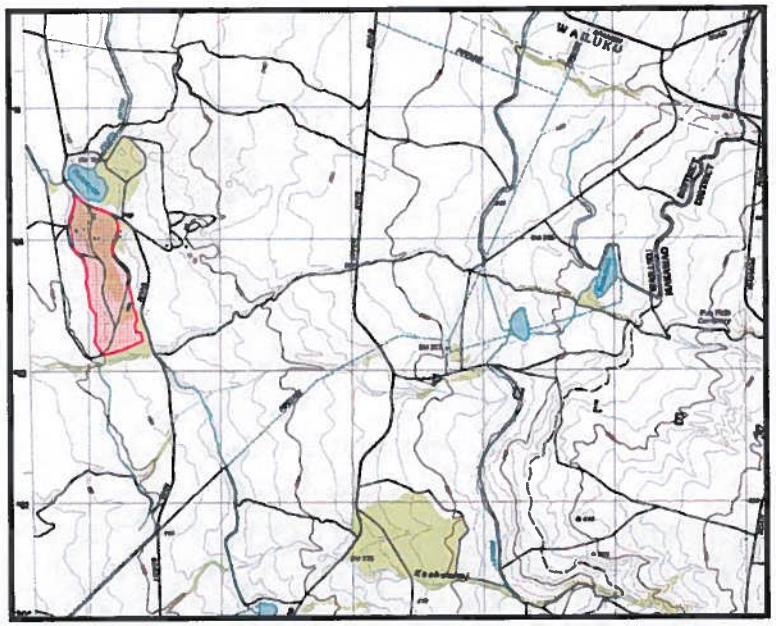
Not to scale...Area shown is approximate and for illustrative purposes only!
Source: State of Hawaii Office of Planning (Unconfirmed)

PORTION OF LSB MAP



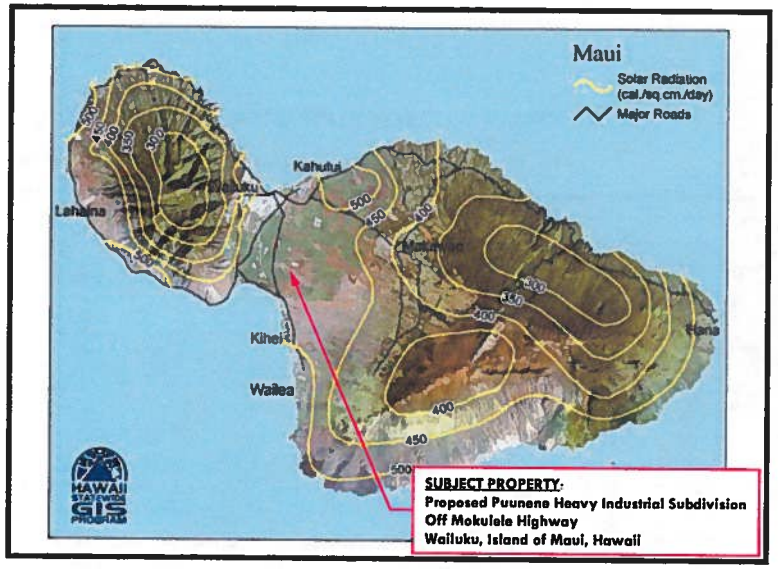
Not to scale...For illustrative purposes only!
Source: US Department of the Interior (Unconfirmed)

US GEOLOGICAL SURVEY ELEVATION MAP



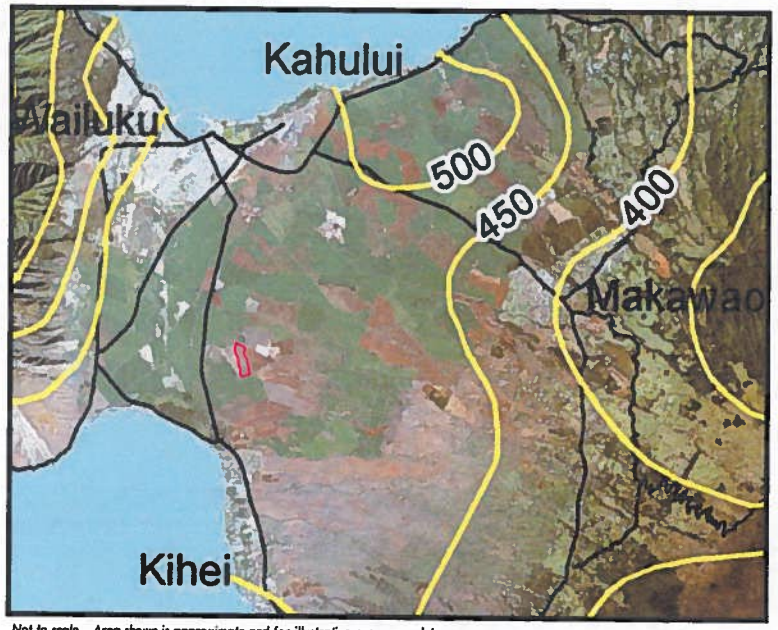
Not to scale...Area shown is approximate and for illustrative purposes only!
Source: US Department of the Interior (Unconfirmed)

PORTION OF USGS ELEVATION MAP



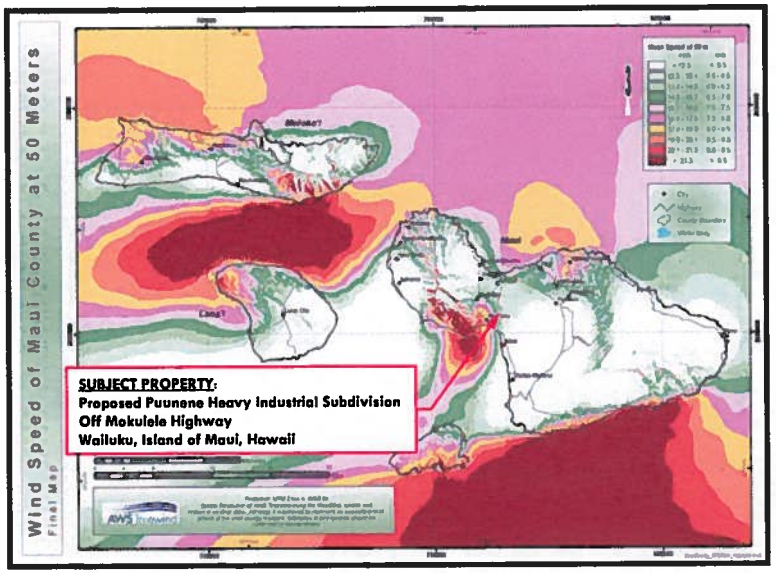
Not to scale...For illustrative purposes only!
Source: State of Hawaii Department of Business, Economic Development and Tourism (Unconfirmed)

SOLAR RADIATION MAP



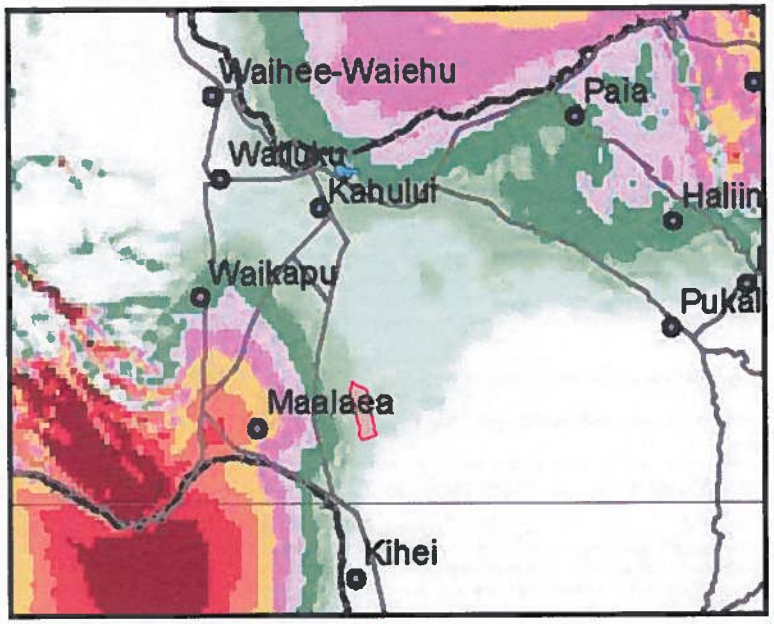
Not to scale...Area shown is approximate and for illustrative purposes only!
Source: State of Hawaii Department of Business, Economic Development and Tourism (Unconfirmed)

PORTION OF SOLAR RADIATION MAP



Not to scale...For illustrative purposes only!
Source: Hawaiian Electric Company, Inc. (Unconfirmed)

WIND SPEED OF MAUI COUNTY AT 50 METERS MAP



Not to scale...Area shown is approximate and for illustrative purposes only!
Source: Hawaiian Electric Company, Inc. (Unconfirmed)

PORTION OF WIND SPEED MAP

ADDENDA

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 (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 value; 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, 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 o necessity to buy would be willing to pay to purchase the property in a current sale.

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 "mauka" and "makai" are commonly used in the islands as indicators of direction. The word "mauka" 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 results in the highest value. The four criteria the highest and best use must meet are legal permissibility, 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 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 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 lessor (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 revaluation, 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 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 fees or concessions granted by anyone associated with the transaction.

Market Value

The major focus of most real property appraisal assignments. Both economic and legal definitions of market value have been developed and refined. Continual refinement is essential to the growth of the appraisal profession.

The most 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 precisely revealed 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 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 and open 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 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;
- Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and

- 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 2-2(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 appraisal and providing sufficient information so that the client and the users of the report will understand the appraisal and not be misled or confused.

Summary Appraisal Report: A written report prepared under Standards Rule 2-2(b) or 8-2(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 2-2(c), 8-2(c), or 10-2(b). 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 set forth under Standards Rule 5 of the Uniform Standards of Professional Appraisal Practice for a Counseling Report. The information contained in this report is specific to the needs of the client and for the intended use stated in this report. The Consultant is not responsible for unauthorized 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 XI of the Federal Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

2. No responsibility is assumed for legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated in this report.

3. The property analyzed is free and clear of any or all lines and encumbrances unless otherwise stated in this report.

4. Responsible ownership and competent property management are assumed unless otherwise 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 assumed to be correct. Any plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.

7. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No 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 stated in this report.

9. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a non-conformity has been stated, defined, and considered in this counseling report.

10. It is assumed that all required licenses, 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 estimates contained in this report are based.

11. Any sketch 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. No guarantee as to accuracy is expressed or implied unless otherwise stated in this report. No survey has been made for the purpose of this report.

12. It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless otherwise stated in this report.

13. The Consultant is not qualified to detect hazardous waste and/or toxic materials. Any comment by the Consultant that might suggest the possibility of the presence of such substances should not be taken as confirmation of the presence of hazardous waste and/or toxic materials. Such determination would require investigation by a qualified expert in the field of environmental assessment. The presence of substances such as asbestos, urea-formaldehyde foam insulation, or other potentially hazardous materials may affect the value of the property. The Consultant's value estimate is predicated on the assumption that there is no such material on or in the property that would cause a loss in value unless otherwise stated in this report. No responsibility is assumed for any environmental conditions, or for any expertise or engineering knowledge required to discover them. The Consultant's descriptions and resulting comments are the result of the routine observations made during the analysis process.

14. Unless otherwise stated in this report, the subject property is evaluated without a specific compliance survey having been conducted to determine if the property is or is not in conformance with the requirements of the Americans with Disabilities Act. The presence of architectural and communications barriers that are structural in nature that would restrict access by disabled individuals may adversely affect the property's value, marketability, or utility.

15. Any proposed improvements are assumed to be completed in a good workmanlike manner in accordance with the submitted plans and specification.

16. The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.

17. Possession of this report, or a copy thereof, does not carry with it the right of publication. It may not be used for any purpose by any person other than the party to whom it is addressed without the written consent of the consultant, and in any event, only with property written qualification and only in its entirety.

18. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the Consultant, or the firm with which the Consultant is connected) shall be disseminated to the public through advertising, public relations, news sales, or other media without prior written consent and approval of the Consultant.

ACCEPTANCE OF, AND/OR USE OF THIS APPRAISAL REPORT BY CLIENT OR ANY THIRD PARTY CONSTITUTES ACCEPTANCE OF THE ACM CONSULTANTS, INC., CERTIFICATION, LIMITING AND CONTINGENT CONDITIONS. CONSULTANT LIABILITY EXTENDS ONLY TO STATED CLIENT, NOT SUBSEQUENT PARTIES OR USERS OF ANY TYPE, and the total liability of Consultant(s) and firm is limited to the amount of fee received by Consultant.

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, 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
Alii 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&B Commercial Company; a division of Alexander & Baldwin, Inc. - 1979 to 1985
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
Iolani 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	*Online Valuation of Green Residential Properties* Chicago, Illinois – July 2010
Seminar	*Hotel Valuation* Honolulu, Hawaii – February 2010
Seminar	*Online Small Hotel/Motel Valuation* Chicago, Illinois – November 2009
Seminar	*Business Practices and Ethics* Honolulu, Hawaii – September 2009
Seminar	*Hawaii Lands, Historical Review* Lihue, Hawaii – August 2009
Seminar	*Appraisal Challenges: Declining Markets and Sales Concessions* Cambria, California – 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 400	*7-Hour National USPAP Update Course* Honolulu, Hawaii – October 2005
Seminar	*Case Studies in Limited Partnership and Partial Interest Valuation* Honolulu, Hawaii – May 2005
Seminar	*Appraisal Consulting: A Solutions Approach for Professionals* Honolulu, Hawaii – February 2005
Seminar	*Real Estate Finance, Value and Investment Performance* Honolulu, Hawaii – February 2005
Seminar	*Fannie Mae Residential Presentation* 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	*Scope of Work: Expanding Your Range of Services* Chicago, Illinois - August 2003
Course 400	*National Uniform Standards 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 Parts I and II* Honolulu, Hawaii - July 2002
Seminar	*Future of Appraisal Profession from a Global Perspective* Honolulu, Hawaii - July 2002

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	*Easement 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	*Highest and Best Use Applications* Honolulu, Hawaii - September 1997
Seminar	*Detrimental 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 Leased 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

<u>The American Society of Farm Managers and Rural Appraisers, Inc.</u>

Seminar	*Agricultural Lease Valuation* Honolulu, Hawaii – March 2006

<u>Maui Coastal Land Trust</u>

Seminar	*Understanding the New Tax Incentives: Conservation Easements & Other Charitable Contributions* Wailuku, Hawaii – June 2007

<u>Society of Real Estate Appraisers</u>

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

<u>American Institute of Real Estate Appraisers</u>

Seminar	*Rates, Ratios and Reasonableness* 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 - 1990
Seminar	*Capitalization Overview - Part B* Honolulu, Hawaii – 1990
Seminar	*Accrued Depreciation* Honolulu, Hawaii - 1990

<u>International Right of Way Association</u>

Course 101	*Appraisal* Las Vegas, Nevada - October, 1998
Course 101	*Negotiation* Las Vegas, Nevada - October 1998

<u>National Business Institute, Inc.</u>

Seminar	*Commercial Real Estate Leasing In Hawaii* Honolulu, Hawaii - 1989

<u>American Arbitration Association</u>

Seminar	*Real Estate Dispute Resolution - Mediation and Arbitration* Kahului, Maui, Hawaii - October, 1990

PROFESSIONAL QUALIFICATIONS

Shane M. Fukuda

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State Certified General Appraiser
State of Hawaii, License No. CGA-810, July 1, 2007
Expiration: December 31, 2011

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EMPLOYMENT

ACM Consultants, Inc.
November 2009 to Present
Vice President – Commercial Division
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Rental Agent; Lead Rental Agent; Station Manager; Senior Station Manager

GENERAL EDUCATION

Maui Community College, 1989-1990
Henry Perrine Baldwin High School, 1989

APPRAISAL EDUCATION

Appraisal Institute

Course 501GD 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 Practices and Ethics*
Chicago, Illinois – December 2009

Seminar *Online Small Hotel/Motel Valuation*
Chicago, Illinois – December 2009

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 12.0*
Honolulu, Hawaii – July 2005

APPENDIX O

Groundwater
Resource and
Water System
Assessment

Groundwater Resource and Water System Assessment for the Proposed Puunene Industrial Subdivision in Kahului, Maui

Prepared for:

CMBY 2011 Investment, LLC
P. O. Box 220
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September 2011

Table of Contents

	Page
Introduction	1
Projected Potable and Non-Potable Supply Requirements	1
Sizes of the Water System Infrastructure	4
Onsite Wells	4
RO Treatment	4
Potable Reservoir Storage	4
Non-Potable Storage Reservoir	4
Pumped Distribution	5
System Layout	5
Impact on Water Resources	5
Groundwater Occurrence	7
Groundwater Flowrate Beneath the Project Site	9
Groundwater Quality	9
Project's Estimated Changes to the Groundwater Flowrate	9
Project's Estimated Changes to Groundwater Salinity and Nutrient Levels	13

List of Figures

No.	Title	Page
1	Geographic Location Map	2
2	Concept Site Plan	3
3	Layout of Major Elements of the Dual Water System for the Puunene Heavy Industrial Subdivision	6

List of Tables

No.	Title	Page
1	Data on Wells in the General Vicinity of the Puunene Heavy Industrial Subdivision Site	8
2	MWH Hits Report	10
3	Nutrient and Salinity Levels in Kahului Groundwater	11
4	Summary of Estimated Changes to Groundwater as a Result of the Proposed Puunene Heavy Industrial Subdivision	15

Introduction

CMBY 2011 Investment, LLC proposes to develop the Puunene Heavy Industrial Subdivision on TMK 3-8-08:19, 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

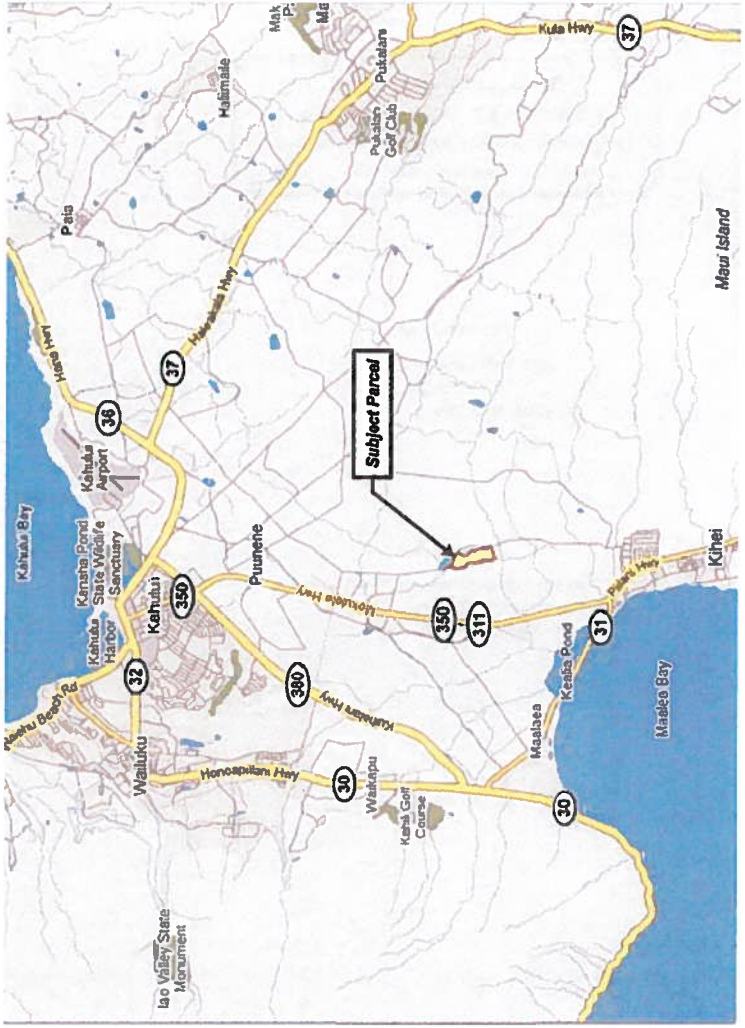
DWS' design standard for industrial use of 6000 gallons per day per acre (GPD/acre) is adopted herein. In addition, it is assumed that the drainage retention area will be landscaped and irrigated at an average of 2500 GPD/acre and that 20 percent of the gross roadway ROW would also be irrigated at 2500 GPD/acre. The latter is equivalent to 500 GPD per gross acre of roadway ROW. The Honolulu Board of Water Supply's (BWS') dual 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 tallied below.

Projected Average Demand for the Puunene Heavy Industrial Subdivision

Land Use	Area (Acres)	Total		Potable		Non-Potable	
		Use Rate (GPD/Unit)	Amount (GPD)	Use Rate (GPD/Unit)	Amount (GPD)	Use Rate (GPD/Unit)	Amount (GPD)
Industrial Lots	66	6000	396,000	1800	118,800	4200	277,200
Drainage Retention	9	2500	22,500	0	0	2500	22,500
Roadway	11	500	5,500	0	0	500	5,500
Totals	86	–	424,000	–	118,800	–	305,200

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 3.0 times the average amounts.



PU'UNENE 86-ACRE PARCEL

Not to Scale

GEOGRAPHIC LOCATION MAP

CHRIS HART & PARTNERS

o_11-30

Figure 1

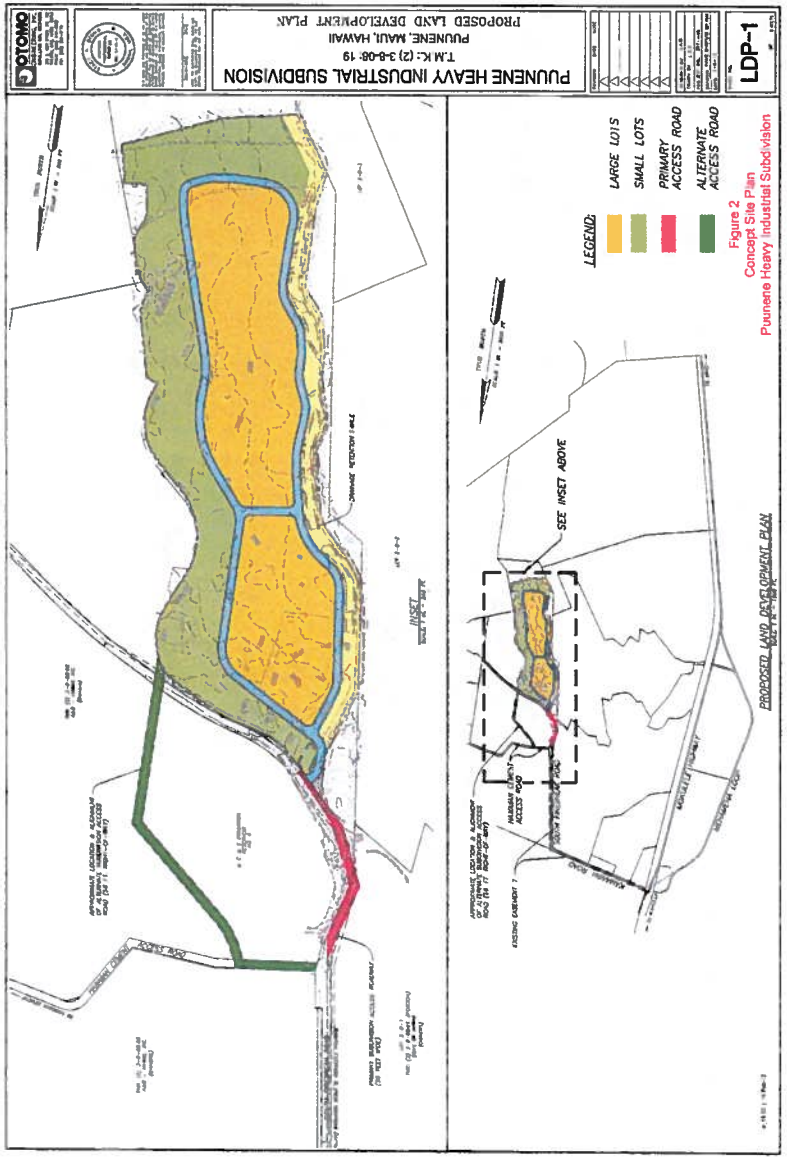


Figure 2
Concept Site Plan
Puunene Heavy Industrial Subdivision

- 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 flowrate sizing criterion.
- 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 site which will draw water from a relatively thin basal lens, a 24-hour pumping day is a more appropriate criterion.
- To account for uncertainty in the 30/70 assumed split between potable and non-potable uses, flowrates used for sizing of all potable system components -- source of supply, reservoir storage, and pipelines -- will be increased by a factor of 20 percent.
- Based on the salinity of onsite Well 4927-01 (discussed subsequently), it is assumed that the RO treatment will convert 60 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 flowrate conditions.

Sizes of the Water System Infrastructure

Onsite Wells. The non-potable system's maximum day design use is 457,800 GPD (305,200 GPD x 1.5). 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 60 percent rate of RO product recovery, the potable supply capacity will need to be 356,400 GPD. Together with the non-potable supply requirement, a "safe" well pumping capacity of 814,200 GPD or 565 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 flowrate sizing criterion is based on:

- DWS' 2500 GPM fire flowrate for two hours;

- Coincident maximum day non-potable demand of 318 GPM for the two-hour period;
- Coincident feedwater 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 394,880 gallons, the governing storage criterion. Non-potable reservoir storage of 0.40 MG is proposed.

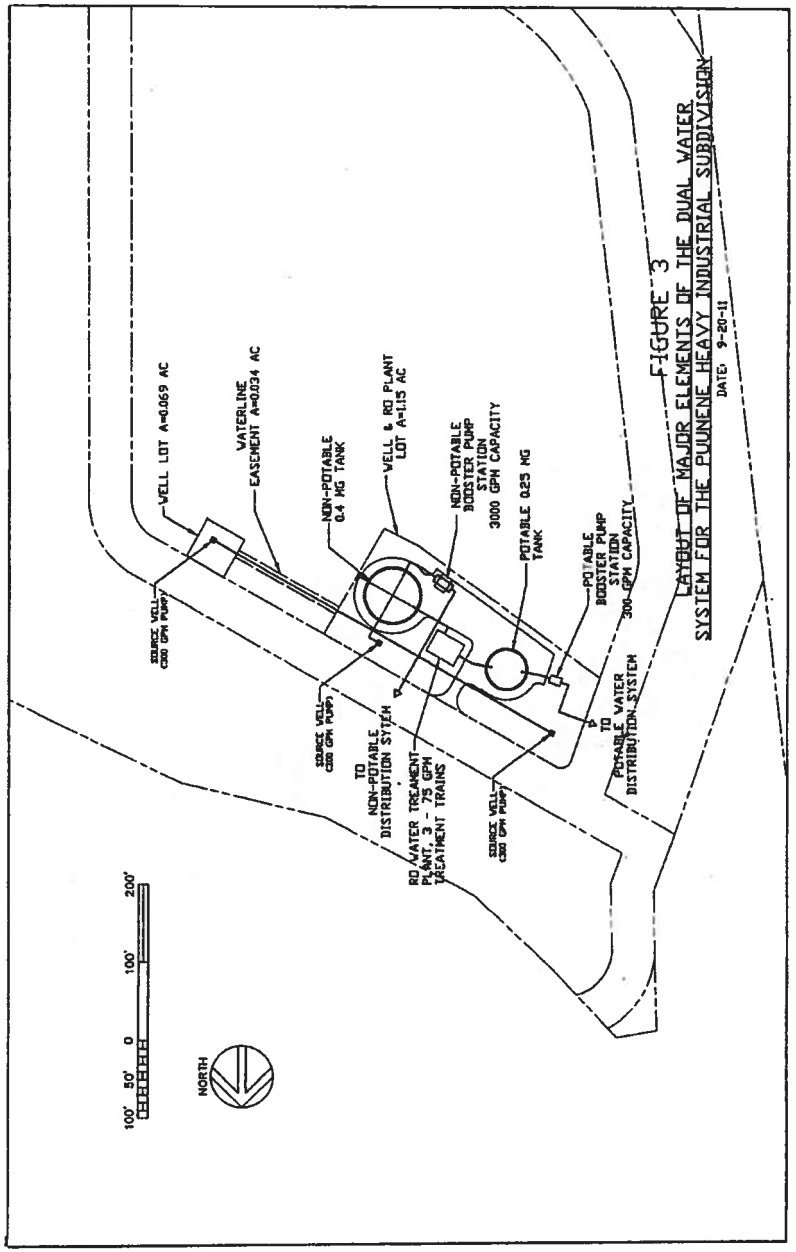
Pumped Distribution. The potable and non-potable storage reservoirs would be onsite and would not provide sufficient gravity pressure for customer use or fire protection. Two automated, multiple pump stations would be provided with start/stop control to maintain system pressure. The potable pump station would be sized to meet peak the flowrate requirement (with the 1.2 factor) of 248 GPM. A capacity of 300 GPM is proposed. A 3000 GPM non-potable pump station would provide the 2500 GPM fire flowrate with the 316 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 9-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 leachfields;
- 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 HC&S for sugarcane irrigation for more than 70 years. Groundwater in the Kahului isthmus 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 Maliko 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 isthmus is only on the order of five (5) MGD, pumpage by the HC&S 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 Waihee Ditch system of West Maui; and irrigation return from HC&S fields and other agricultural areas.
- Both shorelines, Maliko 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 HC&S 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.

Table 1. Data on Wells in the General Vicinity of the Puunene Heavy Industrial Subdivision Site*

Well												
State Number	Owner / Name	Year Drilled	Casing Diameter (Inches)	Ground Elevation (Feet MSL)	Total Depth (Feet)	Elevation at Bottom (Feet MSL)	Lengths of Casing: Solid (Feet)	Lengths of Casing: Perforated (Feet)	Static Water Level (Feet MSL)	Chlorides (MG/L)	Hydraulic Performance Drawdown @ Flowrate (Feet @ GPM)	Installed Pump Capacity (GPM)
4727-01	HC&S Kihei Shaft (Shaft 14)	1900	Shaft	28	23	3			3.5	450-650		3,340
4825-01	HC&S Kihei Shaft 15	1900	Shaft	329					3.6	280-490		12,600
4827-01	Ehrer's Farm	7	8	120	148	-28	118	30		250	0.4 @ 240	None
4828-01	Puunene Airport	1942	8	70	70	0						Sealed
4828-02	Puunene Airport	1942	72	50	53	-3						Sealed
5027-01	S & F Test Hole	2009	12	136	158	-22	131	20	2.85	275	0.1 @ 305	
5028-01	HC&S	1926	?	106	146	-40			5.5	80-125		
5028-02	HC&S TH	1939	1	120	400	-280	142	358	2.4			
5127-01	Puunene	?	?	105	165	-60			5.0			
5128-01	HC&S TH	1926	6	145	185	-40			5.0	270		
5128-02	HC&S Shaft 16	1926	Shaft	126	129	-3			5.7	250 to 620	4.7 @ 9444	25,200
5129-04	A&B Waiale 1	2007	14	183	208	-25	177	31	3.4	40	0.4 @ 500	450
5129-05	A&B Waiale 2	2009	14	184	217	-33	181	30	3.3	35	1.1 @ 500	480
5228-02	Puunene Pump 6 Shaft 18	1934	Shaft	182	176	+6 (?)			4.4	330 to 490		16,100
5227-04	Puunene Pump 8 Shaft 17	1939	Shaft	80								9,440
5227-05	Puunene Pump 19 Shaft 35	1952	Shaft	?								7,360

* Information as available from the files of the State Commission on Water Resource Management.

Groundwater Flowrate Beneath the Project Site. With sources of recharge to the aquifer coming from various directions and significant pumpage occurring at the active HC&S well batteries, 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 0.6 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 4927-01 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 DOH for drinking water use. During the well's short-term pump test, the salinity of the pumped water was stable and only slightly brackish: salinity was 0.80 parts per thousand (PPT); specific conductance was 1600 µS/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 Malaea Bay 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 0.80 PPT; nitrogen concentration of 330 micro-molar (µM); and phosphorus concentration of 3.4 µM.

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:

MWH LABORATORIES
A Division of MWH Americas, Inc.
750 Royal Oak Dr., Suite 100
Monrovia, California, 91016-3629
Tel: 626 386 1100
Fax: 626 386 1101
1 800 566 LABS (1 800 566 5227)

Laboratory
Hits Report: 338488

Tom Nance Water Resource Engineering
Tom Nance
680 Ala Moana Blvd. Suite 406
Honolulu, HI 96813

Samples Received on:
07/15/2010

Analyzed		Analyte	Sample ID	Result	Federal MCL	Units	MRL
		201007150633	Elmer Farm Well				
07/21/2010	22:06	Alkalinity in CaCO3 units		290		mg/L	2
07/20/2010	17:15	Arsenic Total ICAP/MS		1.7	10	ug/L	1
07/29/2010	20:58	Atrazine		0.12	3	ug/L	0.05
07/20/2010	17:15	Barium Total ICAP/MS		3.9	2000	ug/L	2
07/22/2010	12:45	Beta, Gross		3.1		pCi/L	3
07/21/2010	7:23	Calcium Total ICAP		23		mg/L	1
07/22/2010	03:40	Chromium Total ICAP/MS		5.3	100	ug/L	5
07/20/2010	17:15	Copper Total ICAP/MS		2.8	1300	ug/L	2
		Field pH		7.6		Units	0.1
		Field Specific Conductance		1567		umho/cm	
07/23/2010	12:37	Fluoride		0.68	4	mg/L	0.05
07/20/2010	17:15	Lead Total ICAP/MS		1.5	15	ug/L	0.5
07/15/2010	19:54	Nitrate as Nitrogen by IC		4.5	10	mg/L	0.5
07/15/2010	19:54	Nitrate as NO3 (calc)		20	45	mg/L	2.2
07/16/2010	18:43	PH (H3=past HT not compliant)		8.1		Units	0.1
07/17/2010	13:41	Specific Conductance, 25 C		1600		umho/cm	2
07/16/2010	08:59	Turbidity		1.2	5	NTU	0.05

Table 2

o_11-30

SUMMARY OF POSITIVE DATA ONLY

Table 3

Nutrient and Salinity Levels in Kahului Groundwater

Well		Date Sampled	Forms of Nitrogen				Forms of Phosphorus			Silica (µM)	Salinity (PPT)
State No.	Name		NO_3 (µM)	NH_4 (µM)	DON (µM)	TN (µM)	PO_4 (µM)	DOP (µM)	TP (µM)		
4727-01	HC&S Pump 1	8-24-10	569				2.77			823	1.24
4728-08	Kealia A5	8-24-10	85.6	0.20	0.36	86.2	2.20	0.32	2.52	864	1.19
4728-09	Kealia C	8-24-10	91.5	0.60	6.88	99.0	3.28	0.12	3.40	881	1.28
4825-01	HC&S Pump 3	8-24-10	236				3.34			970	0.67
4829-02	MECO-1	10-29-10	271	0.84	25.4	297	2.80	0.36	3.16	596	8.50
4829-03	MECO-2	10-29-10	278	1.32	10.8	290	2.92	0.04	2.96	601	8.39
4830-01	Maalaea Triangle	6-09-11	191	0.20			8.50			859	0.94
4927-01	Elmer's Farm	8-24-10	333				3.73			987	1.10
4930-01	Pohakea 1	2-11-11	152	3.60			5.50			1250	0.43
5128-02	HC&S Pump 7	8-24-10	511				1.91			813	0.84
5227-05	HC&S Pump 19	8-24-10	388				2.00			1001	1.25

- Pumpage 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 0.198 MGD. The non-potable use would average 0.305 MGD, bringing the total groundwater pumpage to 0.503 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 0.079 MGD.
- Return to Groundwater as Treated Domestic Wastewater. Of the estimated 0.119 MGD for within-building potable use, it is assumed that 90 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 66 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 0.081 MGD. Of this amount, it is assumed that 15 percent or 0.012 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-Recharge 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 0.038 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 onsite Well 4927-01 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 secondarily treated effluent, is it assumed that the salinity would be doubled (to 0.30 PPT) and that nitrogen and phosphorus concentrations discharged in the leach fields would be 1750 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 to an average of four pounds/year/1000 ft^2 and phosphorus would be applied at 0.5 pounds/year/1000 ft^2; 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 non-existent. 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, alluvium, 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 95 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 Kealia National Wildlife Refuge. These are pumped seasonally when surface water is insufficient to maintain the ponds and wetlands areas. The projected changes due to the development of the Puunene Heavy Industrial Subdivision should be of no consequence to this ongoing use.

- a 5.7 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 4

Summary of Estimated Changes to Groundwater as a
Result of the Proposed Puunene Heavy Industrial Subdivision

I t e m	Flowrate (MGD)	Salinity (PPT)	Nitrogen (lbs / day)	Phosphorus (lbs / day)
Existing Conditions				
• Groundwater Entering Mauka End of Site	4.0	0.80	153.9	3.51
• Addition of Onsite Rainfall-Recharge	0.038	0.12	Neg.	Neg.
Groundwater Leaving the Makai End of Site	4.038	0.79	153.9	3.51
Changes as a Result of the Project's Development				
• Withdrawal by Onsite Wells	-0.503	0.80	-19.35	-0.442
• Rainfall-Recharge	No Change	--	0.11	0.005
• Disposal of Domestic Wastewater	0.107	0.30	10.92	0.552
• Excess Landscape Irrigation	0.012	1.60	0.54	0.003
• Disposal of RO Concentrate	0.079	2.02	6.91	0.120
• Other Non-Potable Water Use	0.075	1.60	2.85	0.013
Total for All Changes	-0.230	0.31	1.98	0.251
Post-Development Groundwater Leaving the Makai End of the Site				
• Quantities	3.808	0.82	155.9	3.761
• Percent Change	5.7% Decrease	3.8% Increase	1.3% Increase	7.1% Increse

o_11-30 / 20 Sept-11

APPENDIX P

Preliminary
Engineering Report

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
Kihei, Maui, Hawaii 96753

Prepared by:

OTOMO ENGINEERING, INC.

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February 2012

TABLE OF CONTENTS

1.0 INTRODUCTION
2.0 EXISTING INFRASTRUCTURE
- 2.1 ROADWAYS
- 2.2 DRAINAGE
- 2.3 SEWER
- 2.4 WATER
- 2.5 ELECTRIC AND TELEPHONE

3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS
- 3.1 ROADWAYS
- 3.2 DRAINAGE
- 3.3 SEWER
- 3.4 WATER
- 3.5 ELECTRIC AND TELEPHONE

EXHIBITS
- 1 LOCATION MAP
- 2 VICINITY MAP
- 3 SOIL SURVEY MAP
- 4 FLOOD INSURANCE RATE MAP
- 5 PRELIMINARY SITE PLAN
- 6 PRELIMINARY GRADING AND DRAINAGE PLAN

APPENDICES
- A HYDROLOGIC CALCULATIONS
- B WATER DEMAND CALCULATIONS

REFERENCES

PRELIMINARY ENGINEERING REPORT
FOR
PUUNENE HEAVY INDUSTRIAL SUBDIVISION
T.M.K.: (2) 3-8-008: 019

1.0 INTRODUCTION

The purpose of this report is to provide information on the existing infrastructure which will be servicing the proposed project. It will also evaluate the adequacy of the existing infrastructure and anticipated improvements which may be required for the proposed project.

The subject parcel is identified as T.M.K.: (2) 3-8-008: 019, and encompasses an area of approximately 86.030 acres. It is also known as Lot 2 of the Puaa Subdivision. It is bordered by undeveloped land, an irrigation reservoir and sugar cane fields to the north; sugar cane fields and a quarry to the east, sugar cane fields to the south, and the old Puunene Airport to the west.

Access to the project site is from Kamaaina Road, South Firebreak Road, and Lower Kihei Road. There is an existing traffic signal at the Mokulele Highway - Kamaaina Road intersection with a left turn storage lane and a right turn deceleration lane.

The project plan is to seek a change in zoning to heavy industrial. The heavy industrial zoning district provides for a minimum lot size of 10,000 square feet. The sizes of the lots in the proposed heavy industrial subdivision shall be determined by the types of uses proposed in the subdivision and the market demand at the time the subdivision application is filed with the County of Maui. Currently, the plan is to provide ten (10) lots ranging in size from one-half to one acre; five (5) lots ranging in size from over one acre to two acres and the balance of the lots ranging in size from over two acres to twenty acres for a total of 28 lots. Proposed improvements include paved private roadways, private water system, and landscaping. Underground water, sewer, drainage, electrical, and telephone systems will also be constructed.

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 Waiakoa extremely stony silty clay loam (WID2).

Waiakoa 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, 2009, 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 Kihei.

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 Mokuhau wells located in Happy Valley. The 36-inch Central Maui transmission line runs along Mokulele Highway from Wailuku to service the Kihei 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 Kihei Road. From Mokulele Highway, there will be access to Kihei 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 56 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 district. 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 Criteria for 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 Mehameha 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 insure that the sugar cane 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 drain stubout to each lot. As each lot is developed, it will be required to install an onsite drainage system to collect runoff from the site and provide a drainline connection to the drain stubout 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 cf of surface runoff volume. This would be an increase of approximately 253.3 cfs of runoff and 278,500 cf 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 applicant 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, 9 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 projects 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

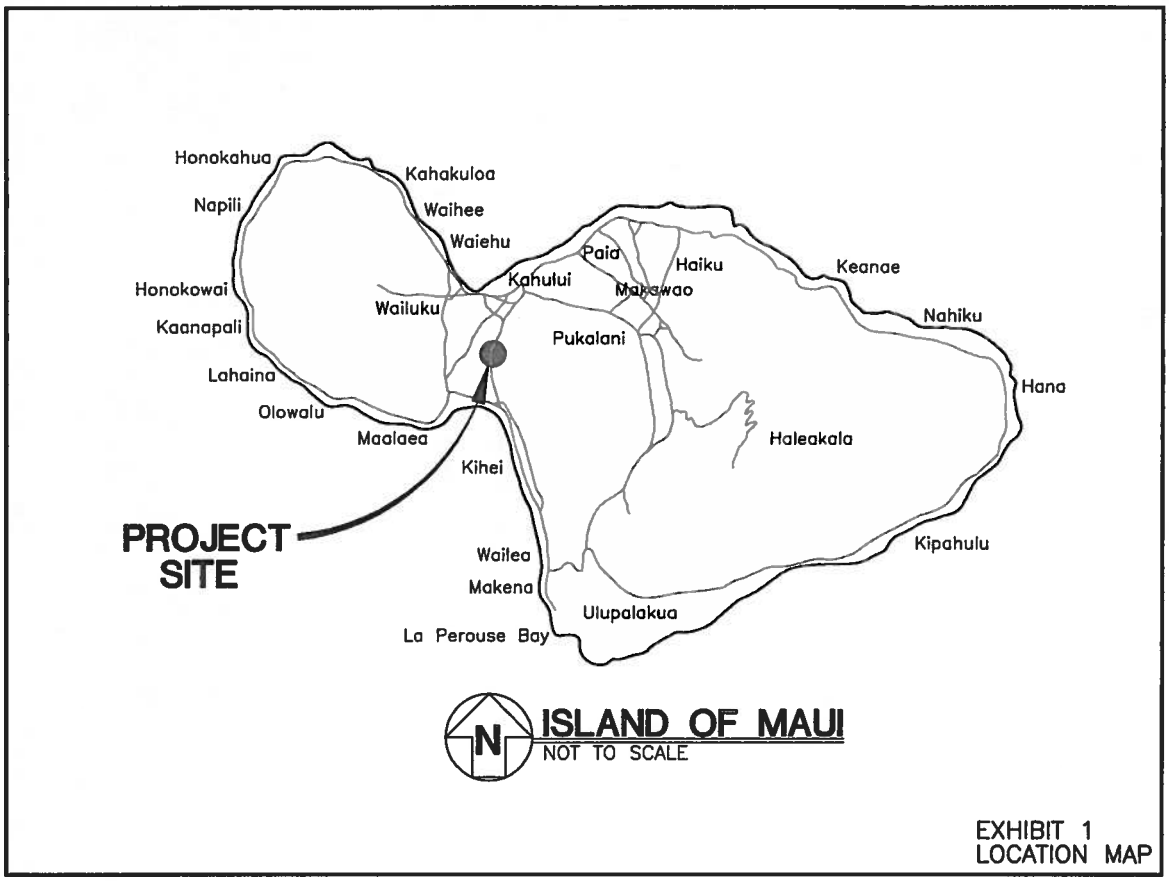


EXHIBIT 1
LOCATION MAP

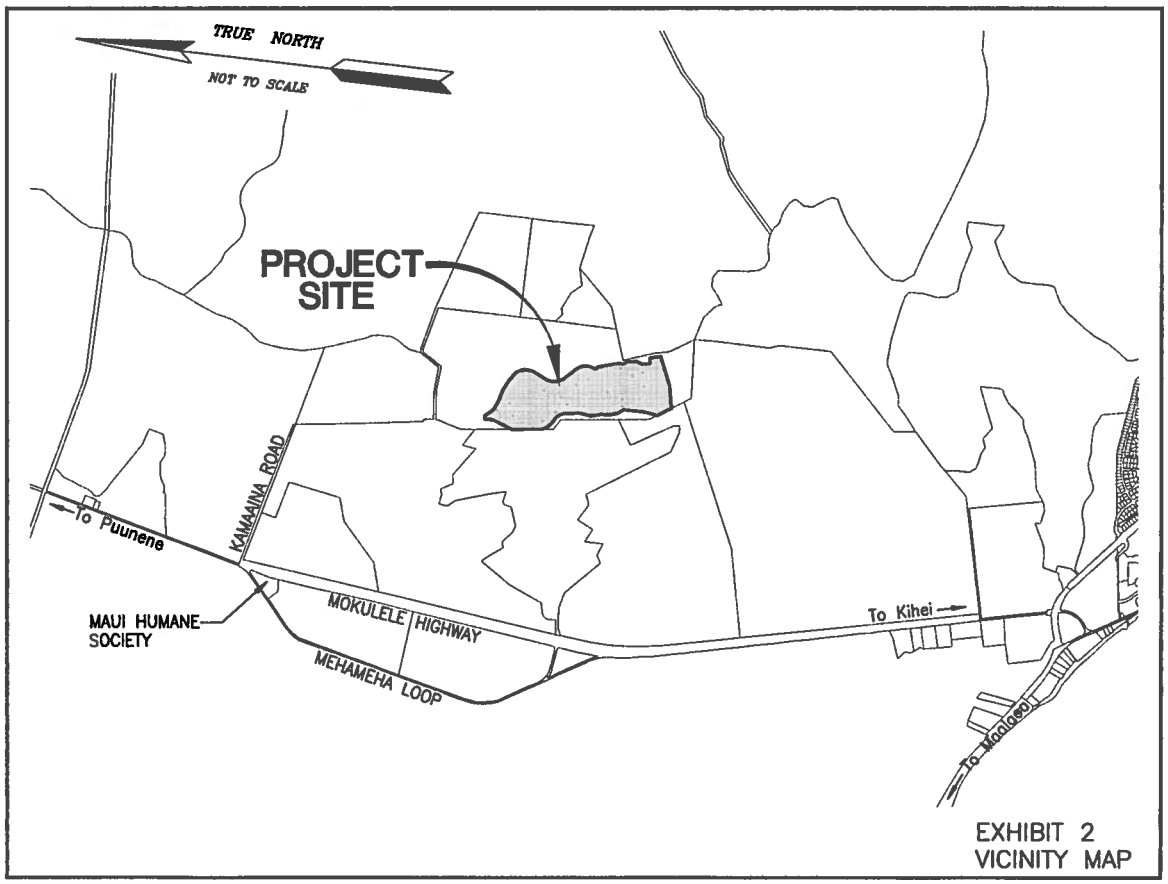


EXHIBIT 2
VICINITY MAP

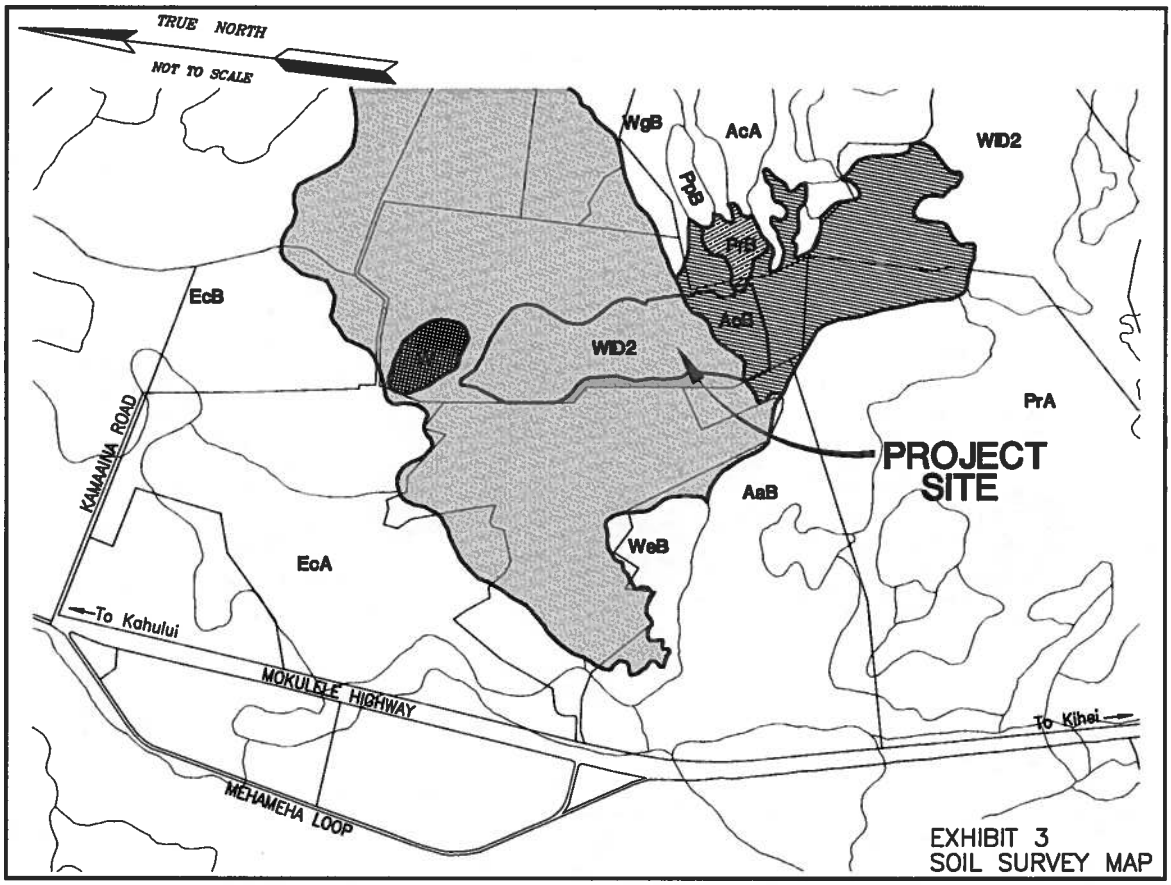


EXHIBIT 3
SOIL SURVEY MAP

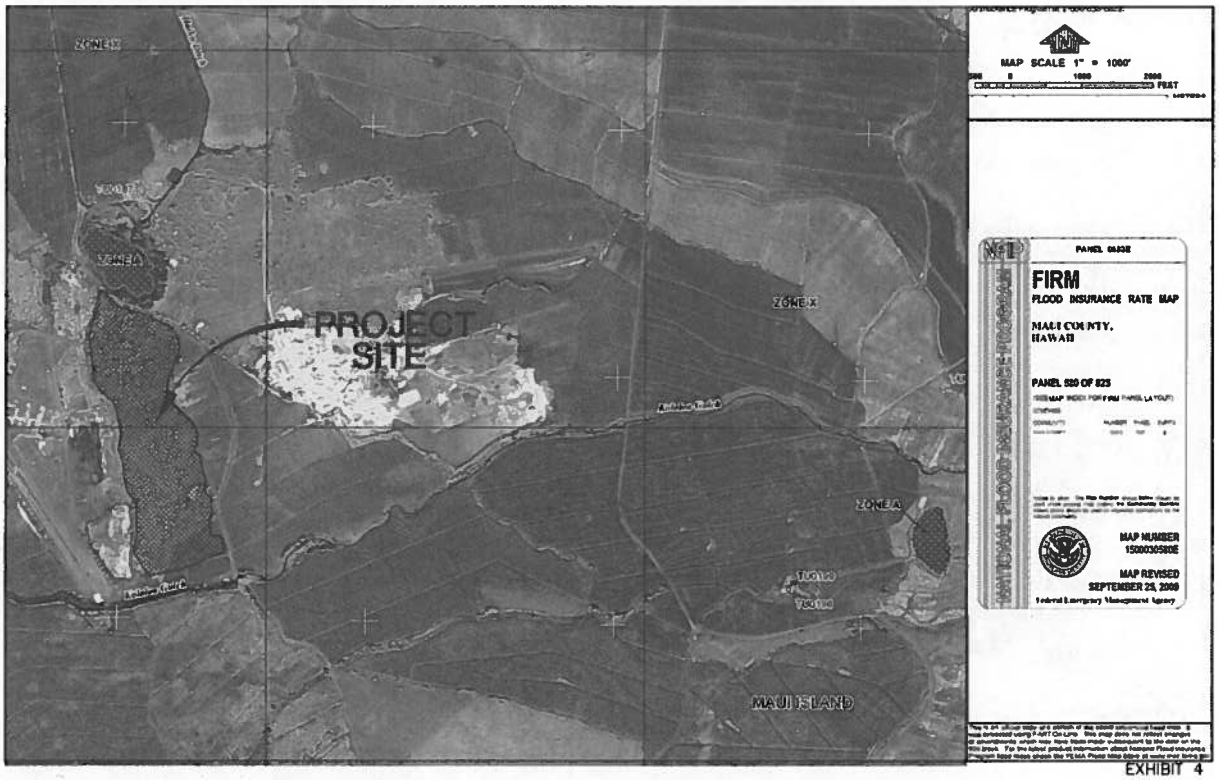


EXHIBIT 4

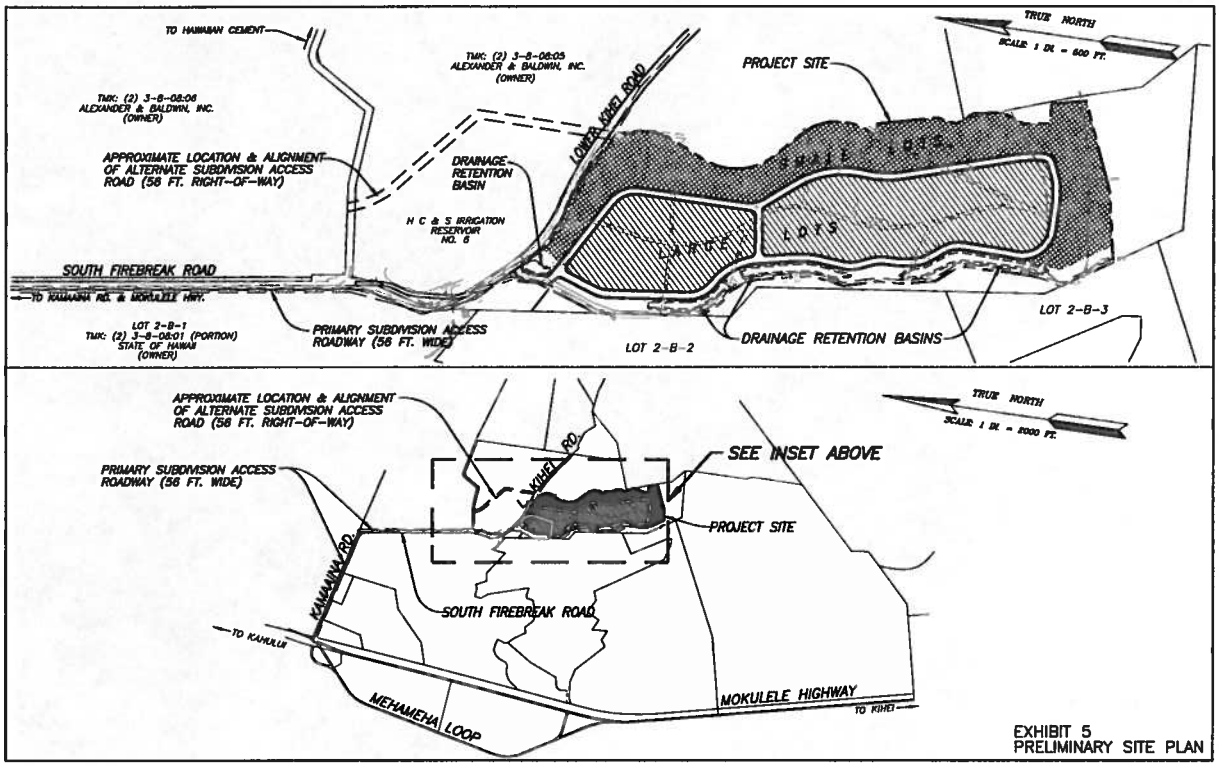


EXHIBIT 5
PRELIMINARY SITE PLAN

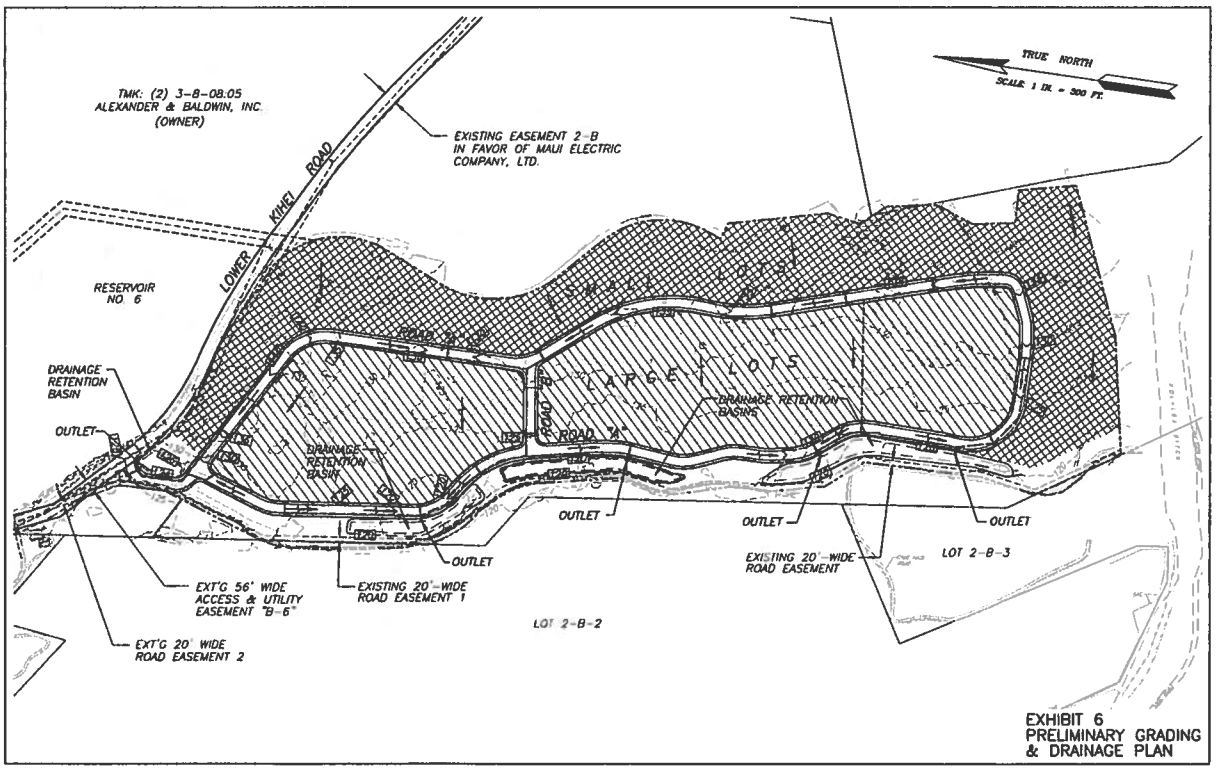


EXHIBIT 6
PRELIMINARY GRADING
& DRAINAGE PLAN

APPENDIX A
HYDROLOGIC CALCULATIONS

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)	= 0.55
	C= 0.80

B. Determine the 50-year 1-hour rainfall:

i_{50} = 2.5 inches

Adjust for time of concentration to compute Rainfall Intensity (I):

Existing Condition:

T_c = 30 minutes
I = 3.50 inches/hour

Developed Condition:

T_c = 14 minutes
I = 4.78 inches/hour

C. Drainage Area (A) = 86 acres

D. Compute the 50-year storm runoff volume (Q):

Q = CIA

Existing Condition:

Q = (0.25)(3.50)(86)

= 75.2 cfs

Developed Condition:

Q = (0.80)(4.78)(86)

= 328.5 cfs

The increase in runoff due to the proposed development is 328.5 - 75.2 = 253.3 cfs.

Hydrograph Plot

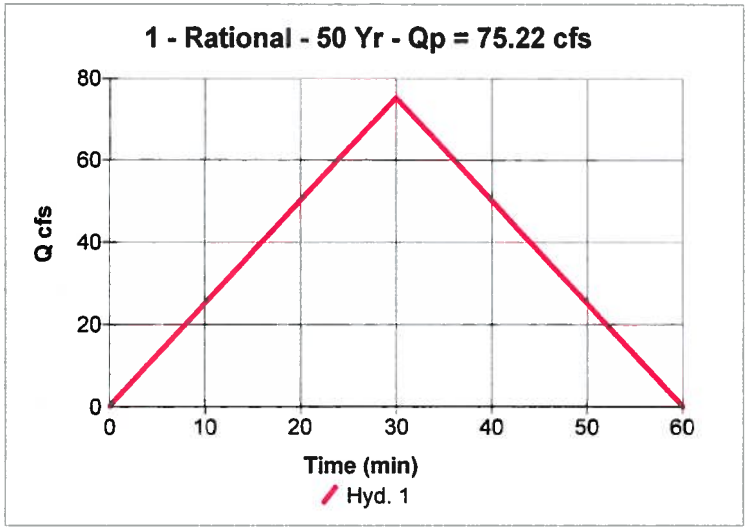
English

Hyd. No. 1

PRE

Hydrograph type	= Rational	Peak discharge	= 75.22 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 86.0 ac	Runoff coeff.	= 0.25
Intensity	= 3.50 in	Time of conc. (Tc)	= 30 min
I-D-F Curve	= 2-5.IDF	Reced. limb factor	= 1

Total Volume = 135.395 cuft



Hydrograph Plot

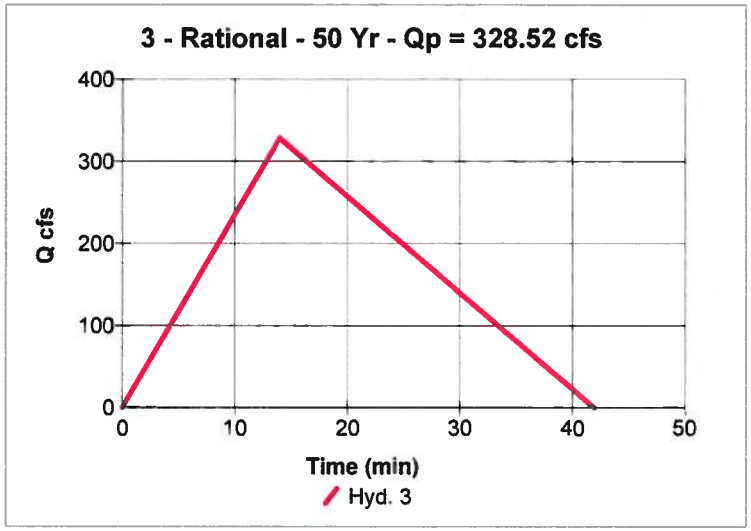
English

Hyd. No. 3

POST

Hydrograph type	= Rational	Peak discharge	= 328.52 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 86.0 ac	Runoff coeff.	= 0.8
Intensity	= 4.78 in	Time of conc. (Tc)	= 14 min
I-D-F Curve	= 2-5.IDF	Reced. limb factor	= 2

Total Volume = 413,936 cuft



Reservoir Report

English

Reservoir No. 1 - BASIN 1

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	116.00	21,237	0	0
2.00	118.00	28,471	49,708	49,708
3.00	119.00	32,170	30,321	80,029

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= ----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	116.00	—	—	—	—	—	—	—	—	0.00
2.00	49,708	118.00	—	—	—	—	—	—	—	—	0.00
3.00	80,029	119.00	—	—	—	—	—	—	—	—	0.00

Reservoir Report

English

Reservoir No. 2 - BASIN 2

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	118.00	22,322	0	0
2.00	120.00	31,419	53,741	53,741
3.00	121.00	36,052	33,736	87,477

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= ----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	118.00	—	—	—	—	—	—	—	—	0.00
2.00	53,741	120.00	—	—	—	—	—	—	—	—	0.00
3.00	87,477	121.00	—	—	—	—	—	—	—	—	0.00

Reservoir Report

English

Reservoir No. 3 - BASIN 3

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	116.00	38,760	0	0
2.00	118.00	51,124	89,884	89,884
3.00	119.00	57,410	54,267	144,151
4.00	120.00	63,770	60,590	204,741

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= ----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	116.00	—	—	—	—	—	—	—	—	0.00
2.00	89,884	118.00	—	—	—	—	—	—	—	—	0.00
3.00	144,151	119.00	—	—	—	—	—	—	—	—	0.00
4.00	204,741	120.00	—	—	—	—	—	—	—	—	0.00

Reservoir Report

English

Reservoir No. 4 - BASIN 4

Pond Data

Pond storage is based on known contour areas

Stage / Storage Table

Stage ft	Elevation ft	Contour area sqft	Incr. Storage cuft	Total storage cuft
0.00	124.00	4,910	0	0
1.00	125.00	1,053	2,982	2,982
2.00	126.00	11,746	6,400	9,381

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise in	= 0.0	0.0	0.0	0.0
Span in	= 0.0	0.0	0.0	0.0
No. Barrels	= 0	0	0	0
Invert El. ft	= 0.00	0.00	0.00	0.00
Length ft	= 0.0	0.0	0.0	0.0
Slope %	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= -----	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len ft	= 0.00	0.00	0.00	0.00
Crest El. ft	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 0.00	0.00	0.00	0.00
Eqn. Exp.	= 0.00	0.00	0.00	0.00
Multi-Stage	= No	No	No	No

Tailwater Elevation = 0.00 ft

Note: All outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Discharge cfs
0.00	0	124.00	—	—	—	—	—	—	—	—	0.00
1.00	2,982	125.00	—	—	—	—	—	—	—	—	0.00
2.00	9,381	126.00	—	—	—	—	—	—	—	—	0.00

APPENDIX B

WATER DEMAND CALCULATIONS

WATER DEMAND CALCULATIONS

Proposed subdivision area uses:

Industrial 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 ROW 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

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H. Groundwater Resource and Water System Assessment for the Proposed Puunene Industrial Subdivision, prepared by Tom Nance Water Resource Engineering, June 2011.

APPENDIX Q

Traffic Impact
Analysis Report

TRAFFIC IMPACT ANALYSIS REPORT FOR

PUUNENE HEAVY INDUSTRIAL SUBDIVISION

TMK: (2) 3-8-008:019

IN PUUNENE, MAUI, HAWAII

Prepared For

CMBY 2011 INVESTMENT, LLC

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January 24, 2012

TABLE OF CONTENTS

1. INTRODUCTION ..... Page 1
Project Location and Description ..... Page 1
Study Methodology ..... Page 4
Order of Presentation ..... Page 4

2. ANALYSIS OF EXISTING CONDITIONS ..... Page 6
Existing Streets and Intersection Controls ..... Page 6
Existing Peak Hour Traffic Volumes ..... Page 8
Existing Public Transportation ..... Page 8
Level-of-Service Concept ..... Page 10
Methodology for Level-of-Service Analysis ..... Page 11
Level-of-Service Analysis of Existing Conditions ..... Page 12
Existing Deficiencies ..... Page 12

3. PROJECTED BACKGROUND TRAFFIC CONDITIONS ..... Page 13
Design Year for Traffic Forecasts ..... Page 13
Background Traffic Growth ..... Page 14
Related Projects ..... Page 14
2015 Background Traffic Projections ..... Page 16
2015 Background Levels-of-Service ..... Page 20
Mitigation Required for 2015 Background Conditions ..... Page 20

4. PROJECT-RELATED TRAFFIC CONDITIONS ..... Page 21
Methodology ..... Page 21
Trip Generation of Proposed Development ..... Page 21
Trip Distribution and Assignments ..... Page 22
2015 Background Plus Project Projections ..... Page 22

5. TRAFFIC IMPACT ANALYSIS ..... Page 25
Changes in Total Intersection Volumes ..... Page 25
2015 Background Plus Project Level-of-Service Analysis ..... Page 26
Mitigation Measures - Mokulele Highway at Kama'aina Road & Mehameha Loop ..... Page 27
Levels-of-Service of Unsignalized Intersections ..... Page 28
Required Left Turn Storage Lane Lengths ..... Page 31
Summary Mitigation Measures and Recommendations ..... Page 32
Early Consultation Letters and Responses ..... Page 33

APPENDICES

Appendix A Proposed Land Development Plan
Appendix B Traffic Count Summary Worksheets
Appendix C Level-of-Service Worksheets for Existing Conditions
Appendix D Level-of-Service Worksheets for 2015 Background Conditions
Appendix E Level-of-Service Worksheets for 2015 Background Plus Project Conditions
Appendix F Level-of-Service Worksheets for 2015 Background Plus Project Conditions with Mitigation
Appendix G Level-of-Service Worksheets for Unsignalized Intersections
Appendix H Response to Early Consultation Comments for State of Hawaii Department of Transportation and Maui Police Department
Appendix I Engineer's Drawing of Proposed Mitigation Improvements at Intersection of Mokulele Highway at Kama'aina Road and Mehameha Loop

LIST OF FIGURES

Figure 1 Project Location on Maui . . . . . Page 2
Figure 2 Schematic Drawing of Access Routes to Project Site . . . . . Page 3
Figure 3 Schematic of Intersection of Mokulele Highway at Kama'aina Road and Mehameha Loop . . . . . Page 7
Figure 4 Existing (2011) Peak Hour Traffic Volumes . . . . . Page 9
Figure 5 Locations of Related Project . . . . . Page 17
Figure 6 Background Growth and Related Projects' Trip Assignments . . . . . Page 18
Figure 7 2015 Background Peak Hour Traffic Projections . . . . . Page 19
Figure 8 Peak Hour Project Trip Assignments . . . . . Page 23
Figure 9 2015 Background Plus Project Peak Hour Traffic Projections . . . . . Page 24
Figure 10 Background Plus Project Peak Hour Traffic Volumes at Unsignalized intersections (Alternate 1) . . . . . Page 29
Figure 11 Background Plus Project Peak Hour Traffic Volumes at Unsignalized Intersections (Alternate 2) . . . . . Page 30

LIST OF TABLES

Table 1 Level-of-Service Definitions for Signalized Intersections . . . . . Page 10
Table 2 Level-of-Service Definitions for Unsignalized Intersections . . . . . Page 11
Table 3 2011 Levels-of-Service - Mokulele Highway at Kama'aina Road & Mehameha Loop . . . . . Page 12
Table 4 Trip Generation Summary of Related Projects . . . . . Page 16
Table 5 2015 Background Levels-of-Service - Mokulele Highway at Kama'aina Road & Mehameha Loop . . . . . Page 20
Table 6 Trip Generation Calculations . . . . . Page 22
Table 7 Analysis of Project's Share of Total Intersection Approach Volumes . . . . . Page 26
Table 8 Analysis of Project's Share of Total Intersection Approach Volumes Growth . . . . Page 26
Table 9 2015 Background Plus Project Levels-of-Service - Mokulele Hwy at Kama'aina Rd . . . . . Page 26
Table 10 Mitigation Analysis - Mokulele Highway at Kama'aina Road & Mehameha Loop . . . . . Page 27
Table 11 2015 Levels-of-Service of Unsignalized Intersection . . . . . Page 28
Table 12 Left Turn Storage Lane Requirements . . . . . Page 31
Table 13 Assessment of Deceleration Lane Requirements . . . . . Page 32
Table 14 Summary of Recommended Mitigation for 2015 Background Conditions . . . . . Page 32

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 roadway right-of-way and a drainage reserve. The current plan is to subdivide the project into 28 lots. A proposed development plan is provided as Appendix A.

3. Access to and egress from the project will be via Kama'aina Road, which intersects Mokulele Highway adjacent to the Maui Humane Society at the intersection of Mokulele Highway at Mehameha Loop, South Firebreak Road and Lower 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 eastward as shown.

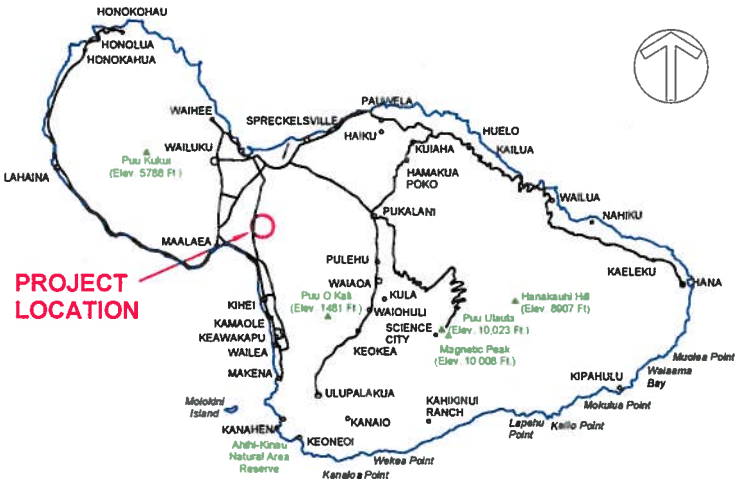


Figure 1
PROJECT LOCATION ON MAUI

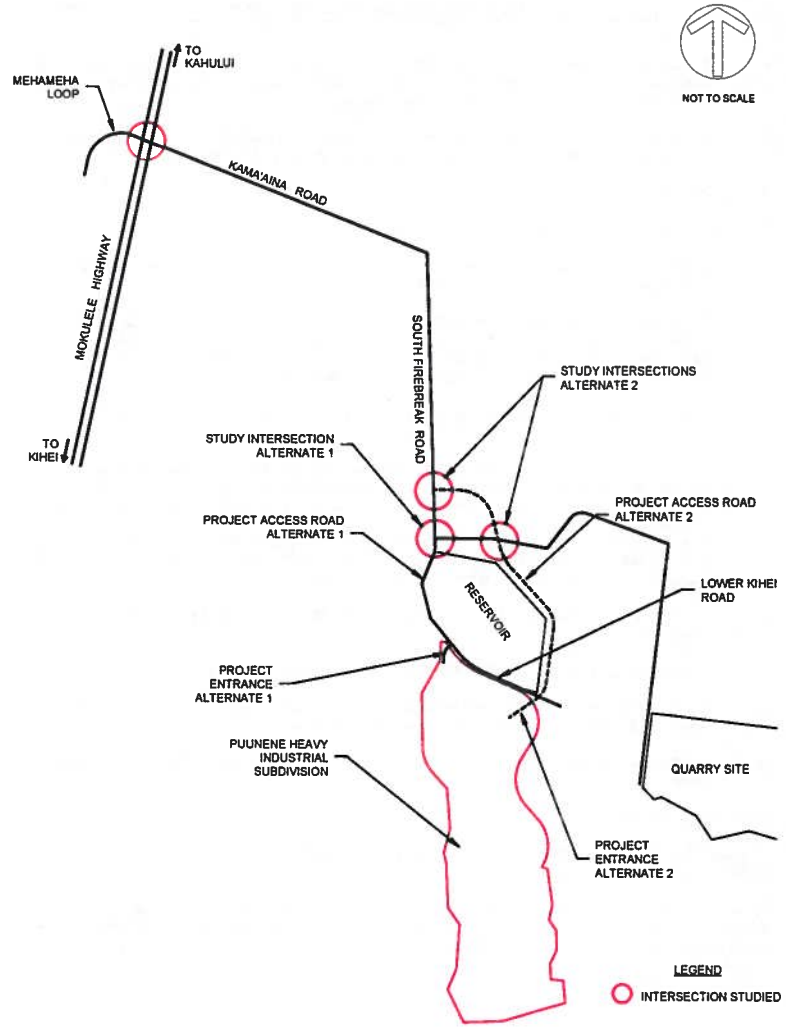


Figure 2
SCHEMATIC DRAWING OF ACCESS ROUTES TO PROJECT

4. The project will have no right of access to Maui Raceway Park roads. Additionally, there will be a drainage swell 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 Mokulele Highway at Kama'aina Road. Since existing and proposed traffic using Kama'aina 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 generation by the study project.

Chapter 4 describes the methodology used to estimate the traffic characteristics of the proposed project, including 2015 background plus project traffic projections.

Chapter 5 describes the traffic impacts of the proposed project, conclusions of the impact analysis and recommended mitigation measures.

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 this 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 Mehameha Loop. The north and south approaches are Mokulele Highway. The east approach is Kama'aina Road and the west approach is Mehameha Loop. Kama'aina Road, along with South Firebreak 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 deceleration and turn storage lanes. Northbound and southbound left turn lanes are protected. The eastbound (Mehameha Loop) and westbound (Kama'aina Road) approaches are one lane each.

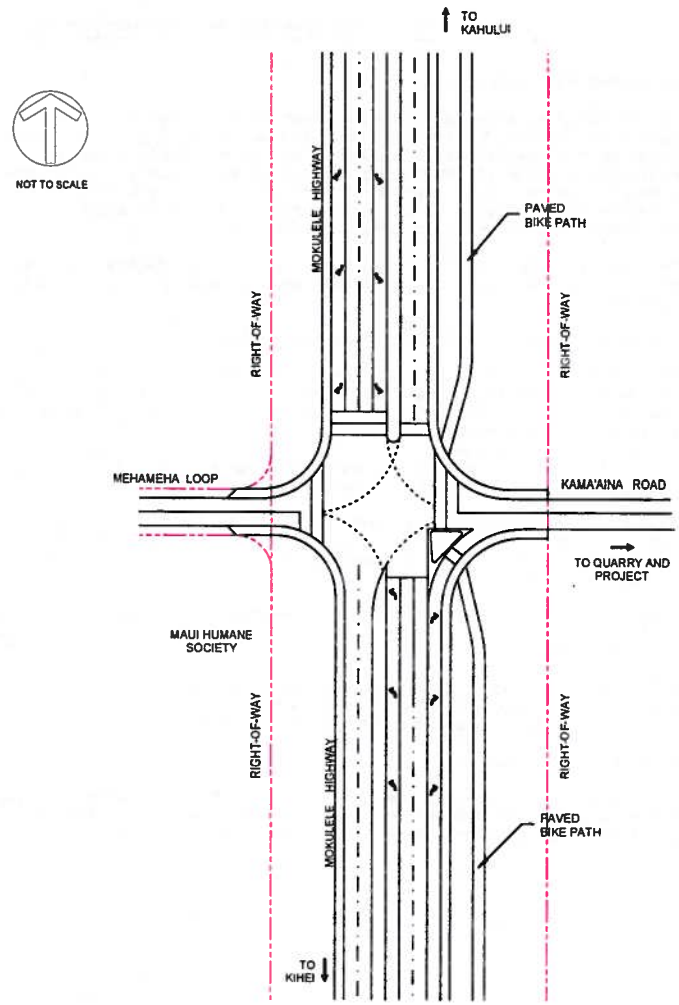


Figure 3
SCHEMATIC DRAWING OF INTERSECTION OF MOKULELE HIGHWAY AT KAMA'AINA ROAD AND MEHAMEHA LOOP

Existing Peak Hour Traffic Volumes

The intersection of Mokulele Highway at Kama'aina 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 Kama'aina 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." [1] 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 Kihei Road, which is the next 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 turning into and out of Kama'aina Road is largely heavy vehicles. The percentages of westbound left and right turns from Kama'aina Road that are heavy vehicles are 80% and 67%, respectively. 48% of the southbound left turns and 17% of the northbound right turns into Kama'aina Road are heavy vehicles also.

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 2,380 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 Mehameha Loop are approximately 35 vehicles per hour during the morning peak hour and 40 vehicles per hour during the afternoon peak hour. There were no heavy vehicles along Mehameha Loop during the peak hours.

The peak hour volumes along Kama'aina Road are 57 vehicles per hour during the morning peak hour and 36 during the afternoon peak hour. During the morning peak hour, 25% of the vehicles along Kama'aina Road are heavy vehicles. During the afternoon peak hour, 22% of the vehicles are heavy vehicles.

Existing Public Transportation

The Maui Public Bus system operates the Kihei Islander bus route (Route 10) along Mokulele Highway at one hour intervals between 5:30 AM and 9:30 PM. This route connects Kahului and Kihei. There are no bus stops along Mokulele Highway. Therefore, there is no bus service available to the project site.

[1] Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., page 5-7.

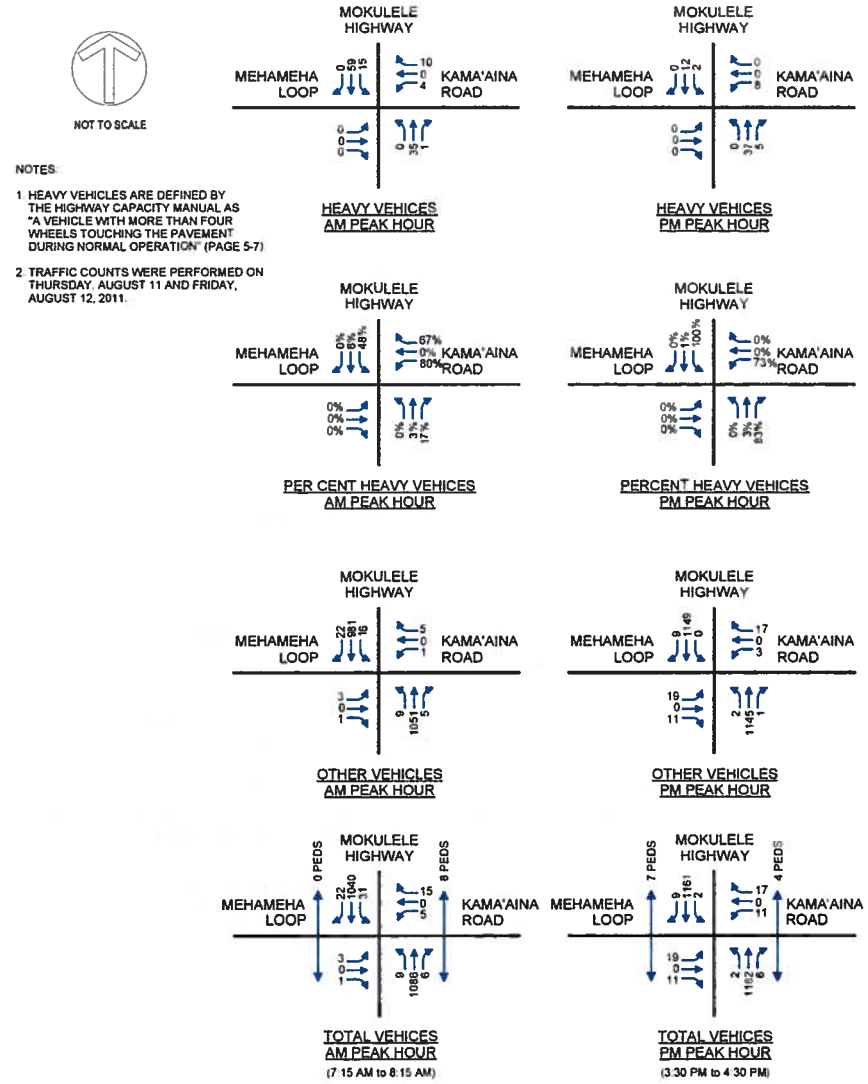


Figure 4
EXISTING PEAK HOUR TRAFFIC VOLUMES

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.[2]

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(1)

Level of Service	Interpretation	Volume-to-Capacity Ratio(2)	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity

[2] Institute of Transportation Engineers, *Transportation Impact Analyses for Site Development*, Washington, D.C., 2006, page 56 - 60

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 judgement 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(1)

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of 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.

3. The *Highway Capacity Manual* defines level-of-service by delay.

Level-of-Service Analysis of Existing Conditions

The existing levels-of-service of the intersection of Mokulele Highway at Kama'aina Road and Mehameha 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 3 2011 Levels-of-Service - Mokulele Highway at Kama'aina Road & Mehameha Loop

	AM Peak Hour			PM Peak Hour		
	7:15 AM to 8:15 AM			3:30 PM to 4:30 PM		
Intersection and Movement	V/C	Delay [1]	LOS [2]	V/C	Delay	LOS
Overall Intersection	***0.50***	***5.9***	***A***	***0.50***	***5.0***	***A***
Eastbound Left ,Thru & Right	0.10	37.1	D	0.25	36.2	D
Westbound Left, Thru & Right	0.25	39.4	D	0.30	37.3	D
Northbound Left	0.48	50.9	D	0.16	41.1	D
Northbound Thru	0.46	5.0	A	0.49	3.9	A
Northbound Right	0.01	2.9	A	0.01	2.1	A
Southbound Left	0.56	47.7	D	0.31	51.2	D
Southbound Thru	0.41	3.5	A	0.45	3.7	A
Southbound Right	0.03	2.2	A	0.01	2.1	A

NOTES
(1) Delay is in seconds per vehicle
(2) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual* Level-of-Service is based on delay.
(3) See Appendix C for Level-of-Service Analysis Worksheets

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 intersection of Mokulele Highway at Kama'aina Road at Mehameha 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 minor, or small, projects for which no traffic data, or traffic study, are 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 the 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 the identify roadway improvements required to mitigate unacceptable 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.

Background Traffic Growth

The *Maui Long Range Transportation Plan*[3] 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:

$$F = (1 + i)^n$$

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 that 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 Mokulele 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.

Kaiwahine Village

The proposed Kaiwahine Subdivision is located at the east end of Kaiwahine Street and will consist of 120 multi-family units. The traffic assignments for the subdivision were obtained from the traffic study for the project[4].

Maui Lu Resort

Maui Lu Resort is located in the northeast quadrant of the intersection of South Kihei Road at Kaonoulu Street. The existing resort will be demolished and a 400 unit timeshare will be constructed. Each timeshare unit will have one lock off unit which may be used as a separate hotel room. As part of the Maui Lu project, the intersection of South Kihei Road at Kaonoulu Street will be signalized and a separate southbound to eastbound left turn lane will also be constructed. The traffic assignments for the project were obtained from the traffic study for the project[5].

[3] Kaku Associates, *Maui Long Range Land Transportation Plan*, October 1996

[4] Phillip Rowell and Associates, *TIAR for Kaiwahine Village*, July 15, 2010

[5] Phillip Rowell and Associates, *TIAR for Maui Lu Resort*, March 7, 2007

Kihei Residential Subdivision

The Kihei Residential Subdivision will be located along the east side of Piilani Highway between Kaiwahine Street and North Kihei Road. The project will consist of 400 single family units, 200 multifamily units, 2,000 square feet of commercial floor area and 7,000 square feet of office floor area. The traffic assignments for the project were obtained from the traffic study for the project[6].

Primary access to and egress from this project is via the intersection of Piilani Highway at Kaiwahine Street. The TIAR includes improvements at this intersection to accommodate project generated traffic. These improvements are:

1. Modify the eastbound approach of Uwapo Road to provide separate left, through and right turn lanes.
2. Modify the westbound approach of Kaiwahine Street to provide two left turn lanes, one through lane and one right turn only lane.
3. Modify the southbound approach of Piilani Highway to provide two separate left turn lanes.

Kihei High School

The proposed Kihei High School will be located along the east side of Piilani Highway across from the Piilani Subdivision. According to the Environmental Impact Statement Preparation Notice (EISPN), the school will have a capacity of 1600 students for grades 9 through 12.

As described in the EISPN, access and egress will be via the intersection of Piilani Highway at Kulanihakoi Road, which will be modified with an extension of Kulanihakoi Road across Piilani Highway. Right turns only will be allowed into and out 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 EISPN.

Kenolio 6 Affordable Housing Project

The Kenolio 6 Affordable Housing Project is located between Piilani Highway and Kenolio Road in the southwest quadrant of the intersection of Kaonoulu Street at Piilani 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 Kenolio Road.

The traffic assignments for the project were obtained from the traffic study for the project [7].

[6] Austin, Tsutsumi & Associates, *TIAR for Kihei Residential Project*, May 22, 2007

[7] Phillip Rowell and Associates, *TIAR for Kenolio 6 Affordable Housing Project*, May 27, 2010

Piilani Promenade

The project is located along the mauka (east) side of Piilani Highway opposite Kaonoulu Street in the Kihei area of Maui. The extension of Kaonoulu Street will divide the project into two parcels. The north parcel is referred to as the Maui Outlet Center and will consist of 290,000 leasable square feet of retail and commercial uses. The south parcel is referred to as the Maui Retail Center and will consist of 410,000 leasable square feet of retail floor area. 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 [8]. As part of the project, the intersection of Piilani Highway at Kaonoulu 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 Mokulele Highway at Kama'aina Road and Mehameha 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.

2015 Background Traffic Projections

2015 background traffic projections were calculated by expanding existing traffic volumes by the appropriate growth rates and then superimposing traffic generated by related projects. The 2015 background peak hour traffic projections at the intersection of Mokulele Highway at Kama'aina Road and Mehameha Loop are shown in Figure 7.

Table 4 Trip Generation Summary of Related Projects

	Related Project	Description	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
A	Kaiwahine Village	120 Multi-Family	19	47	66	49	31	80
B	Maui Lu Resort	400 Timeshares + 400 Lock Off Units (Maximum)	245	140	385	205	230	435
C	Kihei Residential	400 Single Family 200 Multi-Family 2,000 SF Commercial 7,000 SF Office	213	403	616	405	332	737
D	Kihei High School	1600 Students Grades 9 thru 12	455	200	655	105	120	225
E	Kenolio 6 Affordable Housing Project	124 Multi-Family	20	48	68	51	32	83
F	Piilani Promenade	700,000 SF Retail	422	268	690	1,391	1,507	2,898
	TOTALS		1,374	1,106	2,480	2,206	2,252	4,458

[8] Phillip Rowell and Associates, *TIAR for Piilani Promenade*, June 7, 2011

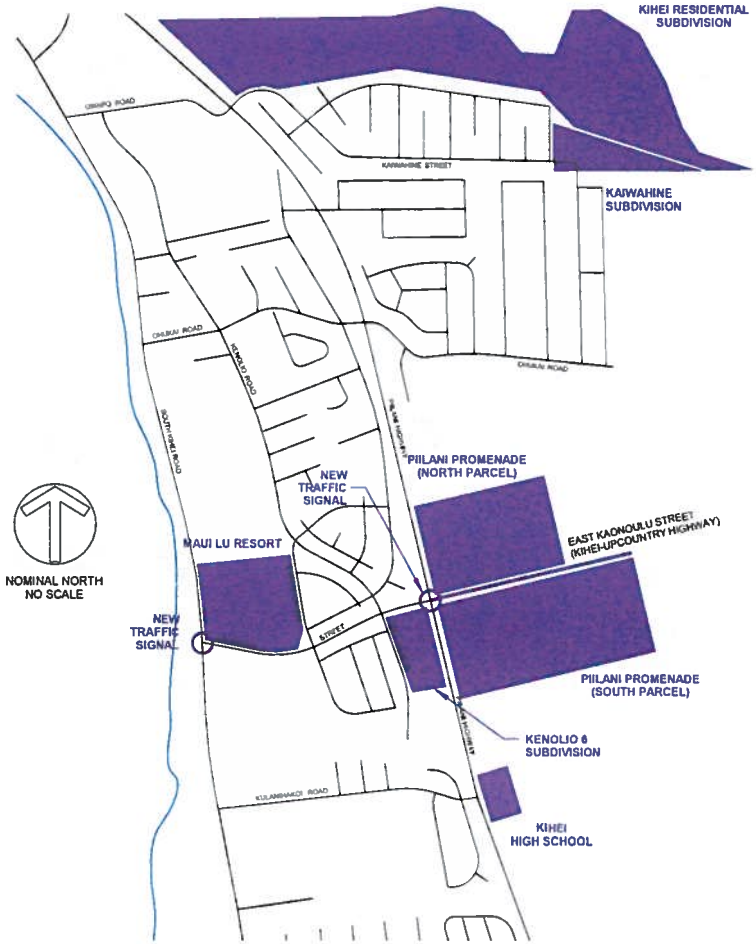
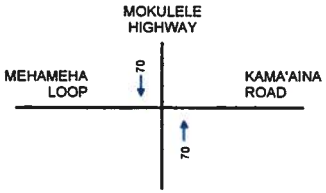
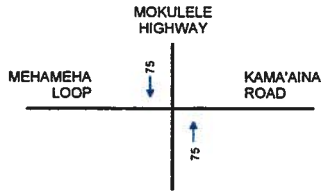


Figure 5
LOCATIONS OF RELATED PROJECTS

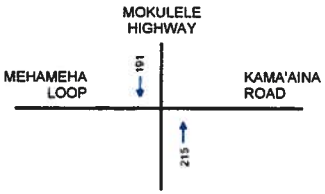
NOT TO SCALE



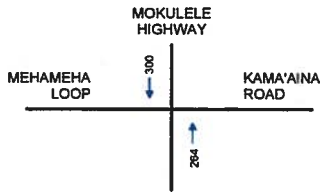
BACKGROUND GROWTH
AM PEAK HOUR



BACKGROUND GROWTH
PM PEAK HOUR



RELATED PROJECTS' TRIPS
AM PEAK HOUR



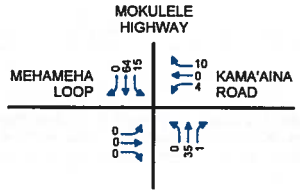
RELATED PROJECTS' TRIPS
PM PEAK HOUR

Figure 6
BACKGROUND GROWTH AND RELATED PROJECTS' TRIPS

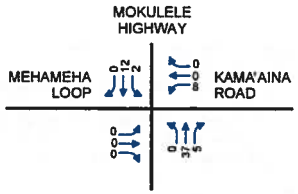
NOT TO SCALE

NOTES:

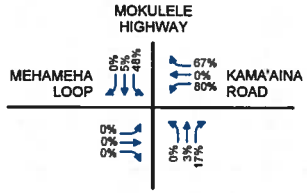
1. HEAVY VEHICLES ARE DEFINED BY THE HIGHWAY CAPACITY MANUAL AS "A VEHICLE WITH MORE THAN FOUR WHEELS TOUCHING THE PAVEMENT DURING NORMAL OPERATION" (PAGE 5-7)



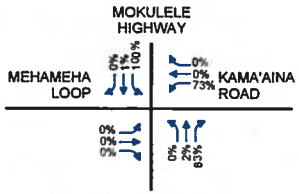
HEAVY VEHICLES
AM PEAK HOUR



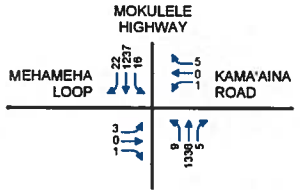
HEAVY VEHICLES
PM PEAK HOUR



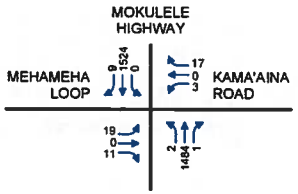
PER CENT HEAVY VEHICES
AM PEAK HOUR



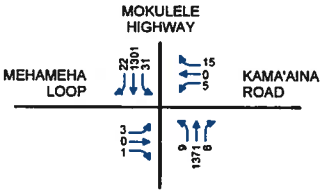
PERCENT HEAVY VEHICES
PM PEAK HOUR



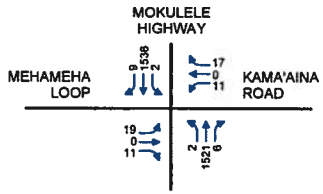
OTHER VEHICLES
AM PEAK HOUR



OTHER VEHICLES
PM PEAK HOUR



TOTAL VEHICES
AM PEAK HOUR



TOTAL VEHICES
PM PEAK HOUR

Figure 7
2015 BACKGROUND TRAFFIC PROJECTIONS

2015 Background Levels-of-Service

Table 5 summarizes the results of the level-of-service analysis of the intersection of Mokulele Highway at Kama'aina 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 reported by *Synchro* are shown.

Table 5 2015 Background Levels-of-Service - Mokulele Highway at Kama'aina Road & Mehameha Loop

Intersection and Movement	AM Peak Hour			PM Peak Hour		
	V/C	Delay [1]	LOS [2]	V/C	Delay	LOS
Overall Intersection	***0.59***	***6.3***	***A***	***0.59***	***5.6***	***A***
Eastbound Left, Thru & Right	0.10	37.1	D	0.25	36.2	D
Westbound Left, Thru & Right	0.24	39.3	D	0.30	37.3	D
Northbound Left	0.41	46.7	D	0.16	41.1	D
Northbound Thru	0.56	5.8	A	0.59	4.7	A
Northbound Right	0.01	2.9	A	0.01	2.1	A
Southbound Left	0.56	47.6	D	0.31	51.2	D
Southbound Thru	0.52	4.3	A	0.59	4.7	A
Southbound Right	0.03	2.2	A	0.01	2.1	A

NOTES:
(1) Delay is in seconds per vehicle.
(2) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-Service is based on delay.
(3) See Appendix D for Level-of-Service Analysis Worksheets.

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 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.

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*[9] and data provided in *Trip Generation*[10]. This method used trip generation rates or formulas to estimate the number of trips that the project will generate during the peak hours.

Trip Generation of Proposed Development

Trip generation equations for industrial parks (Land Use Code 130) 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 estimated 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:

[9] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., 1998, p. 7-12

[10] Institute of Transportation Engineers, *Trip Generation*, Washington, D.C., 2003

Acres	Use
65.92	Lots
9.10	Drainage Reserve
10.98	Road Right-of-Ways
86.00	Total Area

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 6 Trip Generation Calculations

Time Period	Direction	Industrial Park (LU Code 130)		
		Equation or %	Acres	Trips
AM Peak Hour	Total	Ln (T) = 0.78Ln(A)+2.89	65.92	472
	In	83%		392
	Out	17%		80
PM Peak Hour	Total	Ln (T) = 0.72Ln(A)+3.14		471
	In	21%		99
	Out	79%		372

Trip Distribution and Assignments

The project-related trips 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. Accordingly, 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 line adjacent to the park. This will prevent any traffic connection between the project and the park. Accordingly, all traffic was assigned to us the intersection of Mokulele Highway at Kama'aina 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 Waiko Road, it was assumed that 25% of the vehicles generated by the project will be heavy vehicles.

The project morning and afternoon peak hour trip assignments at the intersection of Mokulele Highway at Kama'aina Road and Mehameha Loop are shown in Figure 8.

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 hourly 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 Mokulele Highway at Kama'aina Road and Mehameha Loop are shown on Figure 9.

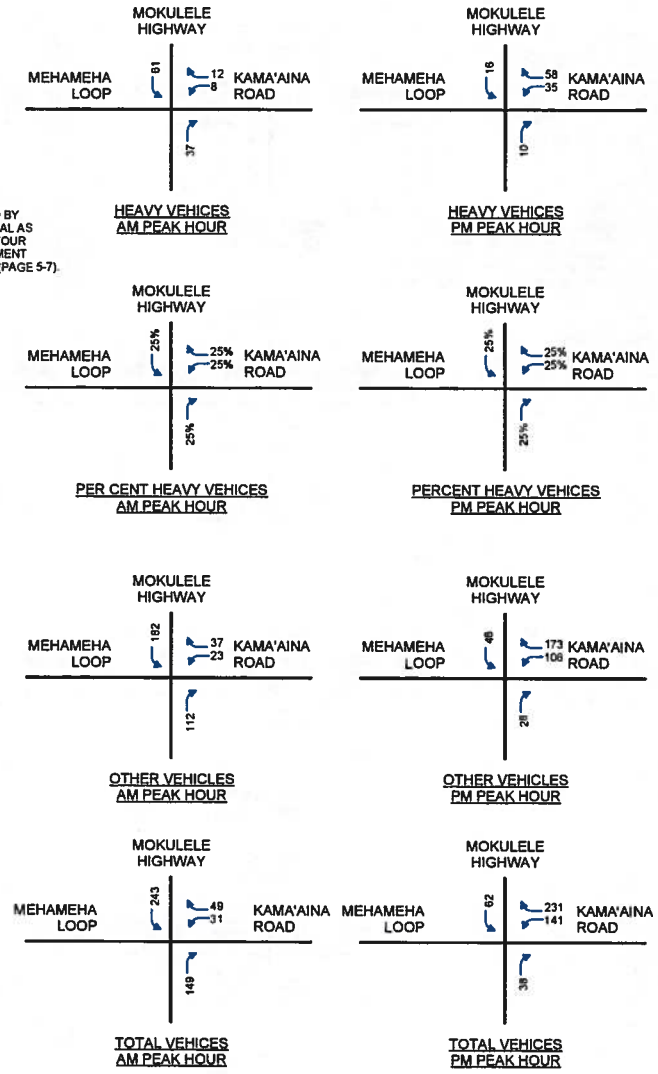
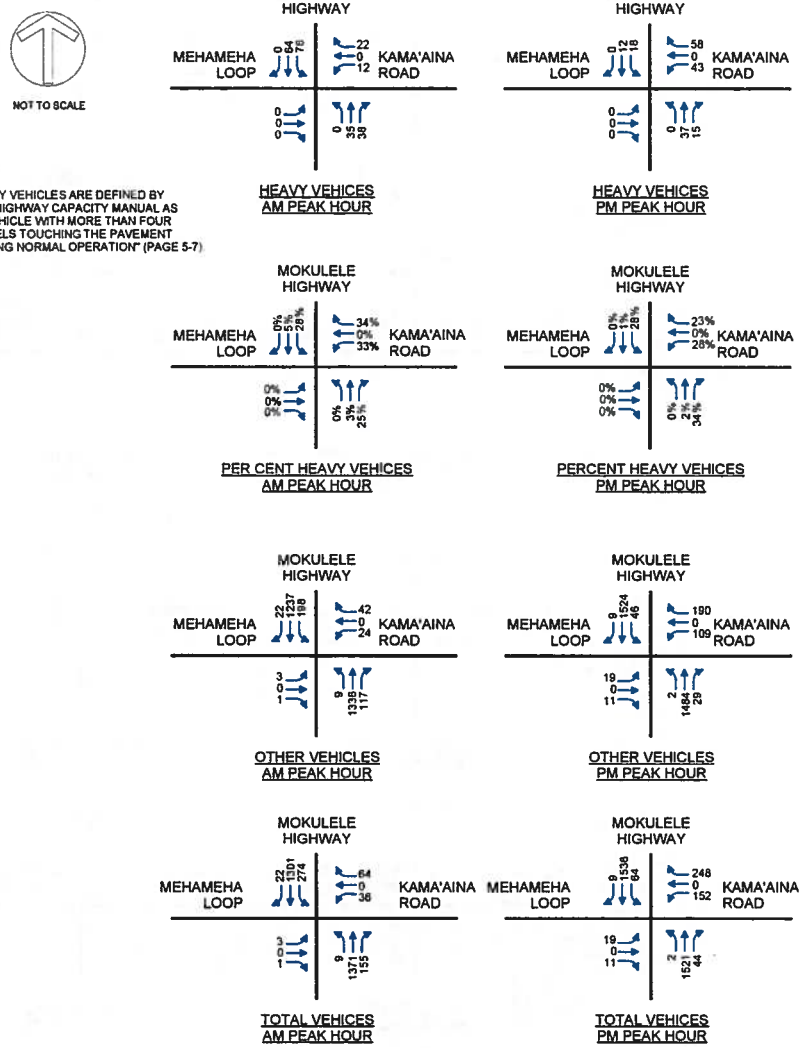


Figure 8
PROJECT TRIP ASSIGNMENTS



NOTES

1. HEAVY VEHICLES ARE DEFINED BY THE HIGHWAY CAPACITY MANUAL AS "A VEHICLE WITH MORE THAN FOUR WHEELS TOUCHING THE PAVEMENT DURING NORMAL OPERATION" (PAGE 5-7)

Figure 9
2015 BACKGROUND PLUS PROJECT TRAFFIC PROJECTIONS

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 is acceptable levels-of-service are identified and assessed.

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 at 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. This 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.

Table 7 Analysis of Project's Share of Total Intersection Approach Volumes (1)

Intersection	Period	Existing	2015 Background	2015 Background Plus Project	Background Growth		Project Traffic	
					Trips	Percent of Total Traffic (2)	Trips	Percent of Total Traffic (2)
Mokulele Hwy at Kama'aina Road	AM	2218	2764	3236	546	16.9%	472	14.6%
	PM	2420	3134	3606	714	19.8%	472	13.1%

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 (1)

Intersection	Period	Existing	2015 Background	Background Plus Project	Background Growth (2)		Project Trips (3)	
					Volume	% of 2010 to 2015 Growth	Volume (4)	% of 2010 to 2015 Growth
Mokulele Hwy at Kama'aina Road	AM	2218	2764	3236	546	53.6%	472	46.4%
	PM	2420	3134	3606	714	60.2%	472	39.8%

Notes:
(1) Volumes shown are total intersection approach volumes or projections.
(2) Background versus 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 analysis of the intersection of Mokulele Highway at Kama'aina Road and Mehameha Loop are summarized in Table 9.

Table 9 2015 Background Plus Project Levels-of-Service - Mokulele Hwy at Kama'aina Rd

Intersection and Movement	AM Peak Hour						PM Peak Hour					
	Without Project			With Project			Without Project			With Project		
	V/C	Delay [1]	LOS [2]	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Overall Intersection	***0.59***	***6.3***	***A***	***0.85***	***17.1***	***B***	***0.59***	***5.6***	***A***	***1.07***	***32.6***	***C***
Eastbound Left ,Thru & Right	0.10	37.1	D	0.06	34.8	C	0.25	36.2	D	0.07	20.1	C
Westbound Left, Thru & Right	0.24	39.3	D	0.45	38.9	D	0.30	37.3	D	1.01	78.7	E
Northbound Left	0.41	46.7	D	0.53	57.6	E	0.16	41.1	D	0.22	46.3	D
Northbound Thru	0.56	5.8	A	0.79	19.7	B	0.59	4.7	A	0.91	27.0	C
Northbound Right	0.01	2.9	A	0.13	10.6	B	0.01	2.1	A	0.04	10.6	B
Southbound Left	0.56	47.6	D	0.89	53.7	D	0.31	51.2	D	1.06	166.3	F
Southbound Thru	0.52	4.3	A	0.53	5.2	A	0.59	4.7	A	0.84	20.7	C
Southbound Right	0.03	2.2	A	0.03	2.7	A	0.01	2.1	A	0.01	8.8	A

NOTES:
(1) Delay is in seconds per vehicle.
(2) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-Service is based on delay.
(3) See Appendix E for Level-of-Service Analysis Worksheets.

The findings of the level-of-service analysis are:

1. The northbound left will operate at Level-of-Service E 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 & Mehameha 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.

Table 10 Mitigation Analysis - Mokulele Highway at Kama'aina Road & Mehameha Loop

Intersection and Movement	AM Peak Hour						PM Peak Hour					
	Without Mitigation			With Mitigation			Without Mitigation			With Mitigation		
	V/C	Delay [1]	LOS [2]	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Overall Intersection	***0.85***	***17.1***	***B***	***0.78***	***16.0***	***B***	***1.07***	***32.6***	***C***	***0.79***	***17.3***	***B***
Eastbound Left ,Thru & Right	0.06	34.8	C	0.08	36.2	D	0.07	20.1	C	0.10	24.0	C
Westbound Left, Thru & Right	0.45	38.9	D				1.01	78.7	E			
Westbound Left & Thru				0.54	44.9	D				0.80	46.2	D
Westbound Right				0.00	41.1	D				0.00	36.1	D
Northbound Left	0.53	57.6	E	0.52	53.9	D	0.22	46.3	D	0.18	39.3	D
Northbound Thru	0.79	19.7	B	0.76	17.5	B	0.91	27.0	C	0.80	15.7	B
Northbound Right	0.13	10.6	B	0.13	9.7	A	0.04	10.6	B	0.04	7.0	A
Southbound Left	0.89	53.7	D	0.89	54.1	D	1.06	166.3	F	0.72	54.7	D
Southbound Thru	0.53	5.2	A	0.52	4.4	A	0.84	20.7	C	0.72	11.3	B
Southbound Right	0.03	2.7	A	0.03	2.3	A	0.01	8.8	A	0.01	5.1	A

NOTES:
(1) Delay is in seconds per vehicle.
(2) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-Service is based on delay.
(3) See Appendix F for Level-of-Service Analysis Worksheets.

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, when 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 58 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.

Levels-of-Service of Unsignalized Intersections

The results of the level-of-service analysis are summarized in Table 11.

Table 11 2015 Levels-of-Service of Unsignalized Intersection

Intersection and Movement	AM Peak Hour With Project Delay (2)	AM Peak Hour With Project LOS (3)	PM Peak Hour With Project Delay	PM Peak Hour With Project LOS
S. Firebreak Rd at Quarry Access Rd (Alternate 1)	***1.1***	***A***	***1.0***	***A***
Westbound Left & Right	9.6	A	11.6	B
Southbound Left & Thru	1.0	A	0.9	A
S. Firebreak Rd at Project Access Rd (Alternate 2)	***7.9***	***A***	***9.7***	***A***
Westbound Left & Right	9.0	A	11.4	B
Southbound Left & Thru	8.0	A	7.0	A
Quarry Access Rd at Project Access Rd (Alternate 2)	***12.3***	***B***	***11.6***	***B***
Eastbound Left, Thru & Right	9.4	A	8.7	A
Westbound Left, Thru & Right	9.7	A	9.1	A
Northbound Left, Thru & Right	8.7	A	12.7	B
Southbound Left, Thru & Right	13.4	B	8.8	A

NOTES:
(1) Denotes volume-to-capacity ratio. Volume-to-capacity ratios are not calculated for the unsignalized intersections.
(2) Delay is in seconds per vehicle.
(3) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-Service is based on delay.
(4) See Appendix G for Level-of-Service Analysis Worksheets

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.

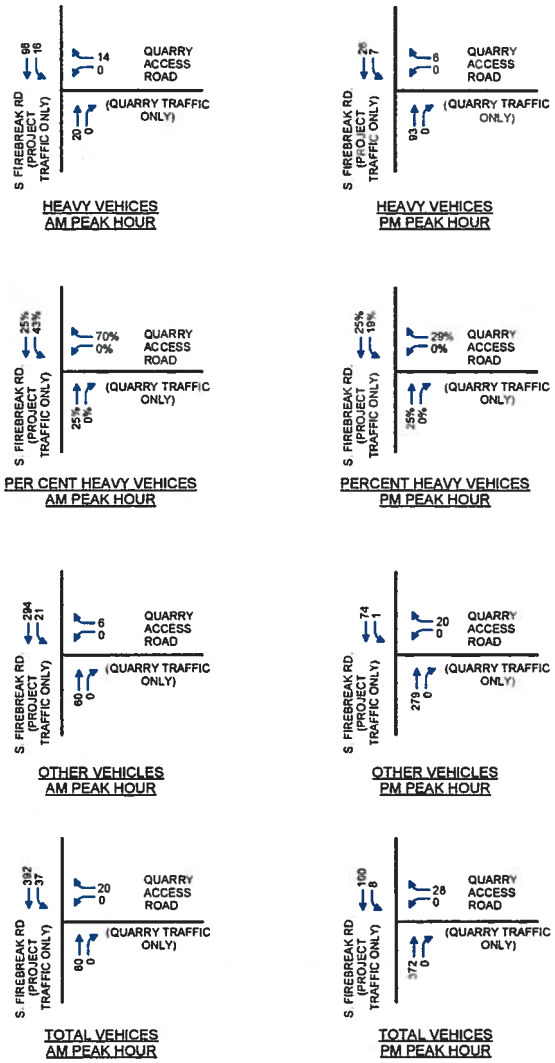


Figure 10
2015 BACKGROUND PLUS PROJECT TRAFFIC PROJECTIONS AT UNSIGNALIZED INTERSECTIONS (ALTERNATE 1)

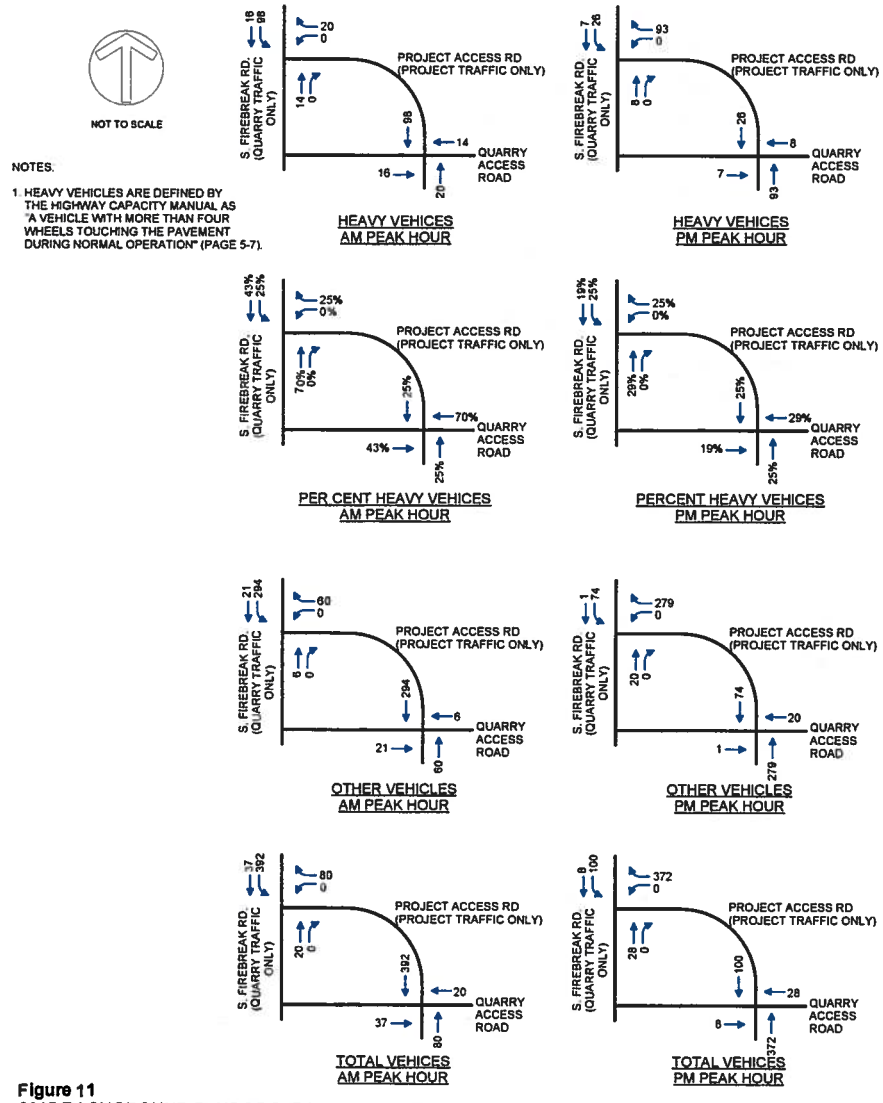


Figure 11
2015 BACKGROUND PLUS PROJECT TRAFFIC PROJECTIONS AT UNSIGNALIZED INTERSECTIONS (ALTERNATE 2)

Required Left Turn Storage Lane Lengths

The left turn storage lengths required to accommodate estimated traffic volumes were calculated using 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 store 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 size vehicle and one truck. A length of 60 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 insure 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 recommended.

Table 12 Left Turn Storage Lane Requirements

Intersection	Approach & Time Period		Design Volume	Cycle Length (Seconds)	Cycles per Hour	Average Vehicles per Cycle	Recommended Length [1] Minimum Veh	Minimum Ft	Desirable Veh	Desirable Ft	Recommendation
Mokulele Hwy at Kama'aina Road	NB	AM	9	90	40	0	0	0	0	0	Retain 60 ft storage lane
		PM	2	90	40	0	0	0	0	0	
	SB	AM	274	90	40	7	11	275	14	350	Increase length of left turn storage lane from 60 to 350 ft
		PM	64	90	40	2	3	75	4	100	

NOTE:
(1) Minimum queue length is 1.5 time average number of vehicles. Desirable queue length is 2.0 time average number of vehicles.

The existing and recommended turn lanes and storage lane lengths at the intersection of Mokulele Highway at Kama'aina 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.

Table 13 Assessment of Deceleration Lane Requirements

Intersection	Approach & Movement		Existing [1]			Recommended		
			Taper (feet)	Deceleration Length (feet)	Storage (feet)	Taper (feet)	Deceleration Length (feet)	Storage (feet)
Mokulele Hwy at Kama'aina Road	NB	Left	180	510	60	180	510	60
		Right	180	475	60	180	475	60
	SB	Left	180	485	60	180	485	350
		Right	180	430	60	180	430	60

NOTE:
(1) Existing lengths were obtained from construction plans of the subject intersection. Plans are dated June 2005

Summary Mitigation Measures and Recommendations

Table 14 is a summary of mitigation required at the intersection of Mokulele Highway at Kama'aina Road. A drawing of these mitigation improvements prepared by the project's civil engineer is presented as Appendix I.

Table 14 Summary of Recommended Mitigation for 2015 Background Conditions

Intersection	Mitigation Required to Mitigate Existing (2011) Deficiencies	Mitigation Required to Mitigate Background Deficiencies	Mitigation Required to Mitigate Background Plus Project Deficiencies
Mokulele Hwy at Kama'aina Rd and Mehameha Loop	No mitigation required.	No mitigation required.	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 to the mitigation measures described above, the following is recommended:

1. The areas adjacent to Kama'aina Road, South Firebreak Road and Lower Kihei Road should be monitored to insure 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 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 distances required for the heavy vehicles.

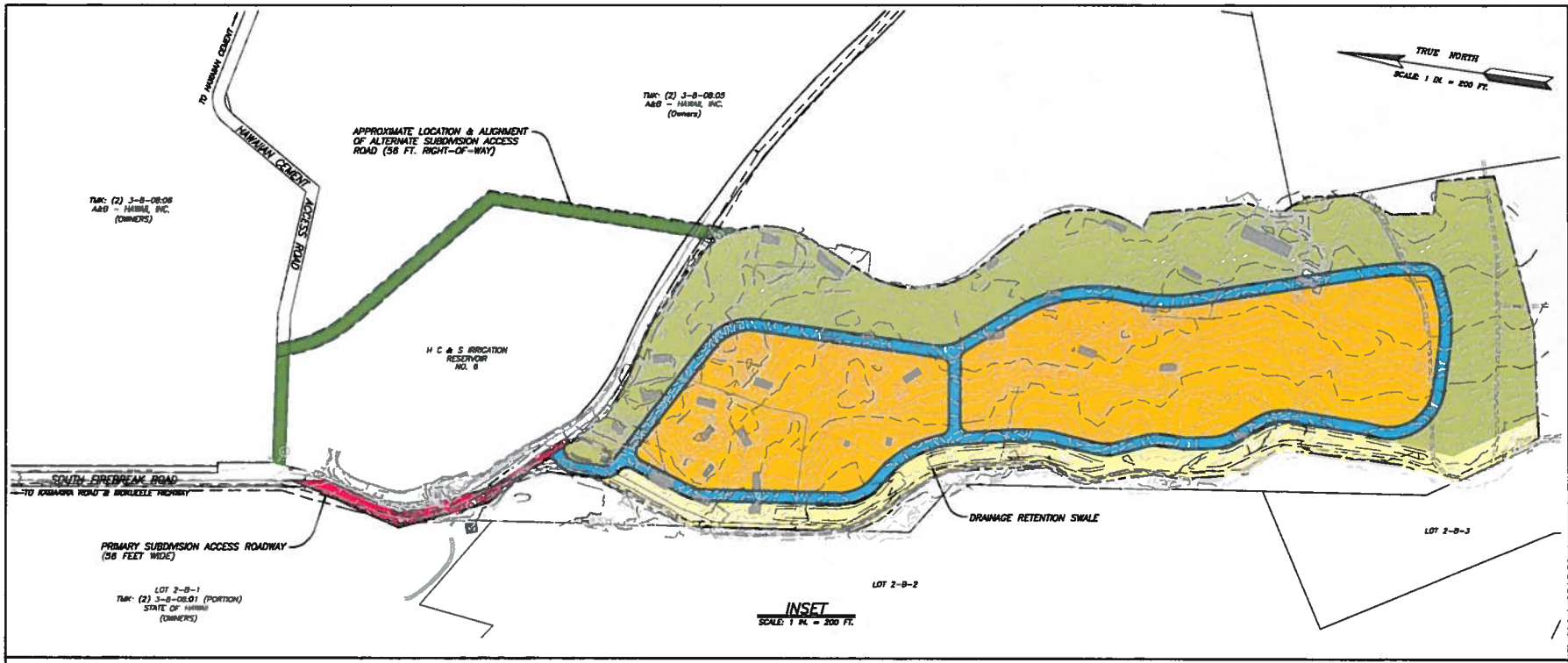
Early Consultation Letters and Responses

Letters were received from the following agencies in response to requests for early consultation comments:

1. State of Hawaii Department of Transportation
2. State of Hawaii Department of Business, Economic Development and Tourism Office of Planning
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.)



INSET
SCALE: 1 IN. = 200 FT.

PROPOSED LAND DEVELOPMENT PLAN
SCALE: 1 IN. = 1000 FT.

LEGEND:

- LARGE LOTS
- SMALL LOTS
- PRIMARY ACCESS ROAD
- ALTERNATE ACCESS ROAD

OTOMO ENGINEERING, INC.
CONSULTING CIVIL ENGINEERS
305 S. HIGH STREET, STE. 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-4032
FAX: (808) 242-0776

STACY A. OTOMO
LICENSED PROFESSIONAL ENGINEER
No. 3113-C
HAWAII, U.S.A.

SIGNATURE DATE

PUUNENE HEAVY INDUSTRIAL SUBDIVISION

T.M.K.: (2) 3-8-08: 19

PUUNENE, MAUI, HAWAII

PROPOSED LAND DEVELOPMENT PLAN

REVISION	DATE	NOTE
△		
△		
△		
△		
△		
△		

DESIGNED BY: S.A.O.
DRAWN BY: L.C.D.
PROJECT NO.: 2011-48
DRAWING NAME: DRWG/13 DEV PLAN
DATE: 2-6-12

SHEET NO.
LDP-1
OF SHEETS

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: PUUNENE HEAVY INDUSTRIAL SUBDIVISION
INTERSECTION: Mokulele Highway at Kamaaina Road and Mehameha Loop (HEAVY VEHICLES)
DAY & DATE: Friday, August 12, 2011
START TIME: 6:45 am
END TIME: 8:30 am

15-Minute Volumes Beginning at:

		North Approach			East Approach			South Approach			West Approach			
Interval	Start Time	1	2	3	4	5	6	7	8	9	10	11	12	Totals
1	6:45 am	0	14	4	4	0	0	0	8	0	0	0	0	30
2	7:00 am	0	8	3	3	0	1	2	17	0	0	0	0	34
3	7:15 am	0	13	3	3	0	0	1	11	0	0	0	0	31
4	7:30 am	0	12	6	3	0	2	0	6	0	0	0	0	29
5	7:45 am	0	17	3	2	0	0	0	6	0	0	0	0	28
6	8:00 am	0	17	4	2	0	2	0	12	0	0	0	0	37
7	8:15 am													0
8	8:30 am													0
9	8:45 am													0
10	9:00 am													0
11	9:15 am													0
12	9:30 am													0
13	9:45 am													0
14	10:00 am													0
	Maximum:	0	17	6	4	0	2	2	17	0	0	0	0	37

Hourly Volume of Each Movement

6:45 am	7:45 am	0	47	16	13	0	3	3	42	0	0	0	0	124
7:00 am	8:00 am	0	50	15	11	0	3	3	40	0	0	0	0	122
7:15 am	8:15 am	0	59	16	10	0	4	1	35	0	0	0	0	125
7:30 am	8:30 am													
7:45 am	8:45 am													
8:00 am	9:00 am													
8:15 am	9:15 am													
8:30 am	9:30 am													
8:45 am	9:45 am													
9:00 am	10:00 am													
9:15 am	10:15 am													
Peak Hour Volume		0	59	16	10	0	4	1	35	0	0	0	0	125
Peak Hour Factor:		0.00	0.87	0.67	0.63	0.00	0.50	0.13	0.51	0.00	0.00	0.00	0.00	0.84

Total Arrivals		75		14		36		0
Total Departures		45		17		63		0
Total		120		31		99		0

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: PUUNENE HEAVY INDUSTRIAL SUBDIVISION
INTERSECTION: Mokulele Highway at Kamaaina Road and Mehameha Loop (TOTAL VEHICLES)
DAY & DATE: Thursday, August 11, 2011
START TIME: 3:30 pm
END TIME: 5:30 pm

15-Minute Volumes Beginning at:

		North Approach			East Approach			South Approach			West Approach			
Interval	Start Time	1	2	3	4	5	6	7	8	9	10	11	12	Totals
1	3:30 pm	4	282	0	7	0	3	3	327	0	4	0	5	635
2	3:45 pm	4	313	1	3	0	5	0	247	1	4	0	4	582
3	4:00 pm	1	277	1	4	0	0	2	290	1	0	0	6	582
4	4:15 pm	0	289	0	3	0	3	1	318	0	3	0	4	621
5	4:30 pm	1	283	0	4	0	0	0	266	1	3	0	2	560
6	4:45 pm	1	311	0	2	0	1	0	237	2	2	0	4	560
7	5:00 pm	1	284	0	0	0	0	1	269	0	2	0	1	558
8	5:15 pm	0	308	0	1	0	1	0	291	0	1	0	1	603
9	5:30 pm													0
10	5:45 pm													0
11	6:00 pm													0
12	6:15 pm													0
13	6:30 pm													0
14	6:45 pm													0
	Maximum:	4	313	1	7	0	5	3	327	2	4	0	6	635

Hourly Volume of Each Movement

3:30 pm	4:30 pm	9	1161	2	17	0	11	6	1182	2	11	0	19	2420
3:45 pm	4:45 pm	6	1162	2	14	0	8	3	1121	3	10	0	16	2345
4:00 pm	5:00 pm	3	1160	1	13	0	4	3	1111	4	8	0	16	2323
4:15 pm	5:15 pm	3	1167	0	9	0	4	2	1090	3	10	0	11	2299
4:30 pm	5:30 pm	3	1186	0	7	0	2	1	1063	3	8	0	8	2281
4:45 pm	5:45 pm													
5:00 pm	6:00 pm													
5:15 pm	6:15 pm													
5:30 pm	6:30 pm													
5:45 pm	6:45 pm													
6:00 pm	7:00 pm													
Peak Hour Volume		9	1161	2	17	0	11	6	1182	2	11	0	19	2420
Peak Hour Factor:		0.56	0.93	0.50	0.61	0.00	0.55	0.50	0.90	0.25	0.69	0.00	0.79	0.95

Total Arrivals		1172		28		1190		30
Total Departures		1218		8		1183		11
Total		2390		36		2373		41

TRAFFIC COUNT SUMMARY WORKSHEET

PROJECT: PUUNENE HEAVY INDUSTRIAL SUBDIVISION
INTERSECTION: Mokulele Highway at Kamaaina Road and Mehameha Loop (HEAVY VEHICLES)
DAY & DATE: Thursday, August 11, 2011
START TIME: 3:30 pm
END TIME: 5:30 pm

15-Minute Volumes Beginning at:

		North Approach			East Approach			South Approach			West Approach			
Interval	Start Time	1	2	3	4	5	6	7	8	9	10	11	12	Totals
1	3:30 pm	0	3	0	0	0	2	2	7	0	0	0	0	14
2	3:45 pm	0	2	1	0	0	3	0	11	0	0	0	0	17
3	4:00 pm	0	3	1	0	0	0	2	12	0	0	0	0	18
4	4:15 pm	0	4	0	0	0	3	1	7	0	0	0	0	15
5	4:30 pm	0	4	0	0	0	0	0	8	0	0	0	0	12
6	4:45 pm	0	2	0	0	0	0	0	9	0	0	0	0	11
7	5:00 pm	0	4	0	0	0	0	0	2	0	0	0	0	6
8	5:15 pm	0	2	0	0	0	0	0	4	0	0	0	0	6
9	5:30 pm													0
10	5:45 pm													0
11	6:00 pm													0
12	6:15 pm													0
13	6:30 pm													0
14	6:45 pm													0
	Maximum:	0	4	1	0	0	3	2	12	0	0	0	0	18

Hourly Volume of Each Movement

3:30 pm	4:30 pm	0	12	2	0	0	8	5	37	0	0	0	0	64
3:45 pm	4:45 pm	0	13	2	0	0	6	3	38	0	0	0	0	62
4:00 pm	5:00 pm	0	13	1	0	0	3	3	36	0	0	0	0	56
4:15 pm	5:15 pm	0	14	0	0	0	3	1	26	0	0	0	0	44
4:30 pm	5:30 pm	0	12	0	0	0	0	0	23	0	0	0	0	35
4:45 pm	5:45 pm													
5:00 pm	6:00 pm													
5:15 pm	6:15 pm													
5:30 pm	6:30 pm													
5:45 pm	6:45 pm													
6:00 pm	7:00 pm													
Peak Hour Volume		0	12	2	0	0	8	5	37	0	0	0	0	64
Peak Hour Factor:		0.00	0.75	0.50	0.00	0.00	0.67	0.63	0.77	0.00	0.00	0.00	0.00	0.89
Total Arrivals			14			8			42			0		
Total Departures			37			7			20			0		
Total			51			15			62			0		

Appendix C
Level-of-Service Worksheets for Existing Conditions

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 11/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756			994		1805	3505	1380	1220	3406	1615
Flt Permitted		0.78			0.87		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1415			882		1805	3505	1380	1220	3406	1615
Volume (vph)	3	0	1	5	0	15	9	1086	6	31	1040	22
Peak-hour factor, PHF	0.38	0.92	0.25	0.42	0.92	0.75	0.56	0.91	0.38	0.78	0.95	0.50
Adj. Flow (vph)	8	0	4	12	0	20	16	1193	16	40	1095	44
RTOR Reduction (vph)	0	4	0	0	19	0	0	0	4	0	0	10
Lane Group Flow (vph)	0	8	0	0	13	0	16	1193	12	40	1095	34
Heavy Vehicles (%)	0%	0%	0%	80%	0%	67%	0%	3%	17%	48%	6%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		5.0			5.0		1.5	60.7	60.7	4.8	64.0	64.0
Effective Green, g (s)		5.0			5.0		1.5	60.7	60.7	4.8	64.0	64.0
Actuated g/C Ratio		0.06			0.06		0.02	0.74	0.74	0.06	0.78	0.78
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		86			53		33	2579	1015	71	2642	1253
v/s Ratio Prot							0.01	c0.34		c0.03	c0.32	
v/s Ratio Perm		0.01			c0.04				0.01			0.03
v/c Ratio		0.10			0.25		0.48	0.46	0.01	0.56	0.41	0.03
Uniform Delay, d1		36.6			37.0		40.1	4.4	2.9	37.8	3.1	2.1
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			2.5		10.8	0.6	0.0	9.8	0.5	0.0
Delay (s)		37.1			39.4		50.9	5.0	2.9	47.7	3.5	2.2
Level of Service		D			D		D	A	A	D	A	A
Approach Delay (s)		37.1			39.4			5.5			5.0	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	5.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	40.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 8/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1745			1315		1805	3505	883	902	3574	1615
Flt Permitted		0.90			0.87		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1615			1166		1805	3505	883	902	3574	1615
Volume (vph)	19	0	11	11	0	17	2	1182	6	2	1161	9
Peak-hour factor, PHF	0.79	0.92	0.69	0.55	0.92	0.61	0.50	0.90	0.50	0.50	0.93	0.56
Adj. Flow (vph)	24	0	16	20	0	28	4	1313	12	4	1248	16
RTOR Reduction (vph)	0	15	0	0	26	0	0	0	3	0	0	4
Lane Group Flow (vph)	0	25	0	0	22	0	4	1313	9	4	1248	12
Heavy Vehicles (%)	0%	0%	0%	73%	0%	0%	0%	3%	83%	100%	1%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		4.9			4.9		1.1	60.2	60.2	1.1	60.2	60.2
Effective Green, g (s)		4.9			4.9		1.1	60.2	60.2	1.1	60.2	60.2
Actuated g/C Ratio		0.06			0.06		0.01	0.77	0.77	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		101			73		25	2698	680	13	2751	1243
v/s Ratio Prot							0.00	c0.37		c0.00	0.35	
v/s Ratio Perm		0.02			c0.04				0.01			0.01
v/c Ratio		0.25			0.30		0.16	0.49	0.01	0.31	0.45	0.01
Uniform Delay, d1		34.9			35.0		38.1	3.3	2.1	38.2	3.2	2.1
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3			2.3		3.0	0.6	0.0	13.0	0.5	0.0
Delay (s)		36.2			37.3		41.1	3.9	2.1	51.2	3.7	2.1
Level of Service		D			D		D	A	A	D	A	A
Approach Delay (s)		36.2			37.3			4.0			3.9	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	5.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	42.7%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Appendix D
Level-of-Service Worksheets for 2015 Background Conditions

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 8/25/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756			994		1805	3505	1380	1220	3438	1615
Flt Permitted		0.78			0.87		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1415			882		1805	3505	1380	1220	3438	1615
Volume (vph)	3	0	1	5	0	15	9	1371	6	31	1301	22
Peak-hour factor, PHF	0.38	0.92	0.25	0.42	0.92	0.75	0.58	0.95	0.38	0.78	0.95	0.50
Adj. Flow (vph)	8	0	4	12	0	20	16	1443	16	40	1369	44
RTOR Reduction (vph)	0	4	0	0	19	0	0	0	4	0	0	10
Lane Group Flow (vph)	0	8	0	0	13	0	16	1443	12	40	1369	34
Heavy Vehicles (%)	0%	0%	0%	80%	0%	67%	0%	3%	17%	48%	5%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		5.0			5.0		1.8	60.6	60.6	4.8	63.6	63.6
Effective Green, g (s)		5.0			5.0		1.8	60.6	60.6	4.8	63.6	63.6
Actuated g/C Ratio		0.06			0.06		0.02	0.74	0.74	0.06	0.77	0.77
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		86			54		39	2578	1015	71	2654	1247
v/s Ratio Prot							0.01	c0.41		c0.03	c0.40	
v/s Ratio Perm		0.01			c0.04				0.01			0.03
v/c Ratio		0.10			0.24		0.41	0.56	0.01	0.56	0.52	0.03
Uniform Delay, d1		36.6			36.9		39.8	4.9	2.9	37.8	3.6	2.2
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.5			2.4		6.9	0.9	0.0	9.8	0.7	0.0
Delay (s)		37.1			39.3		46.7	5.8	2.9	47.6	4.3	2.2
Level of Service		D			D		D	A	A	D	A	A
Approach Delay (s)		37.1			39.3			6.2			5.4	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	6.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	82.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 1/24/2012

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1745			1315		1805	3539	883	902	3574	1615
Flt Permitted		0.90			0.87		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1615			1166		1805	3539	883	902	3574	1615
Volume (vph)	19	0	11	11	0	17	2	1521	6	2	1536	9
Peak-hour factor, PHF	0.79	0.92	0.69	0.55	0.92	0.61	0.50	0.95	0.50	0.50	0.95	0.56
Adj. Flow (vph)	24	0	16	20	0	28	4	1601	12	4	1617	16
RTOR Reduction (vph)	0	15	0	0	26	0	0	0	3	0	0	4
Lane Group Flow (vph)	0	25	0	0	22	0	4	1601	9	4	1617	12
Heavy Vehicles (%)	0%	0%	0%	73%	0%	0%	0%	2%	83%	100%	1%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		4.9			4.9		1.1	60.2	60.2	1.1	60.2	60.2
Effective Green, g (s)		4.9			4.9		1.1	60.2	60.2	1.1	60.2	60.2
Actuated g/C Ratio		0.06			0.06		0.01	0.77	0.77	0.01	0.77	0.77
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		101			73		25	2724	680	13	2751	1243
v/s Ratio Prot							0.00	0.45		c0.00	c0.45	
v/s Ratio Perm		0.02			c0.04				0.01			0.01
v/c Ratio		0.25			0.30		0.16	0.59	0.01	0.31	0.59	0.01
Uniform Delay, d1		34.9			35.0		38.1	3.8	2.1	38.2	3.8	2.1
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		1.3			2.3		3.0	0.9	0.0	13.0	0.9	0.0
Delay (s)		36.2			37.3		41.1	4.7	2.1	51.2	4.7	2.1
Level of Service		D			D		D	A	A	D	A	A
Approach Delay (s)		36.2			37.3			4.8			4.8	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	5.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	78.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Appendix E
Level-of-Service Worksheets for 2015 Background Plus Project Conditions

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 9/1/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.91		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756			1276		1805	3505	1292	1410	3438	1615
Flt Permitted		0.80			0.88		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1445			1138		1805	3505	1292	1410	3438	1615
Volume (vph)	3	0	1	36	0	64	9	1371	155	274	1301	22
Peak-hour factor, PHF	0.38	0.92	0.25	0.90	0.92	0.90	0.56	0.95	0.90	0.90	0.95	0.50
Adj. Flow (vph)	8	0	4	40	0	71	16	1443	172	304	1369	44
RTOR Reduction (vph)	0	4	0	0	65	0	0	0	82	0	0	11
Lane Group Flow (vph)	0	8	0	0	46	0	16	1443	90	304	1369	33
Heavy Vehicles (%)	0%	0%	0%	33%	0%	34%	0%	3%	25%	28%	5%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		7.6			7.6		1.4	43.5	43.5	20.2	62.3	62.3
Effective Green, g (s)		7.6			7.6		1.4	43.5	43.5	20.2	62.3	62.3
Actuated g/C Ratio		0.09			0.09		0.02	0.52	0.52	0.24	0.75	0.75
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		132			104		30	1830	675	342	2571	1208
v/s Ratio Prot							0.01	c0.41		c0.22	0.40	
v/s Ratio Perm		0.01			c0.10				0.13			0.03
v/c Ratio		0.06			0.45		0.53	0.79	0.13	0.89	0.53	0.03
Uniform Delay, d1		34.6			35.9		40.6	16.2	10.2	30.5	4.4	2.7
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.2			3.0		17.0	3.5	0.4	23.2	0.8	0.0
Delay (s)		34.8			38.9		57.6	19.7	10.6	53.7	5.2	2.7
Level of Service		C			D		E	B	B	D	A	A
Approach Delay (s)		34.8			38.9			19.1			13.7	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	83.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 8/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			0.92		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.98		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1745			1368		1805	3539	1205	1410	3574	1615
Flt Permitted		0.76			0.86		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1370			1196		1805	3539	1205	1410	3574	1615
Volume (vph)	19	0	11	152	0	248	2	1521	44	64	1536	9
Peak-hour factor, PHF	0.79	0.92	0.69	0.90	0.92	0.90	0.50	0.95	0.90	0.90	0.95	0.56
Adj. Flow (vph)	24	0	16	169	0	276	4	1601	49	71	1617	16
RTOR Reduction (vph)	0	11	0	0	74	0	0	0	25	0	0	7
Lane Group Flow (vph)	0	29	0	0	371	0	4	1601	24	71	1617	9
Heavy Vehicles (%)	0%	0%	0%	28%	0%	23%	0%	2%	34%	28%	1%	0%
Turn Type	Perm			Perm			Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		25.0			25.0		0.8	40.7	40.7	3.9	43.8	43.8
Effective Green, g (s)		25.0			25.0		0.8	40.7	40.7	3.9	43.8	43.8
Actuated g/C Ratio		0.31			0.31		0.01	0.50	0.50	0.05	0.54	0.54
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		420			366		18	1765	601	67	1918	867
v/s Ratio Prot							0.00	c0.45		c0.05	c0.45	
v/s Ratio Perm		0.03			c0.37				0.04			0.01
v/c Ratio		0.07			1.01		0.22	0.91	0.04	1.06	0.84	0.01
Uniform Delay, d1		20.1			28.3		40.1	18.7	10.5	38.8	16.0	8.8
Progression Factor		1.00			1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1			50.4		6.2	8.3	0.1	127.4	4.7	0.0
Delay (s)		20.1			78.7		46.3	27.0	10.6	166.3	20.7	8.8
Level of Service		C			E		D	C	B	F	C	A
Approach Delay (s)		20.1			78.7			26.6			26.7	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM Average Control Delay	32.6	HCM Level of Service	C
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Appendix F
Level-of-Service Worksheets for 2015 Background Plus Project Conditions with Mitigation

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 8/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1756			1357	1205	1805	3505	1292	1410	3438	1615
Flt Permitted		0.78			0.75	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1424			1071	1205	1805	3505	1292	1410	3438	1615
Volume (vph)	3	0	1	36	0	64	9	1371	155	274	1301	22
Peak-hour factor, PHF	0.38	0.92	0.25	0.90	0.92	0.90	0.56	0.95	0.90	0.90	0.95	0.50
Adj. Flow (vph)	8	0	4	40	0	71	16	1443	172	304	1369	44
RTOR Reduction (vph)	0	4	0	0	0	71	0	0	79	0	0	10
Lane Group Flow (vph)	0	8	0	0	40	0	16	1443	93	304	1369	34
Heavy Vehicles (%)	0%	0%	0%	33%	0%	34%	0%	3%	25%	28%	5%	0%
Turn Type	Perm			Perm		NA	Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		5.7			5.7	0.0	1.4	44.7	44.7	19.9	63.2	63.2
Effective Green, g (s)		5.7			5.7	0.0	1.4	44.7	44.7	19.9	63.2	63.2
Actuated g/C Ratio		0.07			0.07	0.00	0.02	0.54	0.54	0.24	0.77	0.77
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		99			74	0	31	1904	702	341	2640	1240
v/s Ratio Prot							0.01	c0.41		c0.22	0.40	
v/s Ratio Perm		0.01			c0.04				0.13			0.03
v/c Ratio		0.08			0.54	0.00	0.52	0.76	0.13	0.89	0.52	0.03
Uniform Delay, d1		35.9			37.0	41.1	40.1	14.6	9.3	30.2	3.7	2.3
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.4			7.8	0.0	13.7	2.9	0.4	24.0	0.7	0.0
Delay (s)		36.2			44.9	41.1	53.9	17.5	9.7	54.1	4.4	2.3
Level of Service		D			D	D	D	B	A	D	A	A
Approach Delay (s)		36.2			42.5			17.0			13.2	
Approach LOS		D			D			B			B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	82.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
1: KAMA'AINA ROAD & MOKULELE HIGHWAY 8/30/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.95			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.97			0.95	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1745			1410	1313	1805	3539	1205	1410	3574	1615
Flt Permitted		0.80			0.73	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)		1445			1085	1313	1805	3539	1205	1410	3574	1615
Volume (vph)	19	0	11	152	0	248	2	1521	44	64	1536	9
Peak-hour factor, PHF	0.79	0.92	0.69	0.90	0.92	0.90	0.50	0.95	0.90	0.90	0.95	0.56
Adj. Flow (vph)	24	0	16	169	0	276	4	1601	49	71	1617	16
RTOR Reduction (vph)	0	13	0	0	0	276	0	0	21	0	0	6
Lane Group Flow (vph)	0	27	0	0	169	0	4	1601	28	71	1617	10
Heavy Vehicles (%)	0%	0%	0%	28%	0%	23%	0%	2%	34%	28%	1%	0%
Turn Type	Perm			Perm		NA	Prot		Perm	Prot		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8					2			6
Actuated Green, G (s)		14.1			14.1	0.0	0.9	41.1	41.1	5.1	45.3	45.3
Effective Green, g (s)		14.1			14.1	0.0	0.9	41.1	41.1	5.1	45.3	45.3
Actuated g/C Ratio		0.20			0.20	0.00	0.01	0.57	0.57	0.07	0.63	0.63
Clearance Time (s)		4.0			4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)		3.0			3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)		282			212	0	22	2012	685	99	2239	1012
v/s Ratio Prot							0.00	c0.45		c0.05	0.45	
v/s Ratio Perm		0.03			c0.16				0.04			0.01
v/c Ratio		0.10			0.80	0.00	0.18	0.80	0.04	0.72	0.72	0.01
Uniform Delay, d1		23.9			27.7	36.1	35.3	12.3	6.9	32.9	9.2	5.1
Progression Factor		1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		0.1			18.5	0.0	4.0	3.4	0.1	21.8	2.1	0.0
Delay (s)		24.0			46.2	36.1	39.3	15.7	7.0	54.7	11.3	5.1
Level of Service		C			D	D	D	B	A	D	B	A
Approach Delay (s)		24.0			40.0			15.5			13.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Appendix G
Level-of-Service Worksheets for Project Entrances

HCM Unsignalized Intersection Capacity Analysis
2: QUARRY ACCESS ROAD & SOUTH FIREBREAK ROAD 9/18/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	20	80	0	37	392
Peak Hour Factor	0.92	0.96	0.90	0.92	0.92	0.90
Hourly flow rate (vph)	0	21	89	0	40	436
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	605	89			89	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	605	89			89	
tC, single (s)	6.4	6.9			4.5	
tC, 2 stage (s)						
tF (s)	3.5	3.9			2.6	
p0 queue free %	100	97			97	
cM capacity (veh/h)	446	811			1284	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	21	89	476
Volume Left	0	0	40
Volume Right	21	0	0
cSH	811	1700	1284
Volume to Capacity	0.03	0.05	0.03
Queue Length 95th (ft)	2	0	2
Control Delay (s)	9.6	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: QUARRY ACCESS ROAD & SOUTH FIREBREAK ROAD 10/10/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	28	372	0	8	100
Peak Hour Factor	0.92	0.70	0.90	0.92	0.67	0.90
Hourly flow rate (vph)	0	40	413	0	12	111
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	548	413			413	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	548	413			413	
tC, single (s)	6.4	6.5			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.6			2.4	
p0 queue free %	100	93			99	
cM capacity (veh/h)	492	585			1060	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	40	413	123
Volume Left	0	0	12
Volume Right	40	0	0
cSH	585	1700	1060
Volume to Capacity	0.07	0.24	0.01
Queue Length 95th (ft)	5	0	1
Control Delay (s)	11.6	0.0	0.9
Lane LOS	B		A
Approach Delay (s)	11.6	0.0	0.9
Approach LOS	B		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: INDUSTRIAL PARK ACCESS ROAD & SOUTH FIREBREAK ROAD

9/23/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	80	20	0	392	37
Peak Hour Factor	0.92	0.90	0.96	0.92	0.90	0.92
Hourly flow rate (vph)	0	89	21	0	436	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	932	21			21	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	932	21			21	
tC, single (s)	6.4	6.5			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.4	
p0 queue free %	100	91			70	
cM capacity (veh/h)	207	994			1458	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	21	476
Volume Left	0	0	436
Volume Right	89	0	0
cSH	994	1700	1458
Volume to Capacity	0.09	0.01	0.30
Queue Length 95th (ft)	7	0	32
Control Delay (s)	9.0	0.0	8.0
Lane LOS	A		A
Approach Delay (s)	9.0	0.0	8.0
Approach LOS	A		

Intersection Summary			
Average Delay	7.9		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: QUARRY ACCESS ROAD & INDUSTRIAL PARK ACCESS ROAD

9/23/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	37	0	0	20	0	0	80	0	0	392	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.93	0.70	0.92	0.90	0.92	0.92	0.90	0.92
Hourly flow rate (vph)	0	40	0	0	22	0	0	89	0	0	436	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	40	22	89	436
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Had_j (s)	0.73	1.19	0.42	0.42
Departure Headway (s)	6.0	6.5	5.0	4.6
Degree Utilization, x	0.07	0.04	0.12	0.56
Capacity (veh/h)	549	506	690	761
Control Delay (s)	9.4	9.7	8.7	13.4
Approach Delay (s)	9.4	9.7	8.7	13.4
Approach LOS	A	A	A	B

Intersection Summary			
Delay	12.3		
HCM Level of Service	B		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
2: INDUSTRIAL PARKACCESS ROAD & SOUTH FIREBREAK ROAD

10/10/2011

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	372	28	0	100	8
Peak Hour Factor	0.92	0.90	0.70	0.92	0.90	0.67
Hourly flow rate (vph)	0	413	40	0	111	12
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	274	40			40	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	40			40	
tC, single (s)	6.4	6.5			4.3	
tC, 2 stage (s)						
tF (s)	3.5	3.5			2.4	
p0 queue free %	100	57			92	
cM capacity (veh/h)	660	969			1434	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	413	40	123
Volume Left	0	0	111
Volume Right	413	0	0
cSH	969	1700	1434
Volume to Capacity	0.43	0.02	0.08
Queue Length 95th (ft)	54	0	6
Control Delay (s)	11.4	0.0	7.0
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	7.0
Approach LOS	B		

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
4: QUARRY ACCESS ROAD & INDUSTRIAL PARKACCESS ROAD

10/10/2011

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	8	0	0	28	0	0	372	0	0	100	0
Peak Hour Factor	0.92	0.67	0.92	0.90	0.70	0.90	0.92	0.90	0.90	0.67	0.90	0.92
Hourly flow rate (vph)	0	12	0	0	40	0	0	413	0	0	111	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	12	40	413	111
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.32	0.49	0.42	0.42
Departure Headway (s)	5.6	5.7	4.6	4.9
Degree Utilization, x	0.02	0.06	0.53	0.15
Capacity (veh/h)	579	573	770	701
Control Delay (s)	8.7	9.1	12.7	8.8
Approach Delay (s)	8.7	9.1	12.7	8.8
Approach LOS	A	A	B	A

Intersection Summary			
Delay	11.6		
HCM Level of Service	B		
Intersection Capacity Utilization	29.6%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix H
Agency Early Consultation Comments and Responses

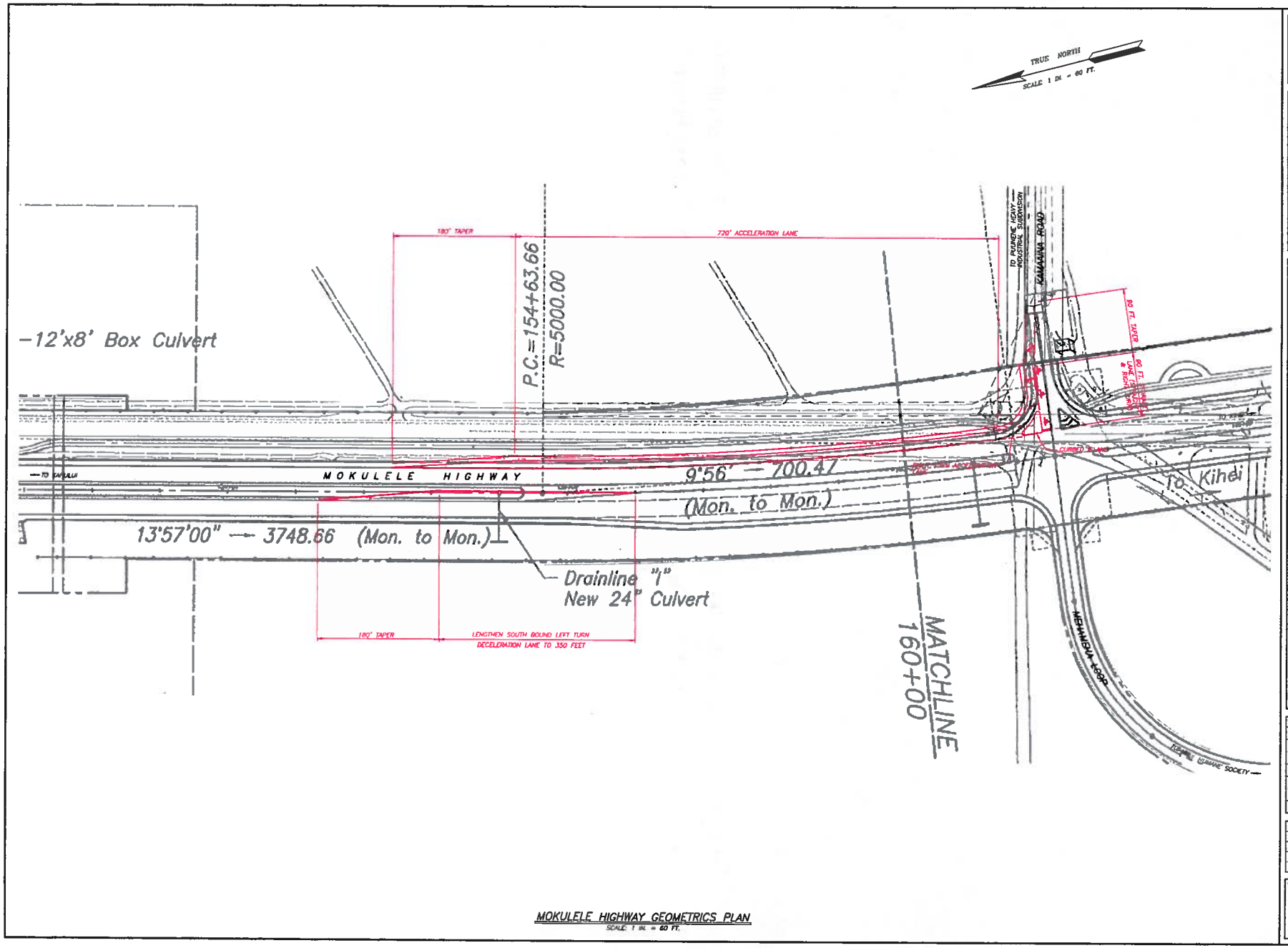
Responses to Comments from State of Hawaii Department of Transportation
Comment Letter Dated August 4, 2011

	Comment	Response
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 Mokulele Highway and propose mitigation measures, as required. It should take into account ambient traffic from other existing uses that use Kamaaina Road.	Acknowledged. The TIAR projections include traffic generated by all known projects in the northern portion of Kihei 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 Mokulele Highway at Kamaaina Road.
2.	Since there may be a possibility that some project traffic might use the Maui Raceway Park roadways as a shortcut to Mokulele 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 swell 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 in 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 28, 2011

	Comment	Response
1.	At the entry/exit points of the property, proper lighting and line of sight will be critical of vehicular and pedestrian safety.	Acknowledged.
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 further 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 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 on 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



MOKULELE HIGHWAY GEOMETRICS PLAN
SCALE: 1 IN. = 60 FT.

OTOMO ENGINEERING, INC.
CONSULTING CIVIL ENGINEERS
303 S. HIGH STREET, STE. 102
WAILUKU, MAUI, HAWAII 96793
PHONE: (808) 242-6022
FAX: (808) 242-5779

STACY A. OTOMO
LICENSED PROFESSIONAL ENGINEER
No. 5115-C
HAWAII, U.S.A.

SIGNATURE DATE

PUUNENE HEAVY INDUSTRIAL SUBDIVISION

T.M.K.: (2) 3-8-08: 19

PUUNENE, MAUI, HAWAII

MOKULELE HIGHWAY GEOMETRICS PLAN

REVISION	DATE	NOTE
△		
△		
△		
△		
△		
△		
△		

DESIGNED BY: S.A.O.
DRAWN BY: L.C.D.
PROJECT NO: 2011-46
DRAWING NAME: EMBER/MOKULELE HIP
DATE: 1-4-12

SHEET NO.
1
OF SHEETS

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, Chairperon
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

Mr. Alapaki Nahale-a, Chairperon
Office of the Chairperson
Hawai`i Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96809

Mr. Wilfred Nagamine, Chief
Clean Air Branch
Hawai`i Dept. of Health
919 Ala Moana Blvd., Suite 203
Honolulu, Hawaii 96814

Mr. Alec Wong, Chief
Clean Water Branch
Hawai`i Dept. of Health
919 Ala Moana Blvd., Room 301
Honolulu, HI 96801-3378

Mr. Jeff Eckerd, Acting Chief
Indoor & Radiological Health Branch
Hawai`i Dept. of Health
591 Ala Moana Blvd.
Honolulu, HI 96813

Ms. Joanna Seto, Chief
Safe Drinking Water Branch
Hawai`i 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, 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 Aiu, Administrator
State Historic Preservation Division
Hawai`i Dept. of Land & Natural Resources
Kakuhihewa 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 (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 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

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

June 23, 2011

Mr. William Spence, Director
Department of Planning
County of Maui
200 S. High 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. Spence,

On behalf of the land owner, CMBY 2011 Investment, LLC, Chris Hart & Partners will be preparing a Draft Environmental Assessment (EA) for a proposed heavy industrial subdivision in the vicinity of the Old Pu`unene Airport on the island of Maui.

Project Location and Land Use

The subject parcel is located about 1.4 miles east of Mokulele Highway in the vicinity of the Old Pu`unene Airport. See Location Maps. The approximately 86-acre site is currently vacant and undeveloped. Access from Mokulele Highway to the site is provided by Kama`aina Road, a paved two-lane roadway under State jurisdiction. Kama`aina Road also provides access to a Hawaiian Cement quarry and HC&S sugarcane fields in the surrounding area.

The subject property lies in the *State Agricultural District* and is designated for *Agricultural* uses by the Kihei-Makena Community Plan and Maui County zoning. The parcel also falls within the proposed Urban Growth Boundaries for the *draft* Maui Island Plan (2030).

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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 HC&S 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* (PD 10) use by the Kihei-Makena Community Plan (1998). 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-Makena 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 Boundaries for the *draft* Maui Island Plan.

Proposed Action

The Applicant plans to subdivide the subject parcel into 28 fee-simple, heavy industrial lots ranging from approximately 0.63 acre to 13.41 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 onsite drainage system, landscape 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 on the subdivided lots as these improvements will be the sole responsibility of future lot owners.

In order to legally access the subject parcel from Mokulele 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 Mokulele Highway to the subject parcel, the Applicant's request includes a 26-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`aina Road and a 26-foot wide strip of land across three adjacent State parcels), an environmental assessment (EA) will be prepared in accordance with Chapter 343, Hawai`i Revised Statutes and Title 11, Chapter 200, Hawai`i 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
- Archaeological & Cultural Resources
- Scenic/Open Space Resources

Public Services:
- Solid Waste Disposal
- Police and Fire Protection
- Educational & Recreational Resources
- Health Services

Social & Economic Environment:
- Population & Economy

Infrastructure:
- Water
- Drainage
- Wastewater
- Roadways
- Electrical and Telephone Systems

Government Laws, Plans & Controls
- State Land Use Law
- Maui County General Plan
- Kihei-Makena 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 Resources

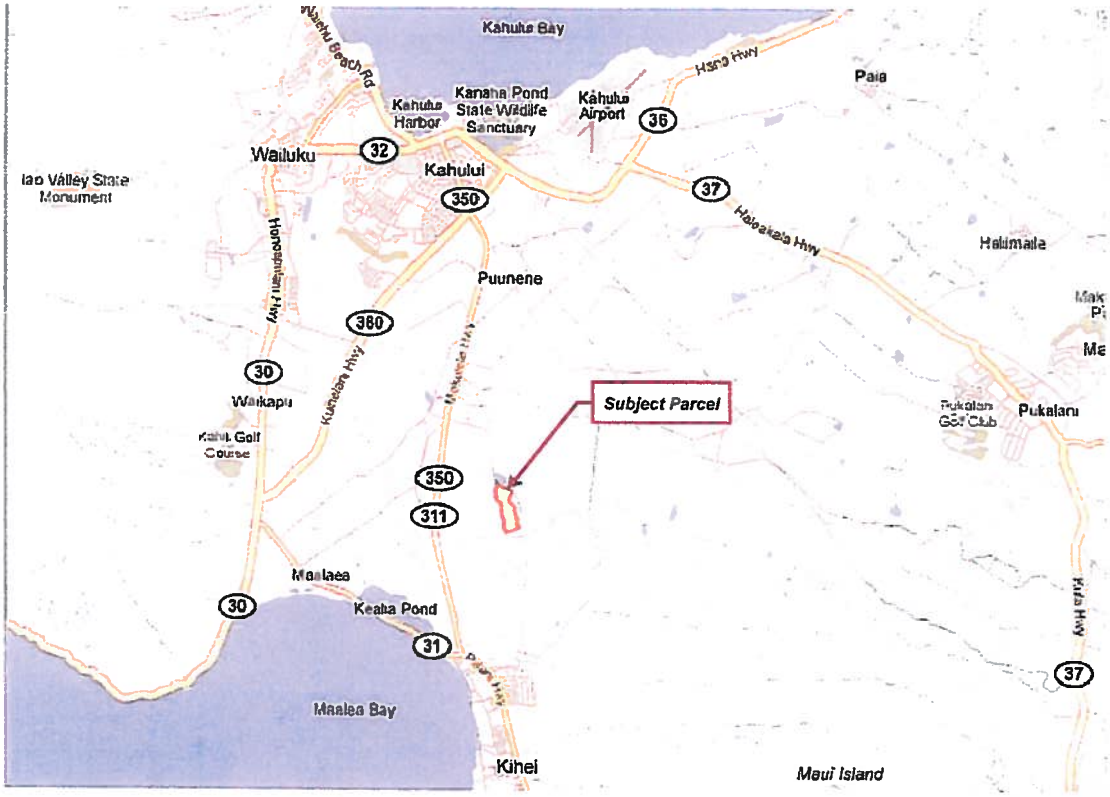
In conjunction with the early consultation process for the preparation of the Draft EA, we would appreciate receiving your written comments on the proposed action by July 29, 2011.

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

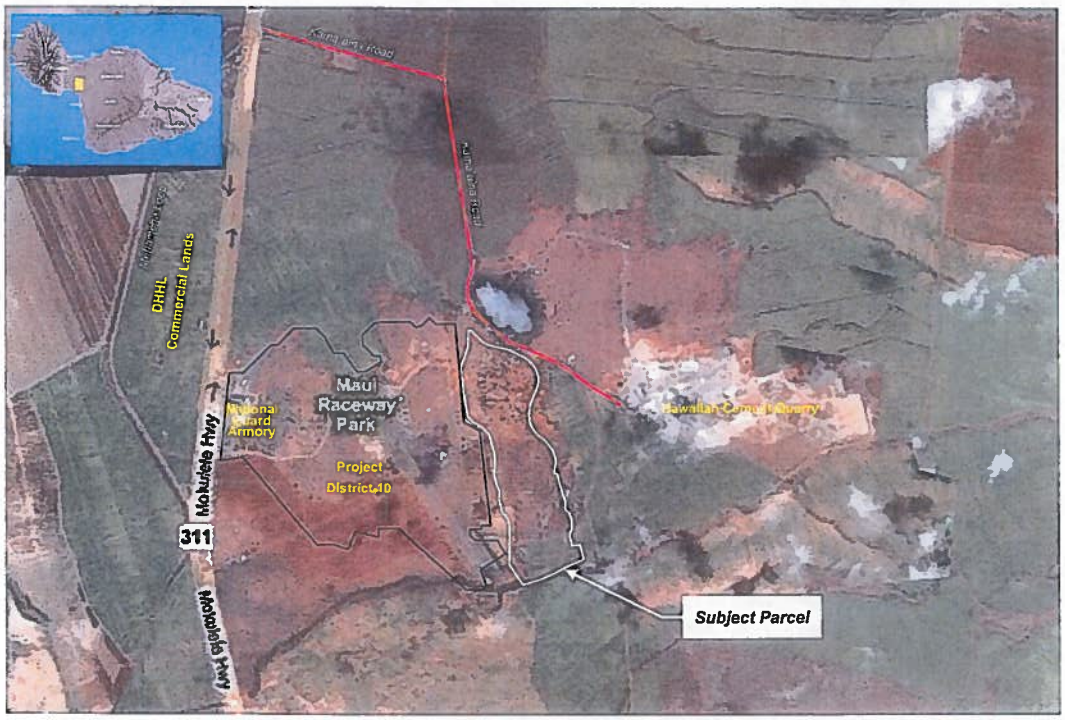
Enclosures
cc: Blanca Lafolette, PRL



PU`UNENE 86-ACRE PARCEL Not to Scale

GEOGRAPHIC LOCATION MAP

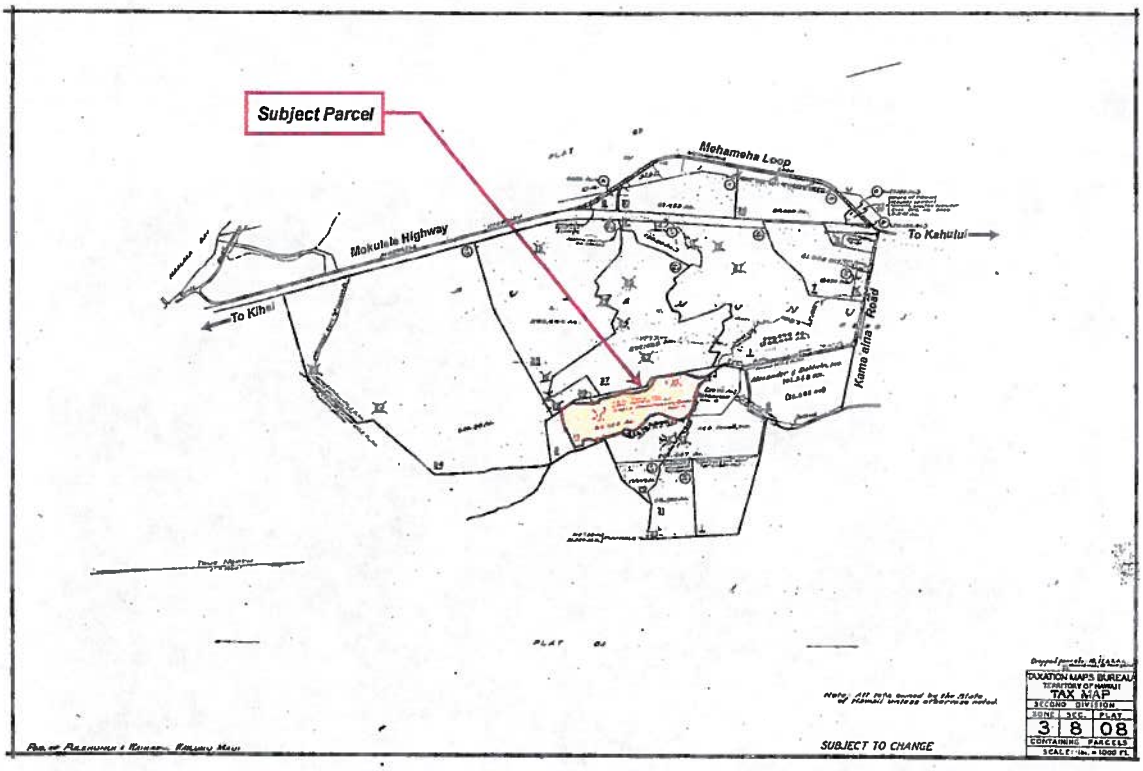
CHRIS HART & PARTNERS, INC.



PU`UNENE 86-ACRE PARCEL Not to Scale

AERIAL LOCATION MAP

CHRIS HART & PARTNERS, INC.

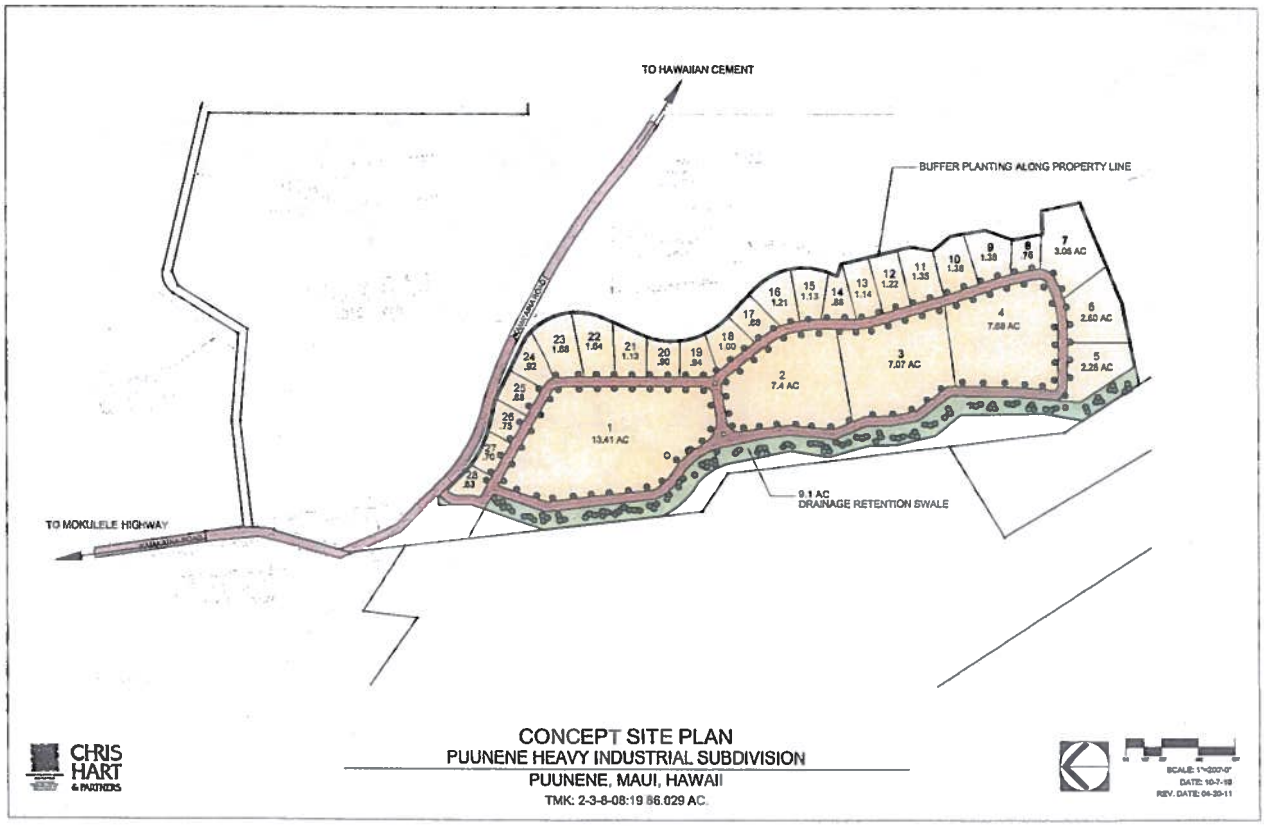


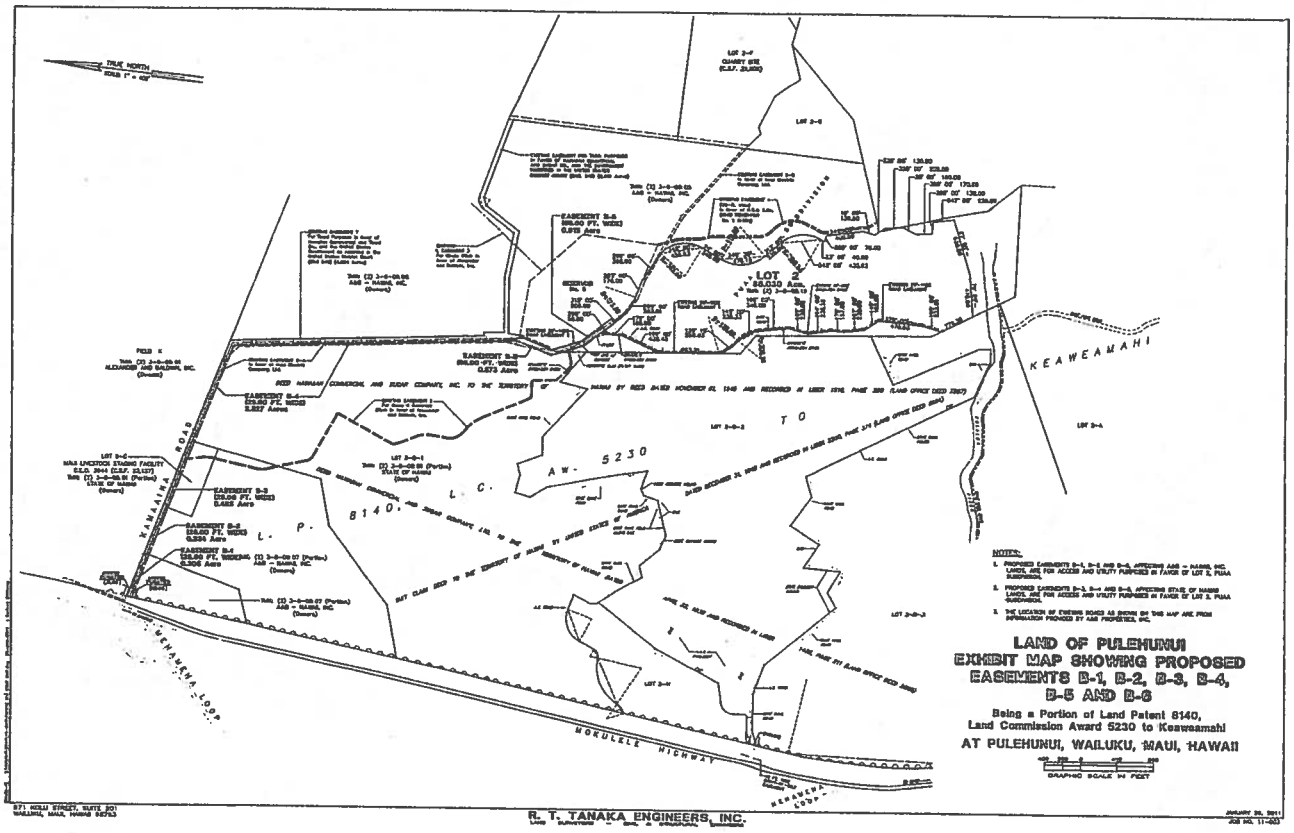
PU`UNENE 86-ACRE PARCEL

Not to Scale

TMK PARCEL LOCATION MAP

CHRIS HART & PARTNERS, INC.





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Comment and Response Letters

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:
SDWB

July 5, 2011

RECEIVED
JUL - 6 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CC: Glenn
101056

Mr. Glenn Tadaki
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 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 29.5, 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

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 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 HAR 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 HAR 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 HAR 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 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 Nikaido at (808) 586-4258.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

JN:slm

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 1, 2011

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: 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. Seto,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 5, 2011.

1. The Draft EA will include information about the source of drinking water for the proposed project.

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 11-20-29.5, HAR relating to "Capacity demonstration and evaluation".

4. The public water system for the proposed project will comply with provisions of Section 11-20-29, 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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 11-2-29 (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.

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Tom Nance, TNWRE
Stacy Otomo, P.E.
Martin Luna, Esq.

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

RECEIVED
JUL - 8 2011
CHRIS HART & PARTNERS
Landscape Architecture

REPLY TO ATTENTION OF:

July 6, 2011

Regulatory Branch

POH-2011-00179
CA glenn 10/056

Chris Hart & Partners, Inc.
Attn: Glenn Tadaki
115 N. Market Street
Wailuku, HI 96793-1717

Dear Mr. Tadaki:

We have received your request for the Department of the Army (DA) to review and comment on the proposed Pu'unene Heavy Industrial Subdivision in Kahului, Island of Maui. We have assigned the project the reference number POH-2011-00179. Please cite the reference number in any correspondence with us concerning this project. We have completed our review of the submitted document and have the following comments:

Section 10 of the Rivers and Harbors Act of 1899 (Section 10) requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work. Navigable waters of the U.S. are those waters subject to the ebb and flow of the tide shoreward to the Mean High Water Mark (MHWM) and the Ordinary High Water Mark (OHWM) for non-tidal waters, and/or other waters identified as navigable by the Honolulu District. In addition, Section 10 permit is required for structures of work outside this limit if they affect the course, capacity, or condition of the water body.

Section 404 of the Clean Water Act of 1972 (Section 404) requires that a DA permit be obtained for the placement or discharge of dredged and/or fill material into waters of the U.S., including wetlands, prior to conducting the work. The area of the U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 extends to the Mean Higher High Water Mark (MHHWM) for tidal waters or the Ordinary High Water Mark (OHWM) for non-tidal waters, and to the upland boundary of any adjacent wetlands. Section 404 also regulates discharges of dredged material incidental to certain activities such as grading, mechanized land-clearing, ditching or other excavation activity, survey activities, and the installation of certain pile-supported structures.

Based on the information provided, the project site appears to be absent of navigable waters subject to Corps jurisdiction. Therefore, Section 10 authorization may not be required. However, there is insufficient information provided to determine if the proposed project will involve activities under Section 404. Fill material, permanent or temporary, may include, but is not limited to: rock, dirt, sandbags, silt fences or concrete. To avoid unintentional violation to federal regulation and law, we advise you to contact our office prior to conducting any activity that may result in the discharge of dredged and/or fill material. Section 404 authorization may be required for this action.

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, gulches, stream, etc., on-site, especially those that may be impacted by the proposed project. The survey should include descriptions of aquatic feature 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.poh.usace.army.mil/EC-R/EC-R.htm. Click on "Apply for a Permit" on the right-hand side, and then click on "Rec – 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

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 14, 2011

Mr. George Young, P.E., Chief
Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, HI 96858-5440

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; Reference No. POH-2011-00170

Dear Mr. Young,

On behalf of the land owner, CMBY 2011 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

07007PSW.11

July 12, 2011

RECEIVED
JUL 14 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CC: glenn
101056

Mr. Glen Tadaki
Planner
Chris Hart & Partners, Inc.
115 North Market Street,
Wailuku, Hawaii 96793-1717

Dear Mr. Tadaki:

SUBJECT: **Early Consultation Request for the Draft Environment Assessment**
Pu'unene Heavy Industrial Subdivision
Pu'unene, Maui, Hawaii
TMK: (2) 3-8-008:019

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 document 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/env-planning/landuse/CWB-standardcomment.pdf

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

   a. Anti-degradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

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/genl-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 need to 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/environmental/water/cleanwater/forms/indiv-index.html

4. Please call the Army corps of Engineers at (808) 438-9258 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/health/environmental/water/cleanwater/index.html, or contact the Engineering Section, CWB, at 586-4309.

Sincerely,

ALEC WONG, P.E. CHIEF
Clean Water Branch

SW:ml

C: Mr. Roland Asakura, CWB, Maui District Health Office (w/o encls.) [via e-mail only]

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 8, 2011

Mr. Alec Wong, P.E., Chief
Clean Water Branch
Hawai`i Dept. of Health
919 Ala Moana Blvd., Room 301
Honolulu, HI 96801-3378

SUBJECT: Early Consultation Comments for the Preparation of a Draft Environmental Assessment (EA) for the Proposed Pu`unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Mr. Wong,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 12, 2011.

1. The land owner understands that the proposed project must comply with the applicable provisions of Chapter 11-54, HAR 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

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www.chpmaui.com

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, HAR.

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
Stacy Otomo, P.E.
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

July 11, 2011

RECEIVED
JUL 12 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture

CC, glenn 101056

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'uncne Heavy Industrial Subdivision; TMK (2) 3-8-008:019.

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 and Radiological Health Branch

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 7, 2011

Mr. Jeffrey M. Eckerd, Acting Program Manager
Indoor & Radiological Health Branch
Hawai`i 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) 3-8-008:019

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 Ebisu, P.E.
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

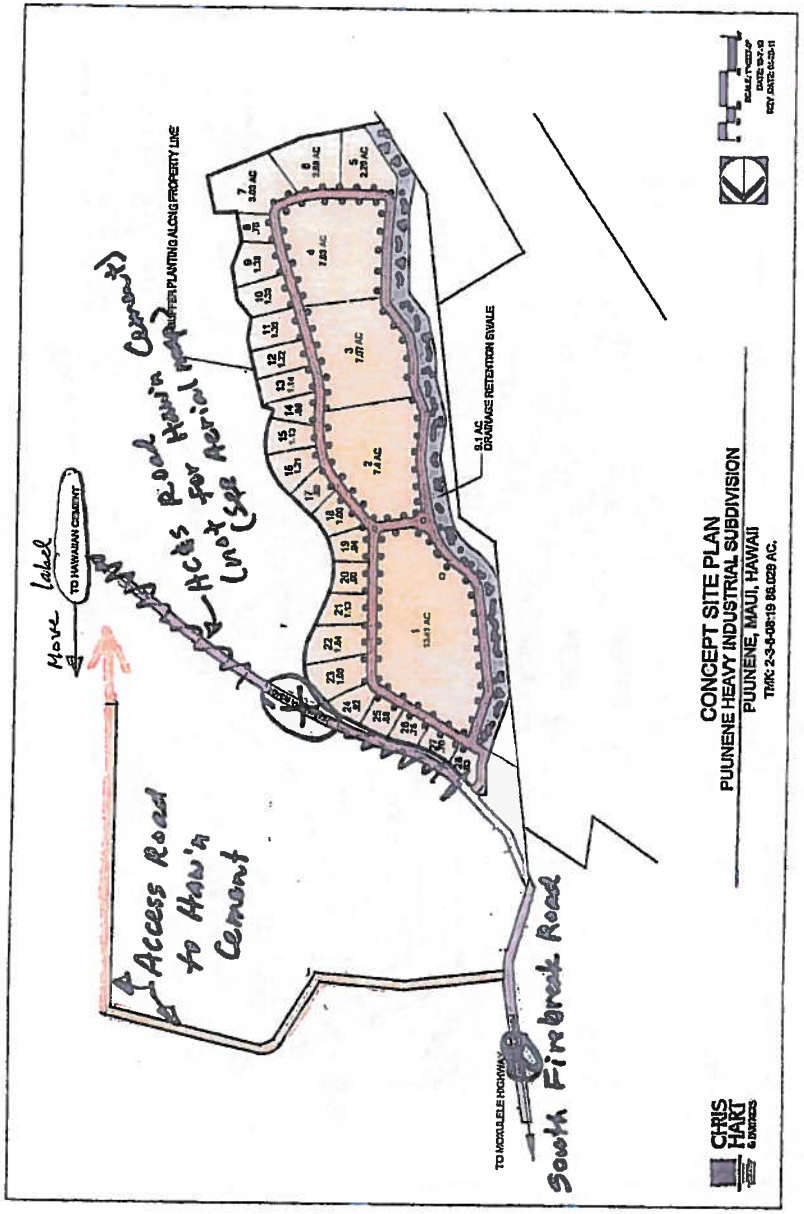
From: Moore, Randall at HCS [rmoore@hcsugar.com]
Sent: Wednesday, July 13, 2011 10:26 AM
To: Glenn Tadaki
Subject: Puunene heavy Industrial Subdivision

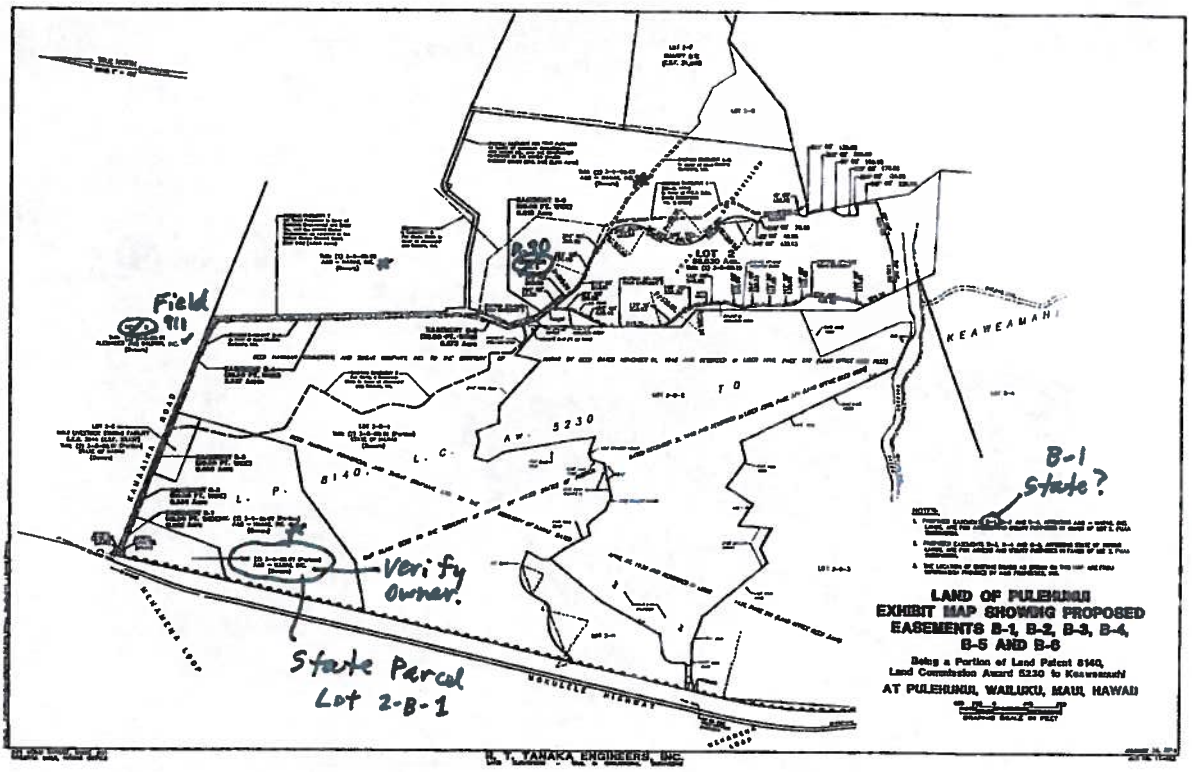
Attachments: Puunene Heavy Industrial Subdiv_2011_map001.pdf
Glenn,

See the three maps with my comments. We will review your letter and may provide additional comments.

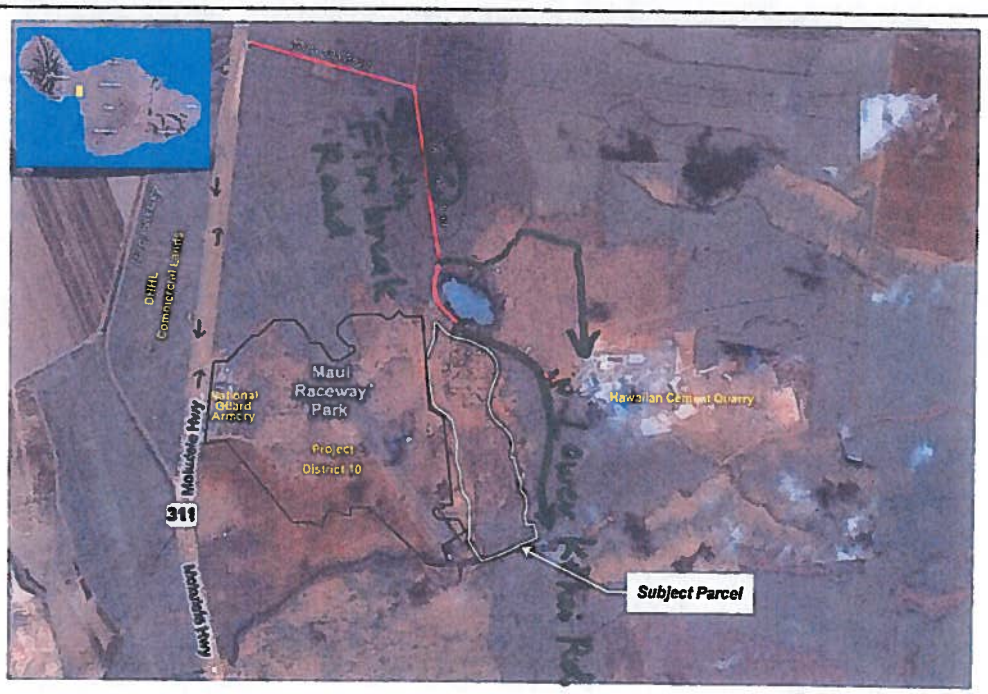
Thank you,
Randall Moore
HAWAIIAN COMMERCIAL & SUGAR COMPANY
877-6968 office

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.





* Owner's name : Alexander & Baldwin, Inc. (not A&B-Hawaii, Inc.)



PU'UNENE 86-ACRE PARCEL

Not to Scale

AERIAL LOCATION MAP

CHRIS HART & PARTNERS, INC.

CHRIS HART
& PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 1, 2011

Mr. Randall Moore, Manager
Agricultural Engineering Services
Hawaiian Commercial & Sugar Company
P.O. Box 266
Pu`unene, HI 96784

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. 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) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

LUD – 2 3 8 008 019 – ID721
Early Cons Prep DEA
Puunene Heavy Ind Subd

July 13, 2011

RECEIVED
JUL 18 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning
CC: Glenn 101056

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 Mokuleie Highway, Pulehunui, Wailuku, Maui, Hawaii TMK (2) 3-8-008: 019 86 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 Mokuleie 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 (IWS) 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) 586-4294 or fax to (808) 586-4300.

Sincerely,

SINA PRUDER, P.E., ACTING CHIEF
Wastewater Branch

LM:cle

c: DOH-WWB's Maui Staff – Mr. Roland Tejano

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 1, 2011

Ms. Sina Pruder, Acting Chief
Wastewater Branch
Hawai`i 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 Pu`unene 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 Lafolette, PRL
Tom Nance, TNWRE
Stacy Otomo, P.E.
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

ALAN M. ARAKAWA
MAYOR

JEFFREY A. MURRAY
CHIEF

ROBERT M. SHIMADA
DEPUTY CHIEF

COUNTY OF MAUI
DEPARTMENT OF FIRE AND PUBLIC SAFETY
FIRE PREVENTION BUREAU

313 MANEA PLACE • WAILUKU, HAWAII 96793
(808) 244-9161 • FAX (808) 244-1363

RECEIVED
JUL 20 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning
CC: Glenn
10/050

July 15, 2011

Chris Hart & Partners, Inc.
C/O Glenn Tadaki
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 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 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 Haake
Captain, Fire Prevention Bureau
313 Manea Place
Wailuku, HI 96761

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City&Regional Planning

September 14, 2011

Mr. Paul Haake, Captain
Fire Prevention Bureau
Maui Dept. of Fire & Public Safety
313 Manea Place
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. Haake,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated July 15, 2011.

1. The land owner acknowledges that the minimum flow rate for fire protection is 2,500 gallons per minute for a two-hour period and that fire hydrants shall be placed no more than 250 feet apart along the internal subdivision (service) road. It is also understood that all turns and any required turnarounds must have an outside turning radius of 40.5 feet and that the grade of the service road shall not exceed 12 percent. Once buildings are proposed, individual lot owners will be responsible for ensuring that there is at least one hydrant within 300 feet of any building to be constructed on their property.

2. As noted in your letter, the subject property is located in an area that is vulnerable to wildfires. To guard against potential wildfire incursions, the establishment of a buffer zone along the perimeter of the site is being examined. The maintenance of such a buffer zone would initially rest with the land owner until the association of lot owners assumes this responsibility. Language to this effect would be included in the Covenants, Conditions & Restrictions (CC&Rs) for the project.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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
Stacy Otomo, P.E.
Martin Luna, Esq.

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

RECEIVED
JUL 18 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture Site Planning
cc: Glenn 10/05L

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 access and electrical easements for our facilities to serve the subject project site. The existing area is currently served from our Maalaea 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,

Kyle Tamori
Staff Engineer

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 6, 2011

Mr. Kyle Tamori, Staff Engineer
Engineering Division
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, HI 96733-6898

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, CMBY 2011 Investment, LLC, we are responding to your letter dated July 15, 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 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 early consultation process. A copy of the Draft EA will be provided to you for review when it becomes available.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Martin Luna, Esq.

ALAN M. ARAKAWA
Mayor

GLENN T. CORREA
Director

PATRICK T. MATSUI
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION
700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

RECEIVED
JUL 20 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

Cc: glenn 10/056

July 19, 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 Draft Environmental Assessment (EA) for the Proposed Pu'unene Heavy Industrial Subdivision
TMK: (2) 3-8-008:019
Pu'unene, Maui, Hawaii

Thank you for the opportunity to review and comment on the subject project.

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) 270-7931, should you have any questions.

Sincerely,

GLENN T. CORREA
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning & Development

GTC:RH:ca

S:\PLANNING\CSA\County Reviews\EA & EIS Reviews\Puunene Industrial Subdiv DEA Prep.doc

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 1, 2011

Mr. Glenn T. Correa, Director
Maui Dept. of Parks & Recreation
700 Halia Nakoa 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) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

RALPH M. NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
DEVELOPMENT SERVICES ADMINISTRATION
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

July 20, 2011

Mr. Glenn Tadaki, Planner
CHRIS HART & PARTNERS, INC.
115 North Market Street
Wailuku, Maui, Hawaii 96793-1717

Subject: EARLY CONSULTATION FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PUUNENE HEAVY INDUSTRIAL SUBDIVISION TMK (2) 3-8-008:019

Dear Mr. Tadaki:

We reviewed the subject application and have no comments at this time.

Please call Rowena M. Dagdag-Andaya at 270-7845 if you have any questions regarding this letter.

Sincerely,

David C. Goode
Director of Public Works

ls S:\LUCA\CZM\prop_puunene_heavy_indus_subdiv_dea_38008019_ls.wpd
xc: Highways Division
Engineering Division

cc: Glenn
601056

RECEIVED
JUL 25 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 1, 2011

Mr. David C. Goode, Director
Maui Dept. of Public Works
200 S. 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 Mr. Goode,

On behalf of the land owner, CMBY 2011 Investment, LLC, we acknowledge the receipt of your letter dated July 20, 2011 and understand that the Public Works Department has no comments at this time.

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
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

ALAN M. ARAKAWA
Mayor

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

DAVID TAYLOR, P.E.
Director

PAUL J. MEYER
Deputy Director

RECEIVED
JUL 27 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CC: Glenn 10/056
w/ attachment

July 20, 2011

Mr. Glen Tadaki
Chris Hart and Partners
115 N. Market Street
Wailuku, Hawaii 96793

Re: I.D.: Early Consultation for the Preparation of a Draft 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 EA early consultation.

Source Availability and Consumption
The proposed project's water system will be private. Anticipated water use is approximately 127,456 gpd, based on Department of Water Supply (DWS) system standards; however, in the event DWS water is needed, there is currently no additional source available according to system standards on the Central Maui System. Should meters be needed, the DWS may delay issuing them until new sources are on line.

System Infrastructure
The project site is not currently served by the DWS system. The nearest DWS waterline is an 8-inch line approximately 4,000 feet to the northwest, and the next closest line is a 6-inch line approximately 4,060 feet to the west. The proposed private water system will consist of separate potable and irrigation/fire protection systems. The applicant will be required to provide fire protection service according to system standards, certified by the stamp of a professional engineer or architect.

Kahului and Paia Aquifers Pollution Prevention
This project overlies Kahului and Paia aquifers. One potential type of tenant, junk/scrap/salvage yards, are considered to have high contamination potential for groundwater resources. Potential contaminants include: Barium, Benomyl, Benzene, Boric Acid, Chlorpyrifos, Chromated Copper Arsenic, Copper, Dalapon, 1,2-Dichloroethylene, Diquat, Diazinon, Epoxy, Ethylene Glycol, Glyphosate, Isopropanol, Lead, Manganese, Nickel, Nitric Acid, Nitrosamine, Polychlorinated Biphenyls, Phosphates, Sulfate, Simazine, Trichloroethylene or TCE, 1,1,2,2 - Tetrachloroethane, or Perchlorethylene (Perc), Tin, and Waste oils.

"By Water All Things Find Life"

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 Baseyards*; and 2) *Auto wrecking Best Management Practices*.
We recommend implementing the following BMPs during project construction.

1. Evaluate the site 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 denuded areas by sodding or planting native species as soon as possible. Use high seeding rates to ensure rapid stand 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 run-off 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/demolition where available. Reclaimed water is available at the Kahului Sewage Treatment Plant.
2. Use Climate-adapted Plants: We recommend using native climate-adapted 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 evapo-transpiration 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 16.20A.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 60 psi or less in all units.

Bathroom sink faucets with fixtures should not exceed 1 gpm at 60 psi, and more efficient models are available.

5. Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. The applicant should establish a regular maintenance program.
6. Consider *submetering* or *individual metering*: research into water use efficiency indicates that one of the most effective conservation measures is metering. Although the applicant does not propose to use county water, individual meters or submeters may be a useful tool for minimizing unnecessary consumption.

Should you have any questions, please contact our Water Resources and Planning Division at 244-8550.

Sincerely,

David Taylor, Director
bab

cc: Engineering Division

Attachments:
1. Summary of Best Management Practices for Trucking & Towing Baseyards
2. Autowrecking Best Management Practices
3. A Checklist of Water Conservation Ideas for Industrial and Large Landscapes
4. Plant Brochure: "Saving Water in the Yard-What and How to Plant in your Area"

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, sulphuric 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, radiators, 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 oil 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 berm 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 sludge 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.nalms.org/bclss/bmphome.html

AUTO WRECKING BEST MANAGEMENT PRACTICES (BMPs)

LAND USE TYPE: Commercial/Industrial

LAND USE: Auto wrecking

CONCERN: Distribution of hydraulic and brake fluids, fuel, oil, antifreeze, refrigerants, mercury, lead, sulphuric 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 often hazardous materials including transmission, power steering, hydraulic and brake fluids, fuel, oil, antifreeze, refrigerants, mercury, lead, sulphuric 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 runoff 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, graveled base. For this reason a steel tray 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 hulks 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 Wastes
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 adsorbent 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 adsorbent to clean up spills and picking up adsorbent 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 cut 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 antidrain 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 air-bag 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 ultra sonic 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 fuels 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.nalms.org/bclss/bmphome.html

A Checklist of Water Conservation Ideas For

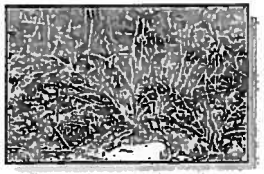
This checklist provides water conservation tips successfully implemented by industrial and commercial users. This list has been revised from the original copy first published and distributed by the Los Angeles Department of Water and Power and the Water Efficiency Manual by the North Carolina Department 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 non-shaded 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 run-off and rainfall gutters 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 impermeable surfaces to lessen runoff and resulting stormwater pollution.
- Identify water source points.
- Develop a schematic of all water entry points (know 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 dams and flappers), faucets (aerators), cooling systems.

  - Retrofit toilets with high efficiency models that use 1.28 gallons per flush or less.
  - Retrofit urinals with high efficiency models that use 0.5 gallons per flush.
  - Install showerheads with a flow rate of 1.5 gpm at 60 psi or less in all units.
  - Retrofit bathroom sink faucets with fixtures that do not exceed 1 gpm at 60 psi.
- Use recycling systems for chillers and cooling towers.
- Consider installing energy-and-water-efficient air conditioning equipment.

MAINTENANCE PROCEDURES

- Sweep materials from floor instead of washing down whenever possible.
- Instruct clean-up crews to use less water where appropriate.
- Check water supply system for leaks.
- Repair dripping faucets and continuously-running or leaking toilets.

DESIGN CRITERIA FOR TURF AND LANDSCAPE AREAS

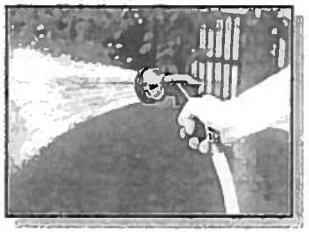
- Contact the Department of Water Resources or your local water supplier about possible landscape water auditor classes for managers.
- Hire a landscape architect with water conservation and xeriscape experience.
- Use turf only where actually necessary: Immediate picnic areas/outside lunch areas and 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.

- 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. tensiometers), 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 evapotranspiration 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 (runtimes) 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 uniformity test performed on-site to determine how evenly water is applied when sprinklers are in use.

For more information, contact:
Maui County Department of Water Supply
Water Resources and Planning Division
59 Kanoa Street Wailuku, HI 96793
Telephone: (808) 244-8550
FAX: (808) 244-6701

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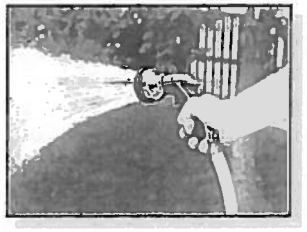

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For more information, contact:
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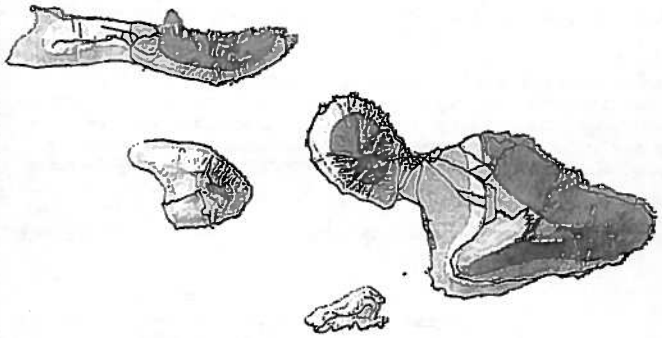
59 Kanoa Street Wailuku, HI 96793
Telephone: (808) 244-8550
FAX: (808) 244-6701

Maui County's Landscape and Gardening Handbook

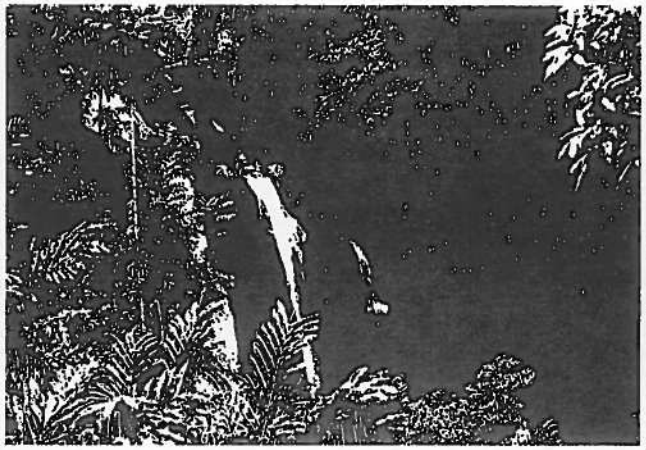


Water Conservation in the Landscape

Department of Water Supply
200 South High Street
Wailuku HI 96793
www.mauiwater.org

By Water All Things Find Life

Three Reasons to Xeriscape
Saves Water
Saves Time
Saves Money



Department of Water Supply
200 South High Street
Wailuku HI 96793
www.mauiwater.org

By Water All Things Find Life

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 26, 2011

Mr. David Taylor, P.E., Director
Maui Dept. of Water Supply
200 S. 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 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 no 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Tom Nance, TNWRE
Stacy Otomo, P.E.
Martin Luna, Esq.

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

July 25, 2011

RECEIVED
JUL 26 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CC: glenn
101056

Mr. Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
115 N. Market Street
Wailuku, Hawaii 96793

Dear Mr. Tadaki:

SUBJECT: REQUEST FOR COMMENT ON EARLY CONSULTATION FOR THE PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED PU'UNENE HEAVY INDUSTRIAL SUBDIVISION LOCATED IN THE VICINITY OF THE OLD PU'UNENE AIRPORT, MAUI, HAWAII; TMK: (2) 3-8-008:019 (RFC 2011/0103)

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 28 fee-simple, heavy industrial lots ranging from 0.63 acre to 13.41 acres in size;
- The proposed project is located adjacent to Project District 10 (Old Pu'unene Airport area – 561 acres) as outlined in the Kihei-Makena Community Plan dated March 6, 1998;
- 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, a Kihei-Makena Community Plan Amendment (from *Agricultural* to *Heavy Industrial*) from the County of Maui, and a Change in Zoning (from *Agricultural* to *M-2 or M-3, Heavy Industrial*) from the County of Maui;

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634
CURRENT DIVISION (808) 270-8205; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

- As the proposed project will involve a County of Maui Community Plan Amendment and the use of State of Hawaii lands (Kama'aina Road and a 26-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 200, 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 <u>in detail</u> 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 Motocross 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 Division at kurt.wollenhaupt@mauicounty.gov or at (808) 270-1789 or Planning Supervisor David Yamashita of the Department's Long Range Division at david.yamashita@mauicounty.gov or at (808) 270-8290.

Sincerely,

WILLIAM SPENCE
PLANNING DIRECTOR

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Aaron H. Shinmoto, PE, Planning Program Administrator (2)
John F. Summers, Planning Program Administrator
Kurt F. Wollenhaupt, Staff Planner
David Yamashita, Planning Supervisor
Project File
General File

WRS:KFW:sa
K:\WP_DOCS\PLANNING\RFC\2011\0103_Puunene Heavy Industrial Subdivision\PuuneneSubCommentLetter.DOC

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 20, 2011

Mr. William Spence, 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 Pu`unene Heavy Industrial Subdivision; TMK (2) 3-8-008:019

Dear Mr. Spence,

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.

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www.chpmaui.com

3. The Draft EA will discuss any pertinent infrastructure, landscape, and design connections between the proposed project and the Pu`unene (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) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, HAWAII 96793

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

RECEIVED
JUL 27 2011
CHRIS HART & PARTNERS INC
Landscape Architecture and Planning

cc: Glenn 10/052

July 26, 2011

Mr. Glenn Tadaki
Planner
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawai`i 96793

Dear Mr. Tadaki:

Subject: Early consultation for the Preparation of a Draft Environmental Assessment for the Proposed Pu`unene Heavy Industrial Subdivision; TMK (2) 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 maybe 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 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/landuse/landuse.html be reviewed, and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please call me at 808 984-8230 or E-mail me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c EPO

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 7, 2011

Ms. Patti Kitkowski, Chief
Maui District Health Office
Hawai`i 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 (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 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Yoichi Ebisu, P.E.
Martin Luna, Esq.

PHONE (808) 594-1888

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

FAX (808) 594-1865

RECEIVED
AUG 11 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Pla...
CL. Glenn
HRD11/5837 10/052

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
Pu'unene Heavy Industrial Subdivision
Island of Maui

Aloha e Glenn Tadaki,

The Office of Hawaiian 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 District 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 lands (Kama'aina 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 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 Cement quarry, 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(28), Maui County Code are anticipated within the project. Should these "special uses" be anticipated, the DEA should then comprehensively discuss how project infrastructure (wastewater and onsite 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 Kealia 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 attn: Compliance Program when it becomes available. Should you have any questions, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA- Maui COC

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 14, 2011

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

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. Namu`o,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to you're 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) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Martin Luna, Esq.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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POLICE DEPARTMENT
COUNTY OF MAUI

ALAN M. ARAKAWA
MAYOR

OUR REFERENCE
YOUR REFERENCE

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

GARY A. YABUTA
CHIEF OF POLICE

CLAYTON N.Y.W. TOM
DEPUTY CHIEF OF POLICE

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

Enclosures

c: William Spence, Maui County Dept. of Planning

CC: glenn 10/056

RECEIVED
AUG 02 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

COPY

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 Glen Tadaki regarding:

SUBJECT : EARLY CONSULTATION REQUEST FOR THE PROPOSED PU'UNENE HEAVY INDUSTRIAL SUBDIVISION;
TMK # : (2)3-8-008:019

I SUPPORT OR. BENNETT'S ASSESSMENT AND RECOMMENDATION
AC V. RAMOS
07/27/11

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 Kamaaina 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 Kamaaina 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 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 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 Cane hauling trucks are very large, heavy and require greater distances to stop.

These 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.

FOR APPROVAL TO SUBMIT W/ CONSIDERATION
7/27/11

Respectfully submitted,

Ofc. Ronald I. BENNETT 12177
Visitor Oriented Police
072611 @ 1100 Hours

RECOMMEND OFF. BENNETT'S CONCERNS BE TAKEN INTO CONSIDERATION.

Sgt. [illegible]
7.27.11 @ 0845

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 27, 2011

Mr. Gary A. Yabuta, Chief
Maui Police Department
55 Mahalani 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. 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 site 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Phillip Rowell, P.E.
Stacy Otomo, P.E.
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
AUG 04 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

CC: Glenn
10/056

August 3, 2011

Chris Hart & Partners, Inc.
Attention: Mr. Glenn Tadaki
115 N. Market Street
Wailuku, HI 96793-1717

Dear Mr. Tadaki

SUBJECT: Proposed Pu'unene Heavy Industrial Subdivision;
TMK: (2) 3-8-008:019

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 (a) Engineering Division and (b) Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

'11 JUL 05 PM03:14

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2011 JUL -8 P 2:36
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII

July 5, 2011

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
__Div. of State Parks
x Commission on Water Resource Management
__Office of Conservation & Coastal Lands
x Land Division –Maui District
x Historic Preservation

FROM: Charlene Unoki, Assistant Administrator
SUBJECT: Proposed Pu'unene 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 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: 7/6/11

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ChrleneUnoki
RE:EarlyConsultationDEAPuuneneSubdivision
Maui.546

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone X. The Flood Insurance Program does not have any regulations for developments within Flood Zone X.**

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

( ) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Carter Romero at (808) 961-8943 of the County of Hawaii, Department of Public Works.
( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
( ) Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

( ) 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.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 7/6/11

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 5, 2011

RECEIVED
COMMISSION ON WATER RESOURCE MANAGEMENT
2011 JUL -5 AM 10: 16

MEMORANDUM

TO: **DLNR Agencies:**
x Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
x Engineering Division
x Div. of Forestry & Wildlife
__Div. of State Parks
x Commission on Water Resource Management
__Office of Conservation & Coastal Lands
x Land Division –Maui District
x Historic Preservation

FROM: Charlene Unoki, Assistant Administrator
SUBJECT: Proposed Pu'unene 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 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: _____

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

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LAND DIVISION
2011 JUL 11 A 9:42
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

WILLIAM J. AILA, JR.
CHAIRPERSON
WILLIAM D. BALFOUR, JR.
SUMNER ERDMAN
LORETTA J. FUDDY, A.C.S.W., M.P.H.
NEAL S. FUJIWARA
LAWRENCE H. MIKE, M.D., J.D.
WILLIAM M. TAM
DEPUTY DIRECTOR

July 8, 2011

TO: Russell Tsuji, Administrator
Land Division

FROM: William M. Tam, Deputy Director
Commission on Water Resource Management

SUBJECT: Puunene Heavy Industrial Subdivision (28 lots) Draft EA Early Consult

FILE NO.: N/A
TMK NO.: (2) 3-8-008:019

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 (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM 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, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://www.hawaii.gov/dlnr/cwrm.

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 redistribution 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 freshwater 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. A listing of fixtures certified by the EPA as having high water efficiency can be found at http://www.epa.gov/watersense/pp/index.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://hawaii.gov/dbedt/czm/initiative/lid.php.

☒ 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/dlnr/cwrm/resources_permits.htm.

☐ 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 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 (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 is (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:

This 86-acre development proposal is located on the Maalaea-facing slope of Haleakala at the end of the Haiku Ditch and along Lower Kihei Road. It proposes to have a private water system. Existing well No. 4927-01 appears to be on this property; its details and any uses are unknown. The location overlies the boundary between the Kahului and Paia Aquifer Systems; while sustainable yield for Kahului is far oversubscribed due to high artificial recharge, the Paia Aquifer sustainable yield of 7 mgd is not artificially augmented in this location. The site is about 2000 feet downgradient from an unused Hawaiian Cement Well successfully pump-tested at 250 gpm.

If there are any questions, please contact Charley Ice at 587-0216.

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

October 5, 2011

Mr. Russell S. Tsuji, Administrator
Land Division
Hawai`i Dept. of Land & Natural Resources
1151 Punchbowl Street, Room 220
Honolulu, HI 96809

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. 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 "X", 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 bibbs, showerheads, toilets) is required by Section 16.20.675 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 phase and appropriate measures will be included in the Covenants, 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

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www.chpmaui.com

involving grading, grubbing, and stockpiling activities pursuant to Chapter 20.08 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 results 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,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Tom Nance, TNWRE
Stacy Otomo, P.E.
Martin Luna, Esq.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

TAKE PRIDE IN AMERICA

In Reply Refer To:
2011-TA-0384

AUG 03 2011
RECEIVED
AUG 05 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning
CC: glenn 10/056

Mr. Glenn Tadaki
Planner
Chris Hart and Partners, Inc.
115 North Market Street
Wailuku, Hawaii 96793-1717

Subject: Technical Assistance for Proposed Puunene 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 Puunene Heavy Industrial Subdivision on Maui. The approximately 86-acre proposed project site is located about 1.4 miles east of Mokulele Highway in the vicinity of the old Puunene Airport. Access from Mokulele Highway to the site is provided by Kamaaina 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 system, 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 Hawaii 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 Mokulele Highway and Kamaaina 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, loafing or nesting. Furthermore, all on-site project personnel should be apprised that nene may be in the vicinity of the project any time during the year and nene should be avoided at all times.

2. The endangered Blackburn's sphinx moth (*Manduca blackburni*) may breed and feed within the proposed project area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), ilieo (*Plumbago zeylanica*), and

maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum latifolium*). We recommend you have a qualified biologist survey the project area for the presence of tree tobacco or other host plants during the wettest portion of the year (usually November to April). If moth host plants are found on site, please coordinate with our office for further assistance.

3. The threatened Newell's shearwater (*Puffinus auricularis newelli*) and endangered Hawaiian petrel (*Pterodroma sandwichensis*); 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 depredation by feral predators such as dogs, cats, and mongoose. We recommend that all construction activities take place only during daytime hours to avoid incidence of seabird injury or fatality. It is also our recommendation 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 Bordenave, Fish and Wildlife Biologist, at (808) 792-9400 for further assistance.

Sincerely,

for Loyal Mehrhoff
Field Supervisor

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 14, 2011

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

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. Mehrhoff,

On behalf of the land owner, CMBY 2011 Investment, LLC, we are responding to your letter dated August 3, 2011.

1. A biological survey has been conducted and will be included in the Draft EA. No native land birds (including the *nene*), were observed during the survey. As indicated in your letter, we understand that *nene* have been observed in the vicinity of Mokulele Highway and Kama`aina Road, and a biologist who is familiar with *nene* behavior should survey the area to determine if *nene* are using the site for foraging, loafing or nesting prior to the initiation of any work (your input regarding the exact number of days for such a survey would be appreciated). With regard to the foregoing, all onsite personnel will be informed that *nene* may be present in the area and should be avoided at all times.

2. A botanical survey was also conducted and will be included in the Draft EA. None of the plants that were observed during the survey is a rare or threatened species or a potential candidate for listing. Although a few small tree tobacco plants were observed, the survey area does not appear to be an optimum area for Blackburn Sphinx Moth host plants.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Phil Bruner
Maya LeGrande
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

GLENN M. OKIMOTO
DIRECTOR

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IN REPLY REFER TO:
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AUG 05 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

Cc: Glenn
10/056

August 4, 2011

Mr. Glenn Tadaki
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawai 96793-1717

Dear Mr. Tadaki:

Subject: Early Consultation, Draft Environmental Assessment
Proposed Puunene Heavy Industrial Subdivision, CMBY 2011 Investment, LLC
Pulehunui, 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 Puunene 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 Kamaaina Road, which connects to Mokulele Highway, a State facility. The intersection of Kamaaina 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 Kamaaina Road and Mokulele Highway and propose mitigation measures, as required. It should take into account ambient traffic from other existing uses that use Kamaaina Road.

2. Since there may be a possibility that some project traffic might use the Maui Raceway Park roadways as a shortcut to Mokulele Highway, the assessement should have a discussion of measures to be taken to minimize that possibility.

If there are any questions, please contact Ken Tatsuguchi, Engineering Program Manager, Highways Division, Planning Branch at (808) 587-1830.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

September 27, 2011

Mr. Glenn M. Okimoto, Ph.D., Director
Hawai`i Dept. of Transportation
869 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 (2) 3-8-008:019

Dear Mr. Okimoto,

On behalf of the land owner, CMBY 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 Kihei area, as well as traffic on Kama`aina 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 Mokulele Highway and Kama`aina 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 swale 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.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

Please feel free to call me at (808) 242-1955 should you have any questions.

Sincerely,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Phillip Rowell, P.E.
Stacy Otomo, P.E.
Martin Luna, Esq.

NEIL ABERCROMBIE
GOVERNOR
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Ref. No. P-13388

RECEIVED
SEP - 1 2011
CHRIS HART & PARTNERS, INC.
Landscape Architecture and Planning

Cc: glenn 10/056

August 31, 2011

Mr. Glenn Tadaki, Planner
Chris Hart & Partners, Inc.
115 North Market Street
Wailuku, Hawai'i 96793-1717

Dear Mr. Tadaki:

Subject: Early Consultation for Preparation of a Draft Environmental Assessment
Proposed Pu'unene Heavy Industrial Subdivision
CMBY 2011 Investments, LLC
TMK (2) 3-8-008: 019
Pulehunui, Wailuku, Island of Maui

The Office of Planning (OP) appreciates the opportunity to provide comments for the preparation of an Environmental Assessment (EA) for the subject proposal, for which a petition will be filed to reclassify approximately 86 acres of land from the State Agricultural District to the State Urban District. We wish to inform you of the issues and criteria on which OP bases its review of petitions and their supporting environmental review documents.

OP represents the State as a mandatory party in 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). In this capacity, OP consults with State and other agencies and coordinates and prepares the State's position on petitions.

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 Section 205A-2, HRS. In addition, OP reviews 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/gov/about/a-new-day.

We welcome early consultation with our Office to discuss how the draft EA and petition will address these issues and criteria—particularly areas of State concern in Section 205-17, HRS—and best practices that could or will be incorporated in the proposed project to address

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 EA/EISs, OP looks for documentation of consultation with State agencies and any recommended or agreed-to mitigation 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 lands are immediately adjacent to agricultural lands and agricultural water infrastructure (reservoir 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 this will 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 septic 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,

Jesse K. Souki
Director

Enclosures

c: Ms. Blanca Lafolette, CMBY 2011 Investment, LLC

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 343, Hawai'i 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 205, 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 reuse in the project; (c) whether the proposed project is within a designated Water Management Area; (d) the impact of the project on the sustainable yield and water quality of affected aquifers and surface water sources; (e) permits or other approvals required for proposed water source use; and (f) the consistency of the project and impact 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 "[t]he State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands." Protecting 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://hawaii.gov/gov/about/a-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 use and the viability of agricultural use 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 expected 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 6E, HRS, related to historic preservation. SHPD has information and guidance available at http://hawaii.gov/dlnr/hpd/hpgrtg.htm.

   The EA/EIS document should identify any cultural resources and cultural practices associated with the property, including visual 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 content requirement for EAs under Chapter 343, HRS, the LUC is obligated under Article XII, 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 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://oeqc.doh.hawaii.gov, at "Environmental_Assessment_PrepKit." (http://oeqc.doh.hawaii.gov/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fShared%20Documents%2fEnvironmental%5fAssessment%5fPrepKit%2fCultural%5fImpact%5fAssessments&View=%7bC0C5C897%2d3066%2d4821%2d864E%2d36FB3D77F5D5%7d)

5. **Biota.** The EA/EIS should include an inventory and assessment of flora and fauna, including invertebrates, found on or in proximity to the project site and in any lava tubes 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 candidates for listing. The petitioner should consult with the Database Manager at the Hawai'i Biodiversity and Mapping Program, Center for Conservation Research and Training, University of Hawai'i, (808) 956-8094, as to the potential for the presence of rare species in the project area. The EA/EIS should discuss measures to be taken to protect 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 fullest range of flora and fauna.

6. **Coastal Zone Management (CZM).** The Office of Planning is the lead agency for the Hawai'i CZM Program, which is a Federal-State partnership for protecting, restoring, and responsibly developing coastal communities and resources. The coastal zone is defined as all lands of the State 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 (HRS § 205A-1). EA/EISs should reference this definition of the coastal zone. State agency actions must be consistent with the CZM program objectives and policies under Section 205A-2, HRS. The ES/EIS needs to 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 pollution from the project to adversely affect coastal and marine water quality. Project impacts on existing site and offsite 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/dbedt/czm/initiative/lid.php.

   b. **Coastal and Other Hazards.** The EA/EIS should describe any hazard risks that are relevant to the site and describe the measures that are proposed to mitigate any hazard impacts, such as from tsunami, hurricane, wind, storm wave, sea level rise, flood, erosion, volcanic activity, earthquake, landslide, subsidence, and point and nonpoint source pollution. This should include a discussion of any wildfire hazard and any mitigation measures that might be required to address potential threats from wildfires.

      The EA/EIS process also provides 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, OP recommends the final EA/EIS include a discussion of the proposed project with respect to the *State Multi-Hazard Mitigation Plan, 2010 Update*, adopted in September 2010, available at http://www.scd.hawaii.gov/documents/HawaiiMultiHazardMitigationPlan2010PUBLIC.pdf, as well as the respective County Hazard Mitigation Plan.

   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 users on coastal and ocean recreational resources and competing uses will be mitigated and managed during project development and buildout.

   e. **Scenic Resources.** The EA/EIS should discuss the impact of the proposed project on scenic views to and from the coast and along the coast 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 205A, HRS, will be satisfied.

   For additional resources and information, visit http://hawaii.gov/dbedt/czm.

7. **Wastewater Treatment and Disposal.** The EA/EIS needs to identify the anticipated volume of wastewater to be generated by type of user, as well as the proposed means of wastewater treatment and disposal. A discussion 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/or disposal of treated effluent and waste solids, and how the private system will be operated and maintained.

8. **Energy Use and Impacts.** The State Hawai'i Clean Energy Initiative has adopted a goal of using efficiency and renewable energy resources to meet 70 percent of Hawai'i's energy demand by 2030, with 30 percent from efficiency measures and 40 percent from locally-generated renewable sources. The EA/EIS should quantify the projected energy requirements 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 reduced transportation energy use will be incorporated in the design of the project. OP encourages petitioners to consult with the State Department of Business, Economic Development, and Tourism's Strategic Industries Division staff to identify the kinds of green building and sustainable design 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 arise 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, harbors, and airports, and discuss these impacts in terms of existing and planned capacity of the impacted facilities. The EA/EIS should cite the 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 land uses, compact site design, walkable neighborhoods, and providing a variety of transportation choices (e.g., biking, public transit, etc.).

10. **Conservation District.** 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 (habitat, watershed area, etc.) will impact the public.

11. **Conformance with County Plan Designations and Urban Growth or Rural Community Boundaries.** Act 26, Session Laws of Hawai'i 2008, 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 lies 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 uses.

    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 Benefit.** 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 timeframe 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 Hawai'i State Plan, Chapter 226, HRS, and the State Administration's New Day Comprehensive Plan. With the enactment of Act 181 on July 5, 2011 adopting new priority guidelines for sustainability in the Hawai'i 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 Hawai'i'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 petitions 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 Hawai'i, and the Department of Health's, *Health Community Design: Smart Growth Checklist* (http://hawaii.gov/health/environmental/env-planning/landuse/hcdchecklist.pdf), and nationally, the U.S. Green Building Council's (U.S. GBC) Leadership in Energy and Environmental Design (LEED) rating systems, which offers guidelines and checklists for this purpose. Additional resources can be found at http://hawaii.gov/dbedt/op/land_use.htm.

15. **Development Timetable.** The LUC requires that projects seeking reclassification be substantially completed within ten years or seek incremental approvals, pursuant to Section 15-15-50, HAR. The EA/EIS and/or petitioner should provide a schedule of development for each phase of the total project and a map showing the location and timing of each phase or increment of development. Regarding infrastructure (e.g., highway improvements), the petitioner should discuss how improvements will be completed to ensure that mitigation coincides with the impact created by the proposed project.

Approved by the Governor
on JUL 5 2011

THE SENATE
TWENTY-SIXTH LEGISLATURE, 2011
STATE OF HAWAII

ACT 181

S.B. NO. 283 S.D. 1 H.D. 1 C.D. 1

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 2008, 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

sustainability plan definitions, guiding principles, and goals, into chapter 226, Hawaii Revised Statutes.

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:

"§226- 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 ahupuaa system; and

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawaii."

SECTION 3. Section 226-2, Hawaii Revised Statutes, is amended by adding three new definitions to be appropriately inserted and to read as follows:

""Ahupuaa" means a traditional native Hawaiian resource and behavioral management system that ensures respect for the air, land, water, and other scarce natural resources that make life sustainable from the mountains to the sea.

"Kanaka maoli" means native Hawaiians.

"Sustainability" means achieving the following:

(1) Respect of the culture, character, beauty, and history of the State's island communities;

(2) Striking a balance between economic, social, community, and environmental priorities; and

(3) Meeting the needs of the present without compromising the ability of future generations to meet their own needs."

SECTION 4. Section 226-102, Hawaii Revised Statutes, is amended to read as follows:

"§226-102 Overall direction. The State shall strive to improve the quality of life for Hawaii's present and future population through the pursuit of desirable courses of action in [~~five~~] six major areas of statewide concern which merit priority

attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, [~~and~~] quality education[~~.~~], and principles of sustainability."

SECTION 5. The university of Hawaii public policy center, in consultation with the office of planning, shall submit a status and progress report to the legislature no later than December 21, 2011, that identifies the progress made in implementing the sustainability guidelines and principles set forth in this Act and any recommendations for legislation or other actions to facilitate the full implementation of the sustainability guidelines and principles set forth in this Act.

SECTION 6. Statutory material to be repealed is bracketed and stricken. New statutory material is underscored.

SECTION 7. This Act shall take effect on July 1, 2011.

Report Title:
Sustainability; State Planning

Description:
Incorporates the definitions and guiding principles of the Hawaii 2050 sustainability plan into the Hawaii state planning act. (CD1)

The summary description of legislation appearing on this page is for informational purposes only and is not legislation or evidence of legislative intent.

NEIL ABERCROMBIE
GOVERNOR
RICHARD C. LIM
DIRECTOR
MARY ALICE EVANS
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OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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Ref. No. P-13389

August 31, 2011

Ms. Blanca Lafolette
CMBY 2011 Investment, LLC
c/o Pacific Rim Land
1300 Holopono Street, Suite 201
Kihei, Hawai'i 96753

Dear Ms. Lafolette:

Subject: Early Consultation for the Preparation of a Draft Environmental Assessment
Proposed Pu'unene Heavy Industrial Subdivision
CMBY 2011 Investment, LLC
TMK (2) 3-8-008: 019
Pulehunui, 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 86 acres of land from the State Agricultural District to the State Urban District for a 28-lot 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(e), 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 Section 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/gov/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/bills/GM1285_.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 commonly raised 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 areas of State concern in Item 3 above—and best practices that could or will be incorporated in the proposed project to address State

priority guidelines for sustainability. A short list of resources related to best practices can be found at the OP website at http://hawaii.gov/dbedt/op/land_use.htm.

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 petition'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 205, 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,

Jesse K. Souki
Director

Enclosure

c: Mr. Glenn Tadaki, Chris Hart & Partners, Inc.

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CHRIS HART & PARTNERS, INC.
Landscape Architecture
City & Regional Planning

October 12, 2011

Mr. Jesse K. Souki, Director
Office of Planning
Hawai`i Dept. of Business, Economic
Development & Tourism
P. O. Box 2359
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`unene 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, CMBY 2011 Investment, LLC, this letter responds to the letters sent to Ms. Lafolette (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 205-17, HRS (*Land Use Commission Decision-making Criteria*), Section 205A-2, HRS (*Coastal Zone Management Program; Objectives and Policies*), and Chapter 226, HRS (*Hawai`i State Planning Act*) and that best management practices for addressing State sustainability guidelines pursuant to Act 181 (2011) will be examined as well.

115 N. Market Street, Wailuku, Maui, Hawaii 96793-1717 • Ph 808-242-1955 • Fax 808-242-1956
www.chpmaui.com

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, sewerlines, 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

lot 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 the 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,

Glenn Tadaki
Planner

cc: Blanca Lafolette, PRL
Stacy Otomo, P.E.
Tom Nance, TNWRE
Martin Luna, Esq.

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