

# **Draft Environmental Assessment**

## **WAILEA IKE DRIVE AND WAILEA ALANUI DRIVE INTERSECTION IMPROVEMENTS**

**Prepared for:**

**Honua`ula Partners, LLC**

**Accepting Authority:**

**County of Maui,  
Department of Public Works**

**August 2009**



# CONTENTS

Executive Summary .....	Page i
I. PROJECT OVERVIEW .....	Page 1
A. BACKGROUND .....	Page 1
B. PROPERTY LOCATION, EXISTING USE, AND LAND OWNERSHIP .....	Page 1
C. PROPOSED ACTION .....	Page 3
D. REGULATORY CONTEXT AND CHAPTER 343, HAWAII REVISED STATUTES .....	Page 3
E. ESTIMATED PROJECT COST AND CONSTRUCTION CONSIDERATIONS .....	Page 6
II. DESCRIPTION OF EXISTING CONDITIONS, POTENTIAL IMPACTS AND MITIGATION MEASURES .....	Page 7
A. PHYSICAL SETTING .....	Page 7
1. Surrounding Land Uses .....	Page 7
2. Climate .....	Page 8
3. Topography and Soils Conditions .....	Page 8
4. Flood and Tsunami Hazard .....	Page 11
5. Flora and Fauna .....	Page 11
6. Air Quality .....	Page 13
7. Noise Characteristics .....	Page 14
8. Scenic and Open Space Resource .....	Page 14
9. Archaeological Resources .....	Page 15
10. Historic and Cultural Resources .....	Page 16
B. SOCIO-ECONOMIC ENVIRONMENT .....	Page 17
1. Regional Land Use and Community Character .....	Page 17
2. Population .....	Page 17
3. Economy .....	Page 18
C. PUBLIC SERVICES .....	Page 19
1. Police and Fire Protection .....	Page 19
2. Medical, Recreational, and Educational Facilities .....	Page 20
3. Solid Waste .....	Page 21
D. INFRASTRUCTURE .....	Page 22
1. Roadway System .....	Page 22
2. Water System .....	Page 23
3. Wastewater Systems .....	Page 24

4.	Drainage .....	Page 24
5.	Electrical, Telephone and Cable TV Systems .....	Page 26
E.	CUMULATIVE AND SECONDARY IMPACTS .....	Page 26
III.	RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS .....	Page 28
A.	STATE LAND USE DISTRICTS .....	Page 28
B.	HAWAII STATE PLAN .....	Page 28
C.	MAUI COUNTY GENERAL PLAN .....	Page 29
D.	KIHEI-MĀKENA COMMUNITY PLAN (1998) .....	Page 30
1.	Community Plan Theme .....	Page 30
2.	Community Plan Land Use Goal .....	Page 33
3.	Transportation Objectives and Policies .....	Page 33
E.	COUNTY ZONING .....	Page 33
F.	COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES ..	Page 34
IV.	ALTERNATIVES TO THE PROPOSED ACTION .....	Page 42
A.	PREFERRED ALTERNATIVE .....	Page 42
B.	NO ACTION ALTERNATIVE .....	Page 42
C.	DEFERRED ACTION ALTERNATIVE .....	Page 42
V.	SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED .....	Page 43
VI.	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES .....	Page 44
VII.	SIGNIFICANCE CRITERIA ASSESSMENT .....	Page 45
VIII.	LIST OF PERMITS AND APPROVALS .....	Page 49
IX.	PARTIES CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED; AND RESPONSES TO SUBSTANTIVE COMMENTS .....	Page 50
X.	REFERENCES .....	Page i

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# LIST OF FIGURES

<b>Figure 1.</b> Vicinity Map .....	Page 2
<b>Figure 2.</b> Existing Intersection Conditions .....	Page 4
<b>Figure 3.</b> Proposed Intersection Configuration .....	Page 5
<b>Figure 4.</b> Soil Association Map .....	Page 9
<b>Figure 5.</b> Soil Classifications Map .....	Page 10
<b>Figure 6.</b> Flood Insurance Rate Map .....	Page 12
<b>Figure 7.</b> State Land Use District Classification .....	Page 29
<b>Figure 8.</b> Community Plan Land Use Designations .....	Page 32

# LIST OF APPENDICES

<b>Appendix A.</b>	Preliminary Plans
<b>Appendix B.</b>	Biological Survey
<b>Appendix C.</b>	Traffic Impact Analysis Report
<b>Appendix D.</b>	Preliminary Civil Engineering and Drainage Report
<b>Appendix E.</b>	April 16, 2009 Community Meeting
<b>Appendix F.</b>	Site Photographs
<b>Appendix G.</b>	Department of Land and Natural Resources, State Historic Preservation Division Letter Dated July 16, 2009

**Executive Summary**

**Project Name:** Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

**Type of Document:** Draft Environmental Assessment

**Legal Authority:** Chapter 343, Hawai'i Revised Statutes

**Agency Determination:** Anticipated Finding of No Significant Impact (FONSI)

**Applicable Environmental Assessment review "trigger"** Use of County Lands

**Location:** Wailea Alanui Drive at its intersection with Wailea Ike Drive (TMK 2-1-008 and 2-1-008:131)  
TMK 2-1-008:118 (por.) and 134 (por.) Wailea Old Blue Golf Course  
Kihei  
Island of Maui

**Landowners:** Parcel 131: County of Maui (road right-of-way)  
Parcels 118 and 134: Wailea Old Blue LLC

**Applicant:** Honua`ula Partners, LLC  
P.O. Box 220  
Kihei, Hawai'i 96753  
Contact: Charles Jencks  
Phone: (808) 879-5205

**Accepting Authority:** Department of Public Works  
County of Maui  
200 South High Street  
Wailuku, Hawai'i 96793  
Contact: Milton Arakawa, Director of Public Works  
Phone: (808) 270-7845

**EA Preparer:** Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793  
Contact: Gwen Ohashi Hiraga  
Phone: (808) 244-2015

**Project Summary:**

Honua`ula Partners, LLC proposes to modify the Wailea Ike Drive and Wailea Alanui Drive intersection by widening the north and south portion of the intersection to accommodate a double right-turn movement from northbound Wailea Alanui Drive onto eastbound Wailea Ike Drive and a double left-turn configuration from Wailea Ike Drive onto Wailea Alanui Drive.

Appurtenant improvements include the construction of concrete curb and gutter, sidewalk and curb ramps, installation of asphalt concrete pavement, relocation and/or modification of the traffic signal system, roadway pavement marking and signing, and grassing and/or landscaping.

# **I. PROJECT OVERVIEW**

# I. PROJECT OVERVIEW

## A. BACKGROUND

Honua`ula Partners, LLC, through Ordinance No. 3554 enacted on April 8, 2008 for the Kihei-Mākena Project District 9, (hereinafter referred to as “Honua`ula”) is required as a condition of zoning to construct roadway improvements at the intersection of Wailea Ike Drive and Wailea Alanui Drive.

In particular, Condition No. 2.e of Ordinance No. 3554 requires Honua`ula Partners, LLC to “Modify the Wailea Alanui and Wailea Ike Drive intersection to add a signalized double right-turn movement from northbound to eastbound turning traffic and provide two left-turn lanes for southbound traffic from Wailea Ike Drive prior to occupancy of the first unit in Kihei-Mākena Project District 9.”

As fulfillment of Condition No. 2.e, Honua`ula Partners, LLC proposes to design and construct improvements to the intersection.

## B. PROPERTY LOCATION, EXISTING USE, AND LAND OWNERSHIP

Honua`ula Partners, LLC, in coordination with the County of Maui, Department of Public Works (DPW), proposes to implement the construction of improvements to the Wailea Ike Drive and Wailea Alanui Drive intersection located in the Wailea Resort on the island of Maui. See **Figure 1**.

Both Wailea Ike Drive and Wailea Alanui Drive are owned by the County of Maui (identified as TMKs 2-1-008:131 [Wailea Ike Drive] and 2-1-008 [Wailea Alanui Drive]). The proposed improvements will require land acquisition from the adjoining golf course properties located on the east side of the intersection owned by Wailea Old Blue, LLC (identified as TMKs 2-1-008:118 and 134). The land to be acquired is located on the north and south side of Wailea Ike Drive. Honua`ula Partners, LLC is in discussion with Wailea Old Blue, LLC regarding the land acquisition.

Wailea Ike Drive and Wailea Alanui Drive are located within the Special Management Area for the island of Maui.





**C. PROPOSED ACTION**

Wailea Alanui Drive and Wailea Ike Drive provide “gateway” accesses to the Wailea Resort and Makena Resort to the south. At their intersection, the roadways are controlled by a traffic signal with exclusive left-turn and right-turn channels. See **Figure 2**. The intersection is bounded by the Shops at Wailea complex to the west and the Wailea Old Blue Golf Course to the north. The Matteos Pizzeria restaurant is located southeast of the intersection.

Wailea Alanui Drive and Wailea Ike Drive are both four (4) lane facilities providing a parkway character via landscaped medians. Southbound (Mākena-bound) traffic on Wailea Alanui Drive is accommodated by two (2) through lanes with a separate left-turn lane for traffic traveling onto Wailea Ike Drive. Northbound traffic is accommodated by two (2) lanes, one (1) through lane and a separate right-turn channel onto Wailea Ike Drive. Westbound or makai-bound traffic on Wailea Ike Drive have separate lanes to turn right and left at the intersection.

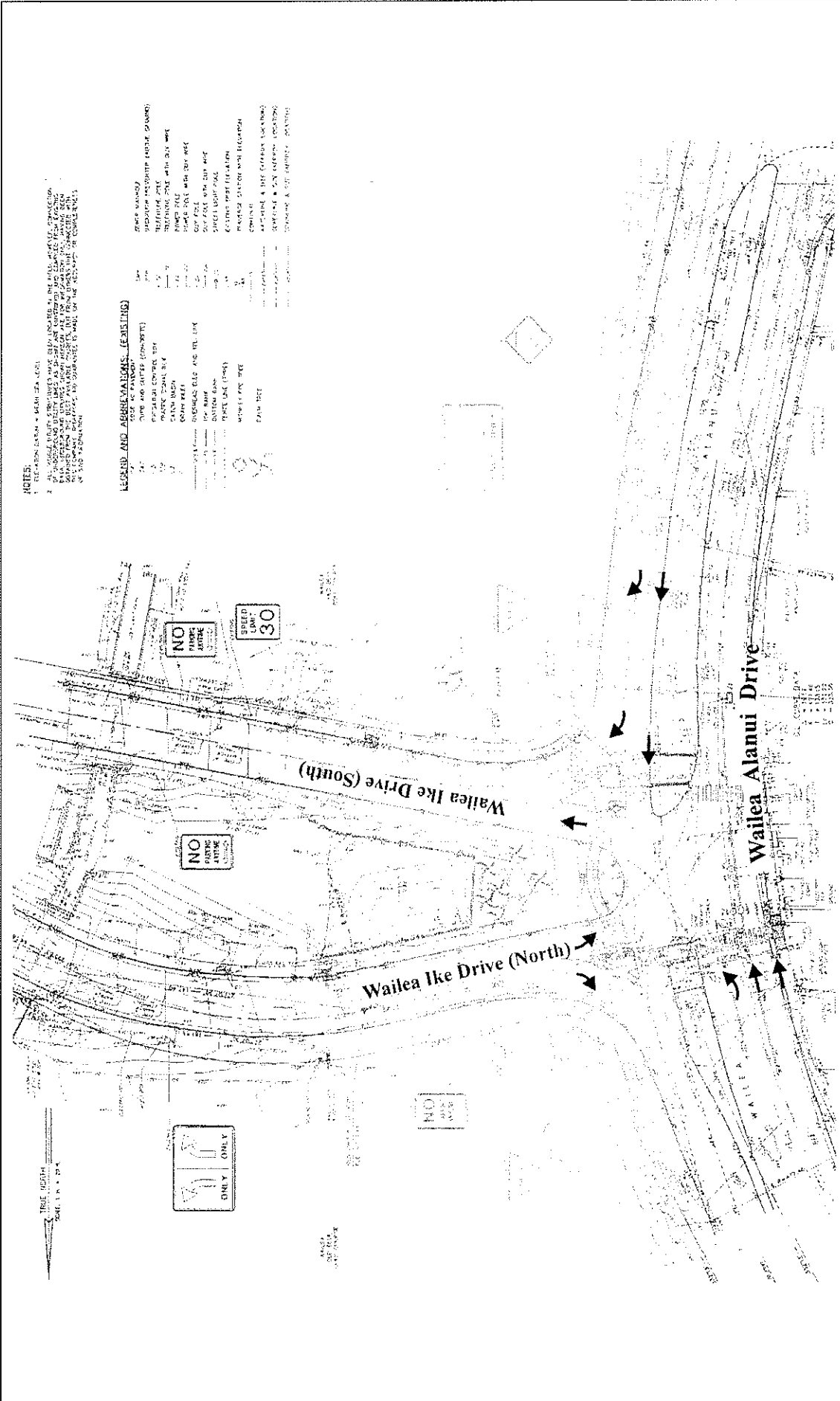
To fulfill Condition No. 2.e of Ordinance No. 3554, Honua`ula Partners, LLC proposes to modify the Wailea Ike Drive and Wailea Alanui Drive intersection by widening the north and south portion of the intersection to accommodate double right-turn lanes on Wailea Alanui Drive for northbound traffic to turning east onto Wailea Ike Drive. The intersection improvements will also include the provision of two (2) left-turn lanes for southbound traffic turning from Wailea Ike Drive onto Wailea Alanui Drive. See **Figure 3**.

Appurtenant improvements include the construction of concrete curb and gutter, sidewalk and curb ramps, installation of asphalt concrete pavement, relocation and/or modification of the traffic signal system, roadway pavement marking and signing, and grassing and/or landscaping. See **Appendix “A”**.

The foregoing improvements are intended to improve intersection operations as traffic volumes increase over time.

**D. REGULATORY CONTEXT AND CHAPTER 343, HAWAII REVISED STATUTES**

The Wailea Ike Drive and Wailea Alanui Drive intersection improvements involve the use of County land. The processing of an Environmental Assessment (EA) pursuant to Chapter 343, Hawai`i Revised Statutes (HRS) is therefore required. This Environmental Assessment is being prepared pursuant to HRS, Chapter 343 and Chapter 200 of Title 11, Department of



**NOTES:**

1. THIS PLAN IS A PRELIMINARY PLAN.
2. THE DESIGNER HAS CONDUCTED VISUAL SURVEYS OF THE PROPOSED INTERSECTION AND HAS OBSERVED THE EXISTING TRAFFIC PATTERNS AND CONDITIONS. THE DESIGNER HAS CONDUCTED VISUAL SURVEYS OF THE PROPOSED INTERSECTION AND HAS OBSERVED THE EXISTING TRAFFIC PATTERNS AND CONDITIONS. THE DESIGNER HAS CONDUCTED VISUAL SURVEYS OF THE PROPOSED INTERSECTION AND HAS OBSERVED THE EXISTING TRAFFIC PATTERNS AND CONDITIONS.

**LEGEND AND ABBREVIATIONS (EXISTING)**

1/4"	1/4" = 10'	1/4" = 10'	1/4" = 10'
1/8"	1/8" = 5'	1/8" = 5'	1/8" = 5'
1/16"	1/16" = 2.5'	1/16" = 2.5'	1/16" = 2.5'
1/32"	1/32" = 1.25'	1/32" = 1.25'	1/32" = 1.25'
1/64"	1/64" = 0.625'	1/64" = 0.625'	1/64" = 0.625'
1/128"	1/128" = 0.3125'	1/128" = 0.3125'	1/128" = 0.3125'
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Health Administrative Rules, Environmental Impact Statement Rules. Accordingly, this document (prepared for the approving agency, the County of Maui Department of Public Works) addresses the project's technical characteristics, environmental impacts and alternatives, and advances findings and conclusions relative to the significance of the proposed action.

In addition, the project site is located within the County of Maui's Special Management Area or SMA. An application for a SMA Use Permit will be prepared and filed with the Maui Planning Department. The Maui Planning Commission is the granting authority for the SMA permit.

**E. ESTIMATED PROJECT COST AND CONSTRUCTION CONSIDERATIONS**

The proposed project will involve the use of County land with design and construction by the Honua`ula Partners, LLC. It is estimated the proposed construction of the improvements will cost \$798,000.00.

Construction of the project will commence upon receipt of applicable regulatory permits and approvals and contractor selection. The construction of the project is estimated to last approximately three (3) months once all permits are obtained.

**II. DESCRIPTION OF  
EXISTING CONDITIONS,  
POTENTIAL IMPACTS  
AND MITIGATION  
MEASURES**

## II. DESCRIPTION OF EXISTING CONDITIONS, POTENTIAL IMPACTS AND MITIGATION MEASURES

### A. PHYSICAL SETTING

#### 1. Surrounding Land Uses

##### a. Existing Conditions

Wailea Ike Drive follows an east-west alignment from its intersection with Pi'ilani Highway to its intersection with Wailea Alanui Drive. Wailea Alanui Drive is a north-south roadway traveling parallel with the shoreline. Wailea Alanui Drive terminates at Kilohana Drive to the north, while at its southern extent at Kaukahi Street, the roadway transitions to Mākena Alanui Road.

The Wailea Ike Drive and Wailea Alanui Drive intersection is adjacent to the Wailea Old Blue Golf Course to the northeast and southeast, with the Shops at Wailea located directly across the tee-intersection to the west. Refer to **Figure 1**.

##### b. Potential Impacts and Mitigation Measures

The proposed action is intended to address anticipated increases in traffic volume through the intersection. Traffic volume increase is anticipated with the development of Honua'ula, Wailea Resort and Makena Resort. Anticipated future traffic flows will be accommodated by the improvements. Land use patterns at the intersection and beyond are not anticipated to change as a result of the proposed action. Land use designations set forth by the Kihei-Mākena Community Plan will continue to guide growth and development in the project area.

## 2. Climate

### a. Existing Conditions

The Kihei coast is generally sunny, warm and dry the entire year. The average annual temperatures in Kihei range between the low 60's to the low 90's. June through August are historically the warmer months of the year, while the cooler months are January to March.

Average rainfall distribution in the Kihei-Mākena region varies from under ten (10) inches per year to twenty (20) inches per year in the higher elevations. Rainfall in the Kihei-Mākena region is highly seasonal, with most of the precipitation occurring in the winter months.

Northeast tradewinds prevail approximately 80 to 85 percent of the time. Winds average ten (10) to fifteen (15) miles per hour during afternoons, with slightly lighter winds during mornings and nights (Maui County Data Book, 2008).

### b. Potential Impacts and Mitigation Measures

The project will not impact climatic conditions and local microclimate variables in the Wailea Resort.

## 3. Topography and Soils Conditions

### a. Existing Conditions

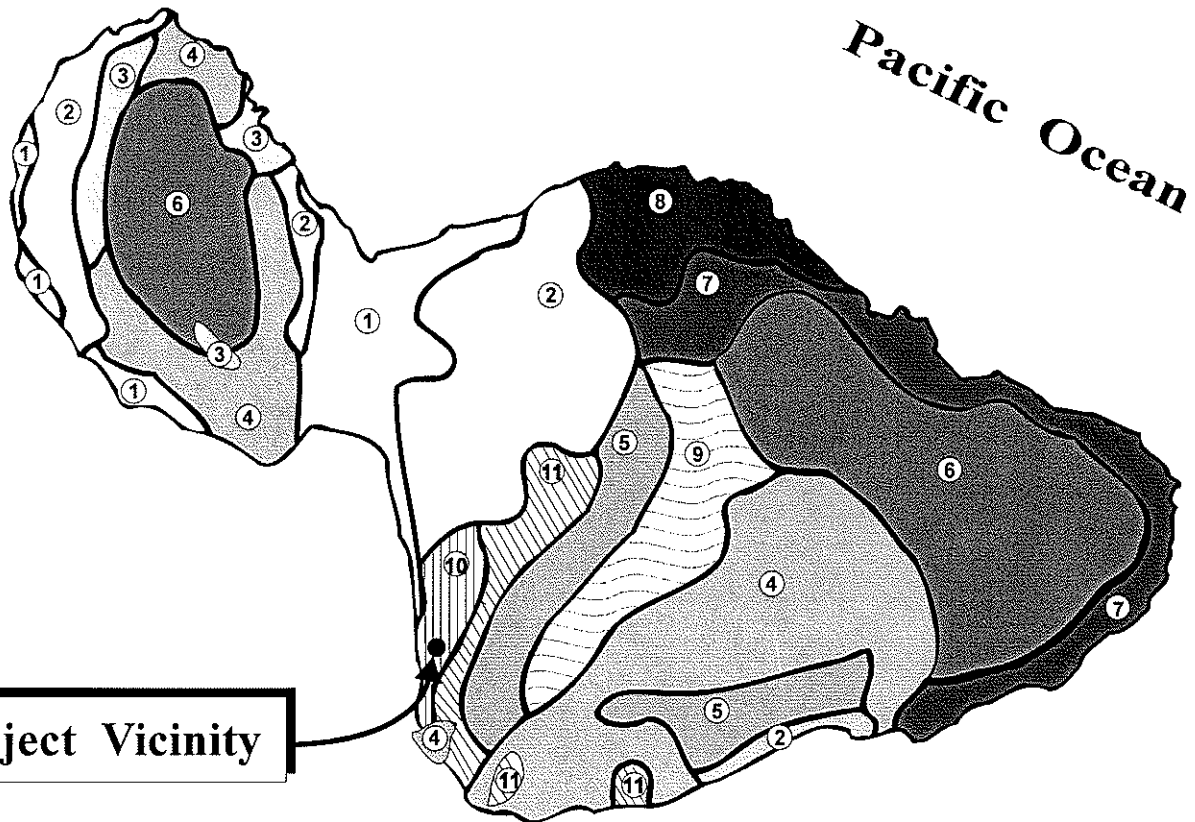
Underlying the project site is the Keawakapu-Mākena soil association. See **Figure 4. The Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lana'i, State of Hawai'i** characterizes the soils of this association as gently sloping to moderately steep and well drained. The underlying material is fine-textured to medium-textured subsoil and ranges in depth from shallow to deep and is comprised of fragmented A`a lava.

The Soil Survey, prepared by the U.S. Soil Conservation Service, identifies the soils in the project area as Mākena loam, stony complex, 3 to 15 percent slopes (MXC). See **Figure 5**.



# LEGEND

- |  |                                     |
|--|-------------------------------------|
| ① Pulehu-Ewa-Jaucas association                | ⑦ Hana-Makaalae-Kailua association  |
| ② Waiakoa-Keahua-Molokai association           | ⑧ Pauwela-Haiku association         |
| ③ Honolulu-Olelo association                   | ⑨ Laumaia-Kaipoi-Olinda association |
| ④ Rock land-Rough mountainous land association | ⑩ Keawakapu-Makena association      |
| ⑤ Puu Pa-Kula-Pane association                 | ⑪ Kamaole-Oanapuka association      |
| ⑥ Hydrandepts-Tropaquods association           |                                     |

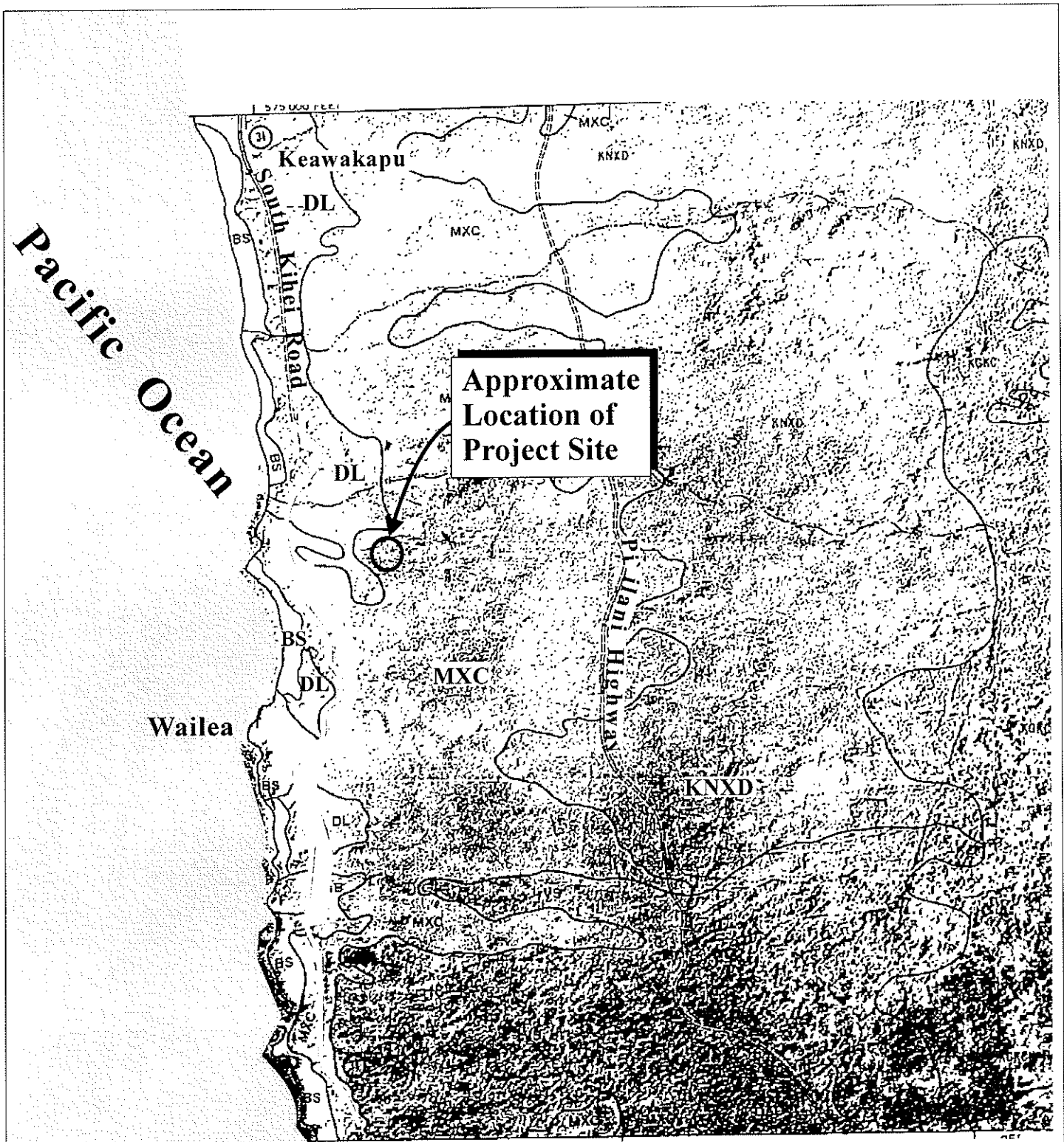


Source: USDA, Soil Conservation Service

**Figure 4** Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements Soil Association Map

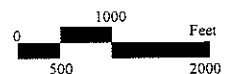
NOT TO SCALE





Source: USDA, Soil Conservation Service

Figure 5 Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements Soil Classifications Map



Prepared for: Honua'ula Partners, LLC

MUNEKIYO & HIRAGA, INC.

Mākena loam, stony complex, is generally found on the lower leeward slopes of Haleakala, between Mākena and Kamaole, and consists of Mākena loam and stony land. Stony land occurs on the low ridges and make up to 30 to 60 percent of the complex. Mākena loam is a dark brown to dark yellowish brown well drained soil, developed from volcanic ash, and is usually located between the low ridges of stony land. Mākena loam is characterized by a relatively high permeability, and a low shrink swell potential. Permeability is characterized as moderately rapid, slow to medium runoff, and slight to moderate erosion hazard.

**b. Potential Impacts and Mitigation Measures**

Limited grading will be required to widen the asphalt pavement and for the installation of new curbs and gutters. Appropriate Best Management Practices (BMPs) will be utilized during construction. Soil and topographic conditions are not limiting factors which will affect project implementation.

**4. Flood and Tsunami Hazard**

**a. Existing Conditions**

The project site is located in flood zone “C”, areas of minimal flooding. Further, the project site is located significantly inland from the shoreline and outside of any tsunami inundation zone. Flood zone information is obtained from the Federal Emergency Management Agency, Flood Insurance Rate Map (FIRM), Panel No. 150003 0330 B, dated June 1, 1981. See **Figure 6**.

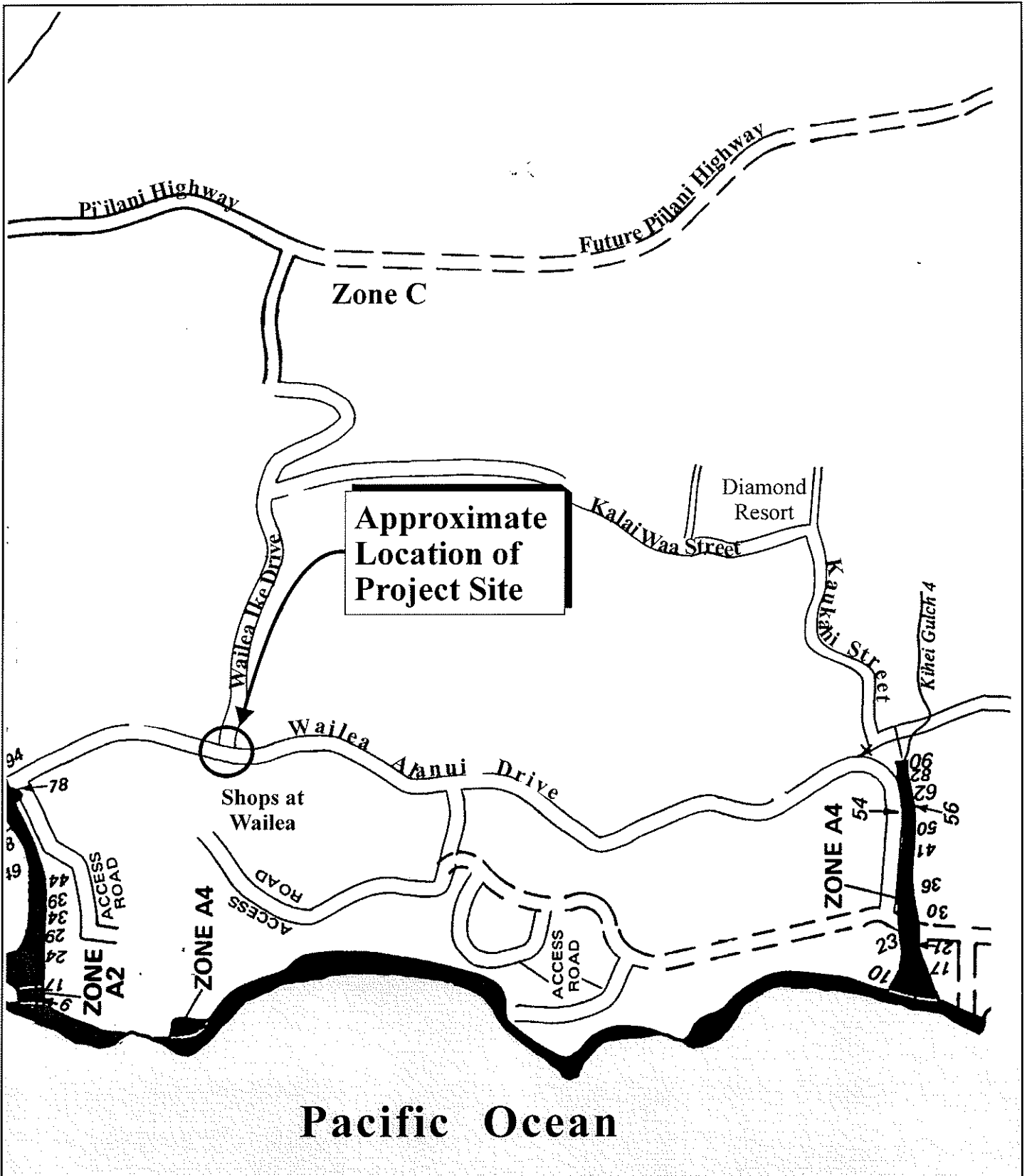
**b. Potential Impacts and Mitigation Measures**

The project site is located outside of any flood and tsunami areas with no impacts to hazard conditions anticipated from the proposed action.

**5. Flora and Fauna**

**a. Existing Conditions**

A biological resources survey was conducted at the project site. See **Appendix “B”**. Flora and fauna found within the survey area are those commonly identified throughout Maui and the main Hawaiian Islands. No



Source: National Flood Insurance Program, Federal Emergency Management Agency, Panel No. 150003 0330B

Figure 6 Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements Flood Insurance Rate Map

NOT TO SCALE



Federally listed, threatened, or candidate endangered species of flora or fauna were found.

**b. Potential Impacts and Mitigation Measures**

There are no anticipated adverse impacts to fauna or avifauna as a result of the proposed action. Lighting fixtures will not be increased nor modified to alter downlighting design elements.

Landscaping for the project is limited to restoring the area disturbed by construction activity, primarily re-establishing grassed areas. However, if additional landscaping is to be installed, native plants will be employed for the newly constructed areas to the extent practicable. The use of plants within the Solenaceae (nightshade family) will be avoided so as not to attract endangered Blackburn sphinx moths to the roadside where they are at higher risk for species injury or death. Refer to **Appendix “B”**.

**6. Air Quality**

**a. Existing Conditions**

There are no point sources of airborne emissions in the immediate vicinity of the project site. Airborne pollutants are primarily attributed to automobile exhaust from vehicles traveling on area roadways. Another source of airborne emissions may include smoke from sugar cane burning which occurs in the Central Maui isthmus. This source, however, is intermittent. Nevertheless, the air quality of the Kihei area is considered good and prevailing tradewinds quickly disperse particulates which are generated from these sources.

**b. Potential Impacts and Mitigation Measures**

The proposed improvements to the Wailea Ike Drive and Wailea Alanui Drive intersection are required to accommodate anticipated growth in traffic in the Kihei-Wailea-Mākena area. The proposed improvements will facilitate traffic flow and reduce emission concentration levels. The presence of relatively constant tradewinds will dissipate vehicular emissions minimizing the potential adverse air quality impacts.

Short-term impacts on air quality could potentially occur during project construction from fugitive dust and vehicle movement, soil excavation and exhaust emissions from onsite construction equipment.

Adequate fugitive dust control can be provided through BMPs, such as establishment of a frequent watering program, limiting the area disturbed, applying soil stabilizers, mulching, and wind screens. With careful planning and attention to dust control, potential short-term air quality impacts from project construction can be mitigated.

**7. Noise Characteristics**

**a. Existing Conditions**

The project site is located in the midst of a high quality visitor destination area. Existing noise in the area is attributed to vehicular traffic traversing the intersection.

**b. Potential Impacts and Mitigation Measures**

Potential short-term construction noise impacts are possible during the project construction period in the project area. However, minimizing these types of noise impacts is possible using standard construction curfew periods, properly muffled equipment, administrative controls, and construction barriers as required.

**8. Scenic and Open Space Resource**

**a. Existing Conditions**

In proximity to the project site, the lands makai (west) of the tee-intersection are developed with commercial/retail and hotel uses. The lands in the northern and southern portions of the project site are part of the Wailea Old Blue Golf Course. Vertical improvements in the project site are limited to the installation of directional signs and traffic signals. The existing intersection of Wailea Ike Drive and Wailea Alanui Drive is a signalized intersection.

**b. Potential Impacts and Mitigation Measures**

The proposed project will not create a visual character inconsistent with its present use nor with surrounding uses. Views available from Wailea Ike Drive from an east to west direction will continue, as well as any views toward Haleakala Mountain available in the west to east direction. Similarly, views along Wailea Alanui Drive are anticipated to remain the same.

The proposed work within the intersection will not impinge upon any significant scenic view corridors or open space resources.

**9. Archaeological Resources**

**a. Existing Conditions**

The land underlying the project site was previously disturbed during the construction of the Wailea Ike Drive, Wailea Alanui Drive, and the Wailea Old Blue Golf Course. Since improvements will be located mainly in the existing right-of-way, as well as the adjacent golf course property, an archaeological resources inventory was not required. The Department of Land and Natural Resources, State Historic Preservation Division concurred that archaeological monitoring will be sufficient. An Archaeological Monitoring Plan will be prepared for the project. See **Appendix “G”**.

**b. Potential Impacts and Mitigation Measures**

The proposed action will create minimal disturbances outside the existing right-of-way and golf course property which has already been cleared and developed. Based on early consultation with the State Historic Preservation Division (SHPD), a monitoring plan will be submitted to SHPD prior to and an archaeological monitor will be present during any ground altering activities. These measures will assure that proper mitigation and consultation will occur to protect archaeological and cultural resources which may be encountered during project development.

**10. Historic and Cultural Resources**

**a. Existing Conditions**

The project area is at the tip of the traditional district of Honua`ula and southwest district called Kula. For years, the only way to get to Wailea Ike and Mākena from Kihei was by an ancient walkway starting at the ocean side of Kalama Park. As South Maui continually expanded, the residents found it necessary to find other methods and roadways to reach Mākena. Ancient methods of canoeing and coming down from Ulupalakua upon the footpaths continued but walking along the sea coast eventually gave in to horses and ox drawn carts. The same path gave way to a dirt road for Model-T cars.

A cultural impact assessment prepared for the nearby Pi`ilani Highway Widening project for Honua`ula Partners, LLC notes the cultural eras which shaped the Native Hawaiian lifestyle (Hana Pono, LLC 2009). These eras started from the mythical creation era and encompasses the current Captain Cook era (1778 to present). From a roadway and access standpoint, the Hana Pono, LLC cultural assessment notes that in the early days there was no road between Kihei to Mākena, except for a walking trail along the shoreline. Horses and mules were used to transport supplies to the Mākena area. It was during World War II that the military constructed the access road for vehicular use to Mākena.

In Hana Pono, LLC's interview with Herman Clark, Mr. Clark recalled traveling to Makena

*...all the way down to La Perouse Bay...all dirt road. Then when you come down to the lava flow it's all gravel.*

**b. Potential Impacts and Mitigation Measures**

The proposed intersection improvements will traverse lands, which in the prehistoric period were used for trails between the mauka and makai settlements and in the period after 1850 was mainly used for cattle ranching. There are no known historic resources which will be adversely impacted by the proposed project.



The Wailea Alanui Drive and Wailea Ike Drive intersection has been in existence since the 1970s when Wailea Resort was developed by A&B Hawaii and serves as a primary roadway service facility for all traffic accessing the Wailea Resort and Makena Resort to the south. The scale and scope of the project is limited to work to be performed within and adjacent to existing rights-of-way. While there are no cultural practices affected by the proposed action, it is recognized that from a historical perspective, the Wailea region holds archaeological and cultural values which are evidenced through previous archaeological works. As previously stated, an archaeological monitoring plan will be prepared and implemented for this reason.

Based on the existing land use context, there is no evidence of current or recently occurring cultural practices at the project site.

## **B. SOCIO-ECONOMIC ENVIRONMENT**

### **1. Regional Land Use and Community Character**

From a regional standpoint, the project site is in the Kihei-Mākena Community Plan region which encompasses the area from Ma`alaea to La Perouse Bay. The region includes a diverse range of physical and socio-economic environments. With its dry and mild climate and proximity to recreation-oriented shoreline resources, the visitor-based economy has grown steadily over the past few years. The town of Kihei serves as the commercial and residential center of the region with the master-planned communities of Wailea and Mākena serving as the focal point for visitor activities.

### **2. Population**

#### **a. Existing Conditions**

The population of the County of Maui has exhibited a relatively strong growth in recent years. The resident population increased approximately 21 percent in the seven-year span from 2000 to 2007, from 117,644 to 141,902 persons (Maui County Data Book, 2008). Growth in the County is expected to continue with the resident population projected to 140,289 people by 2010 and 151,011 people by 2015 (Maui County Planning Department, June, 2006).

The population of the Kihei-Mākena region increased at greater rates than the County as a whole. In the 10-year span from 1990 to 2000, the population of the Kihei-Mākena region grew by 49 percent, from 15,365 to 22,870 persons (Maui County Data Book, 2008). The regional population is projected to grow to 28,114 people in 2010 and 30,597 people in 2015 (Maui County Planning Department, June 2006).

**b. Potential Impacts and Mitigation Measures**

The proposed action is not anticipated to have significant adverse impacts on population. As an improvement to an existing roadway system there will be no increase in dwelling units that would generate population growth.

**3. Economy**

**a. Existing Conditions**

The economy of Maui is heavily dependent upon the visitor industry. The dependency on the visitor industry is especially evident in Kihei-Mākena, which is one of the State's major resort destination areas. The foundation for the region's visitor strength lies in world-class resorts and recreational facilities located in Wailea and Mākena. Support for the visitor industry is found in Kihei, where numerous retail commercial centers are found.

According to data from the State Department of Labor and Industrial Relations, of the 78,750 civilian labor force 71,900 individuals were employed in Maui County in April 2009. Approximately 6,850 individuals, comprising 8.7 percent of the labor force, were unemployed in April 2009. Maui island had a civilian labor force of 74,900 individuals of which approximately 6,700 individuals comprising 8.9 percent of the labor force were unemployed in March 2009. The unemployment rate in April 2009 was 6.8 percent for the State of Hawai'i, 8.7 percent for Maui County and 8.5 percent for Maui island, an increase in unemployment figures from April 2008 of 3.7, 5.4, and 5.3 percent, respectively (Department of Labor and Industrial Relations, June 2009).

**b. Potential Impacts and Mitigation Measures**

On a short-term basis, the proposed action will support construction and

construction-related employment. Over the long term, the proposed project will provide for the more efficient movement of people and goods throughout the Kihei-Wailea-Mākena area and thereby improve business production and operation levels.

## **C. PUBLIC SERVICES**

### **1. Police and Fire Protection**

#### **a. Existing Conditions**

The County of Maui's Police Department is headquartered in Wailuku at its Mahalani Street facility. The Maui Police Department (MPD) consists of several patrol, investigative and administrative divisions. The MPD's Kihei Patrol covers the Kihei-Mākena region. The department's Kihei Substation is located at the Kihei Town Center northwest of the project corridor. A new Kihei Police Station is proposed mauka of Pi'ilani Highway near Ke Alii Alanui Drive.

Fire prevention, suppression and protection services are offered by the County's Department of Fire and Public Safety. The department's Kihei Station, which services the Kihei-Mākena region is located on South Kihei Road near Kalama Park, while the Wailea Fire Station is located off of Kilohana Drive, just makai (west) of its intersection with Pi'ilani Highway. The Wailea Fire Station services the area from Kamaole Beach Park II to Mākena.

#### **b. Potential Impacts and Mitigation Measures**

The proposed intersection improvements will enhance traffic movement through the intersection and will support the service capabilities of police, fire and emergency medical operations by reducing emergency response time in the area.

During project construction, appropriate coordination will be undertaken with emergency services to ensure that response requirements for such services are not adversely impacted due to delays which may be attributed to construction work.

## 2. Medical, Recreational, and Educational Facilities

### a. Existing Conditions

Maui Memorial Medical Center, the only major medical facility on the island, services the Kihei-Mākena region. Acute, general and emergency care services are provided by this facility, which is licensed for 231 beds and is situated in Wailuku, in the vicinity of Mahalani Street and Maui Lani Parkway. Privately operated medical/dental offices are located in the Kihei area to serve the region's residents and visitors. There are ambulance stations located in north Kihei, at the former Kihei Elementary School, as well as a temporary station in the Maui Meadows subdivision. In addition, a new ambulance station is proposed adjacent to the Wailea Fire Station site.

Diverse recreational opportunities are available in the Kihei-Mākena region. Recreational facilities near the project site include Kilohana Park, the Wailea Old Blue, Gold and Emerald Golf Courses and various beach parks in Wailea Resort. Shoreline recreation includes swimming, fishing, picnicking, snorkeling, and windsurfing.

The 12.9-acre Kilohana Park is located at the corner of Kilohana Drive and Kapili Street north of the project site. This park has an athletic field for soccer, picnic areas, and restrooms.

The Mākena resort area to the south offers additional opportunities for golf, tennis and ocean-related activities.

The County's Kihei Community Center complex located near Lipoa Street, provides for a community center, swimming pool, and athletic playfields. There are various other athletic fields and shoreline parks in the Kihei-Mākena region. The South Maui Community Park is proposed to be built off of Liloa Drive south of Lokelani Intermediate School.

The State Department of Education (DOE) operates three (3) schools in the Kihei area. Kihei Elementary School and Kamali`i Elementary School cover grades K to 5, with 2007-2008 enrollments of approximately 799 and 650 students, respectively. Lokelani Intermediate School includes grades 6 to 8, with a 2007-2008 enrollment of approximately 651 students. Public school

students in grades 9 through 12 attend Maui High School in Kahului. According to the DOE, the Kihei Charter School, which also serves the Kihei-Mākena region, has an enrollment of 277 students (Department of Education, 2007-2008 school year).

**b. Potential Impacts and Mitigation Measures**

The proposed action is not considered a direct population generator, but rather an infrastructure upgrade which will provide for an improved regional transportation network. The proposed improvements will not place new demand on medical, recreational, and educational facilities.

**3. Solid Waste**

**a. Existing Conditions**

Single-family residential solid waste collection service is provided by the County of Maui on a weekly basis. Residential solid waste collected by County crews are disposed at the County's Central Maui Landfill located 4.0 miles southeast of the Kahului Airport. In addition to County-collected refuse, the Central Maui Landfill accepts commercial waste from private collection companies. Privately owned facilities, such as the Maui Demolition and Construction Landfill and the Pohakulepo Concrete Recycling Facility accept solid waste and concrete from demolition and construction activities. These facilities are located about nine (9) miles to the northwest of the project site near Honoapi`ilani Highway's junctions with North Kihei Road and Kuihelani Highway. A privately operated green waste recycling facility, Maui Earth Compost Company, is situated at Pulehu Road and Hansen Road, while Eko Compost is operated at the Central Maui Landfill.

**b. Potential Impacts and Mitigation Measures**

Construction waste will not be transported to the County landfill. Instead, alternative sites, such as the Maui Demolition and Construction Landfill and Pohakulepo Concrete Recycling Facility, will be utilized. The proposed action is not anticipated to adversely impact the County's solid waste disposal facilities.

## D. INFRASTRUCTURE

### 1. Roadway System

#### a. Existing Conditions

Wailea Ike Drive - is a four-lane, divided, east/west County collector roadway that is striped as a two-lane roadway just before its connection to Pi'ilani Highway. Wailea Ike Drive is the main entrance to the Wailea Resort and connects Pi'ilani Highway with Wailea Alanui Drive. Its vertical alignment is a relatively steep grade with a posted speed limit of 30 mph.

Wailea Ike Drive, from its intersection with Wailea Ekolu Place to Wailea Alanui Drive, has a major drainage channel in its median area.

Wailea Alanui Drive - is a four-lane, divided, north/south County collector roadway between Kaukahi Street to the south and Okolani Drive to the north. North of Okolani Drive, Wailea Alanui Drive narrows to a two-lane, undivided, north/south County collector road to its intersection with Kilohana Drive.

Wailea Alanui Drive becomes Mākena Alanui Road at its intersection with Kaukahi Street. The segment of Wailea Alanui Drive between Wailea Ike Drive and Kaukahi Street has a rolling profile and meandering alignment. The segment of Wailea Alanui Drive north of Wailea Ike Drive has a less pronounced rolling profile and meandering alignment. The posted speed limit on Wailea Alanui Drive is 30 mph.

Wailea Alanui Drive/Wailea Ike Drive form a signalized tee-intersection with Wailea Ike Drive as the stem of the "tee". The current lane configuration at each approach is as follows:

- Northbound approach: Accommodated by a through lane and an exclusive right-turn lane. The right-turn lane is controlled by a yield sign.
- Southbound approach: Accommodated by two (2) through lanes and an exclusive left-turn lane.

- Westbound approach: Accommodated by an exclusive left-turn lane and an exclusive right-turn lane controlled by a stop sign.

The Shops of Wailea is located on the makai (west) side of the tee-intersection.

**b. Potential Impacts and Mitigation Measures**

There will be short-term construction related impacts from traffic disruptions. Appropriate construction traffic controls, including the use of flag persons to direct traffic, will be utilized.

Although the Wailea Ike Drive and Wailea Alanui Drive intersection currently operates adequately, the proposed improvements will ensure that future traffic movements through the intersection will continue to operate well by accommodating anticipated traffic from planned developments in the Honua`ula, Wailea and Mākena regions. Refer to **Appendix “C”**. The following improvements are proposed:

- Northbound Approach: Provide an exclusive through lane and two (2) exclusive right-turn lanes onto Wailea Ike Drive. Signalize the two (2) exclusive right-turn lanes.
- Westbound Approach: Provide two (2) exclusive left-turn lanes and an exclusive right-turn lane onto Wailea Alanui Drive.

According to the Traffic Impact Analysis Report prepared for the proposed action, the Wailea Ike Drive and Wailea Alanui Drive intersection will operate sufficiently and no other improvements are needed. Refer to **Appendix “C”**.

**2. Water System**

**a. Existing Conditions**

The water system in the vicinity of the project site consist of 16-inch, 20-inch and 30-inch waterlines. The transmission lines are part of the Central Maui Water Transmission System serving the Wailea/Mākena region. See **Appendix “D”**.

b. **Potential Impacts and Mitigation Measures**

The proposed project is limited to roadway intersection improvements and does not involve any improvements that will require additional water usage or relocation of existing waterlines. The project will not increase water demand from the Central Maui Water System. Refer to **Appendix “D”**.

3. **Wastewater Systems**

a. **Existing Conditions**

The existing wastewater system in the vicinity of the project site consists of 6-inch, 8-inch, 10-inch and 18-inch gravity sewer pipes and 12-inch force mains which serve the existing developments within the Wailea Resort area. Refer to **Appendix “D”**.

b. **Potential Impacts and Mitigation Measures**

The proposed project is limited to roadway intersection improvements and does not involve any improvements that will generate additional wastewater flows. No relocation of existing sewerlines will be required and there are no anticipated impacts to the Kihei Wastewater Reclamation Facility operated by the County of Maui. Refer to **Appendix “D”**.

4. **Drainage**

a. **Existing Conditions**

Storm water generated by the project and surrounding areas are collected and disposed of by the existing roadway drainage system. Runoff from the north portion of the intersection flows northward toward an existing catch basin about 300 feet away; while the runoff from the south portion of the intersection flows southward to a catch basin about 400 feet away.

Roadway runoff above (east) of the intersection is collected by the existing catch basins and conveyed to an existing channel by underground culverts. The existing CRM-lined channel and five 65-inch by 40-inch CMP culverts across Wailea Alanui Drive, convey offsite runoff from tributary areas above the intersection. The tributary area extend to lands east (mauka) of Pi'ilani



Highway. Refer to **Appendix “D”**.

**b. Potential Impacts and Mitigation Measures**

A summary of anticipated storm runoff discharges from the project area under existing and future (developed) conditions is shown below:

**North Portion:**

10-year storm:	0.9 cfs (Existing, Area 1) <u>1.0 cfs</u> (Future, Area A)
Increase:	0.1 cfs

50-year storm:	1.2 cfs (Existing, Area 1) <u>1.4 cfs</u> (Future, Area A)
Increase:	0.2 cfs

**South Portion:**

10-year storm:	1.0 cfs (Existing, Area 2) <u>1.2 cfs</u> (Future, Area B)
Increase:	0.2 cfs

50-year storm:	1.3 cfs (Existing, Area 2) <u>1.6 cfs</u> (Future, Area B)
Increase:	0.3 cfs

The anticipated increase in runoff due to the proposed project are nominal; hence, there are no drainage improvements proposed for this project and completion of the proposed project will not have adverse drainage effects on the existing drainage facilities and downstream properties. Existing drainage flow patterns will not be altered. The existing drainage system has the capacity to accommodate the minor increase in runoff. Refer to **Appendix “D”**.

**5. Electrical, Telephone and Cable TV Systems**

**a. Existing Conditions**

Electrical, telephone, and cable television (CATV) services in the Wailea Resort area are located underground and are provided by Maui Electric Company, Hawaiian Telcom, and Oceanic Time Warner Cable of Hawai'i, respectively.

**b. Potential Impacts and Mitigation Measures**

The proposed project does not involve connection to or relocation of existing services and no impacts to the electric, telephone, and CATV facilities are anticipated.

**E. CUMULATIVE AND SECONDARY IMPACTS**

Cumulative impacts are defined as impacts on the environment which result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

The proposed action is to construct needed roadway infrastructure to keep pace with future growth planned for the Kihei-Mākena region. In particular, the proposed action is considered an appropriate mitigation measure to address traffic impacts associated with the Honua'ula, Wailea Resort and Makena Resort projects. There are no other infrastructure projects anticipated within the project context. The scope of the proposed project is limited to the construction of the Wailea Ike Drive and Wailea Alanui Drive intersection improvements.

Secondary impacts are those which have the potential to occur later in time or farther in distance, but are still reasonably foreseeable. They can be viewed as actions of others that are taken because of the presence of the project. The secondary impacts associated with the proposed action relate to the future implementation of land uses for Honua'ula, Wailea Resort and Makena Resort. Such impacts relate to infrastructure requirements, as well as public service and environmental elements which may be affected by new development in these areas. Each project, Honua'ula, Wailea Resort and Makena Resort, however, is master planned and will be implemented in a phased and orderly fashion which ensures concurrent development of infrastructure and service systems, including the proposed intersection

improvements. Conditions of zoning, as well as conditions of Special Management Area (SMA) Permit approvals for those actions falling within the SMA, support the notion that applicable mitigation measures must be addressed prior to or concurrent with each phase of project development. In this regard, there are no secondary impacts associated with the Wailea Ike Drive and Wailea Alanui Drive intersection improvement project which are considered adverse in the context of regulatory and statutory requirements, and common practice mitigation measures.

# **III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS**

### **III. RELATIONSHIP TO LAND USE PLANS, POLICIES, AND CONTROLS**

#### **A. STATE LAND USE DISTRICTS**

Chapter 205, Hawai'i Revised Statutes, relating to the Land Use Commission, establishes the four (4) major Land Use Districts in which all lands in the State are placed. The Districts are classified "Urban", "Rural", "Agricultural", and "Conservation". The project intersection is located in the "Urban" district. See **Figure 7**. Public roadways are permissible within this district.

#### **B. HAWAII 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 objectives and policies which contribute to the implementation rationale for the proposed project include the following:

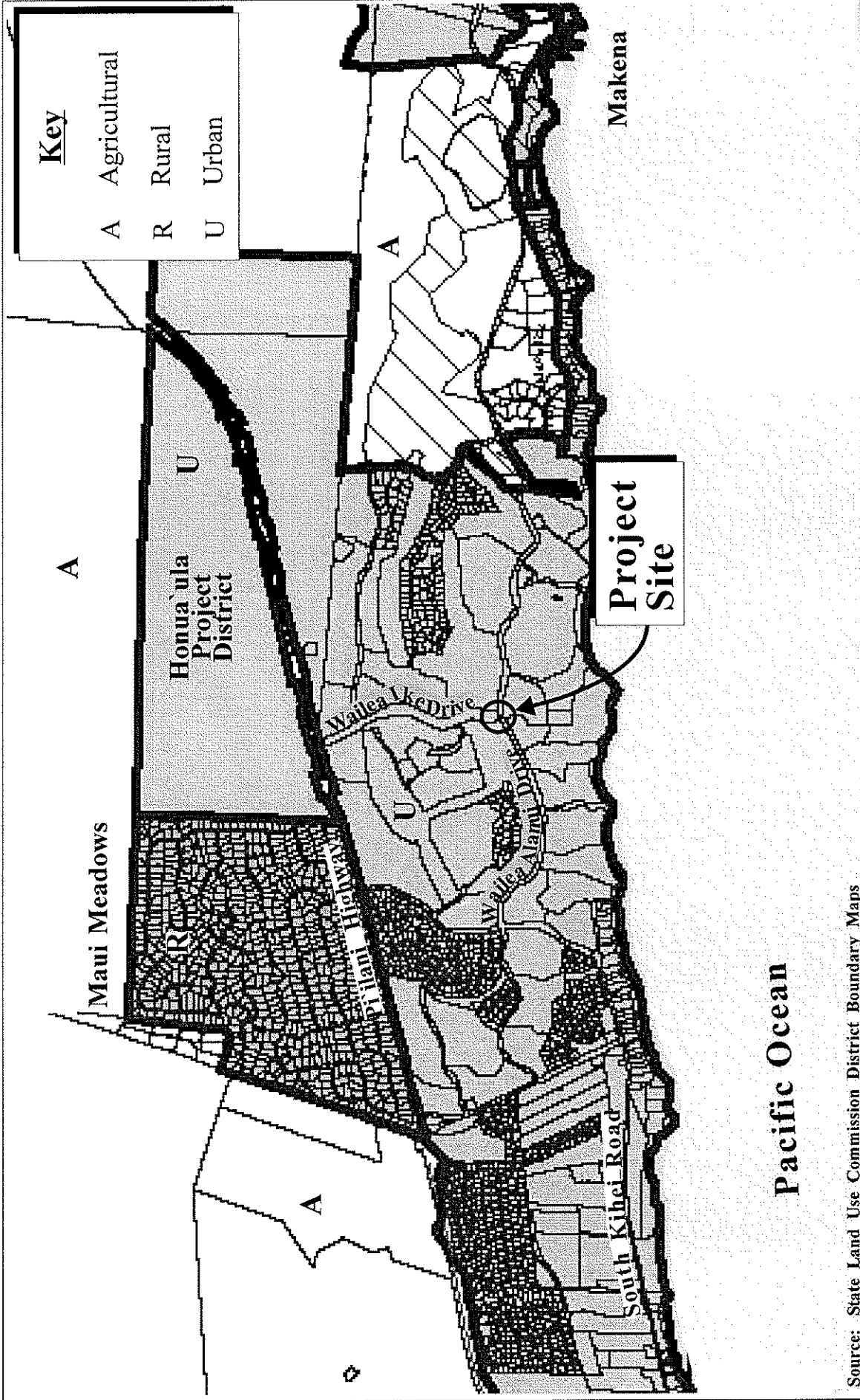
##### **Sec. 226-14 Objective and policies for facility systems - in general.**

Objective (a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

Policy (b) (1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

##### **Sec. 226-17 Objectives and policies for facility systems - transportation.**

Policy (b) (2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.



NOT TO SCALE

**Figure 7** Wailea Ike Drive and Wailea Alanui Drive  
 Intersection Improvements  
 State Land Use District Classification



Prepared for: Honua'ula Partners, LLC



MUNEKIYO & HIRAGA, INC.

WCPT\Intersection\SLUD

Policy (b) (6) Encourage transportation systems that serve to accommodate present and future development needs of communities.

Policy (b) (10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.

The proposed project will promote the public health and safety by improving the Wailea Ike Drive and Wailea Alanui Drive intersection to accommodate vehicles and pedestrians in keeping with current design and safety standards.

### **C. MAUI COUNTY GENERAL PLAN**

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long-range development of the County. As stated in the County of Maui Charter,

*"... indicate desired population and physical development patterns for each island and region within the County; shall address the unique problems and needs of each island and region; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns, and characteristics of future developments. The General Plan shall identify objectives to be achieved, and priorities, policies, and implementing actions to be pursued with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development."*

The proposed action is in keeping with the following General Plan objectives and policies:

#### **Objectives:**

To support an advanced and environmentally sensitive transportation system which will enable people and goods to move safely, efficiently, and economically.

To develop a program for anticipating and enlarging the local street and highway systems in a timely response to planned growth.

**Policy:**

Ensure that transportation facilities are anticipated and programmed for construction in order to support planned growth.

**D. KIHEI-MĀKENA COMMUNITY PLAN (1998)**

The project site is located in the Kihei-Mākena Community Plan region which is one (1) of nine (9) Community Plan regions established in the County of Maui. Planning for each region is guided by the respective Community Plans, which are designed to implement the Maui County General Plan. Each Community Plan contains recommendations and standards which guide the sequencing, patterns and characteristics of future development in the region.

The lands adjoining the project site include the following uses identified by the Community Plan land use map: Business (B) and Park-Golf Course (PK/GC). See **Figure 8**.

**1. Community Plan Theme**

In 1998, the County of Maui completed its comprehensive update of the Kihei-Mākena Community Plan. One of the underlying themes which provides the basis or rationale affecting a broad spectrum of functional areas is the “provision of needed public facilities and infrastructure”. The plan states:

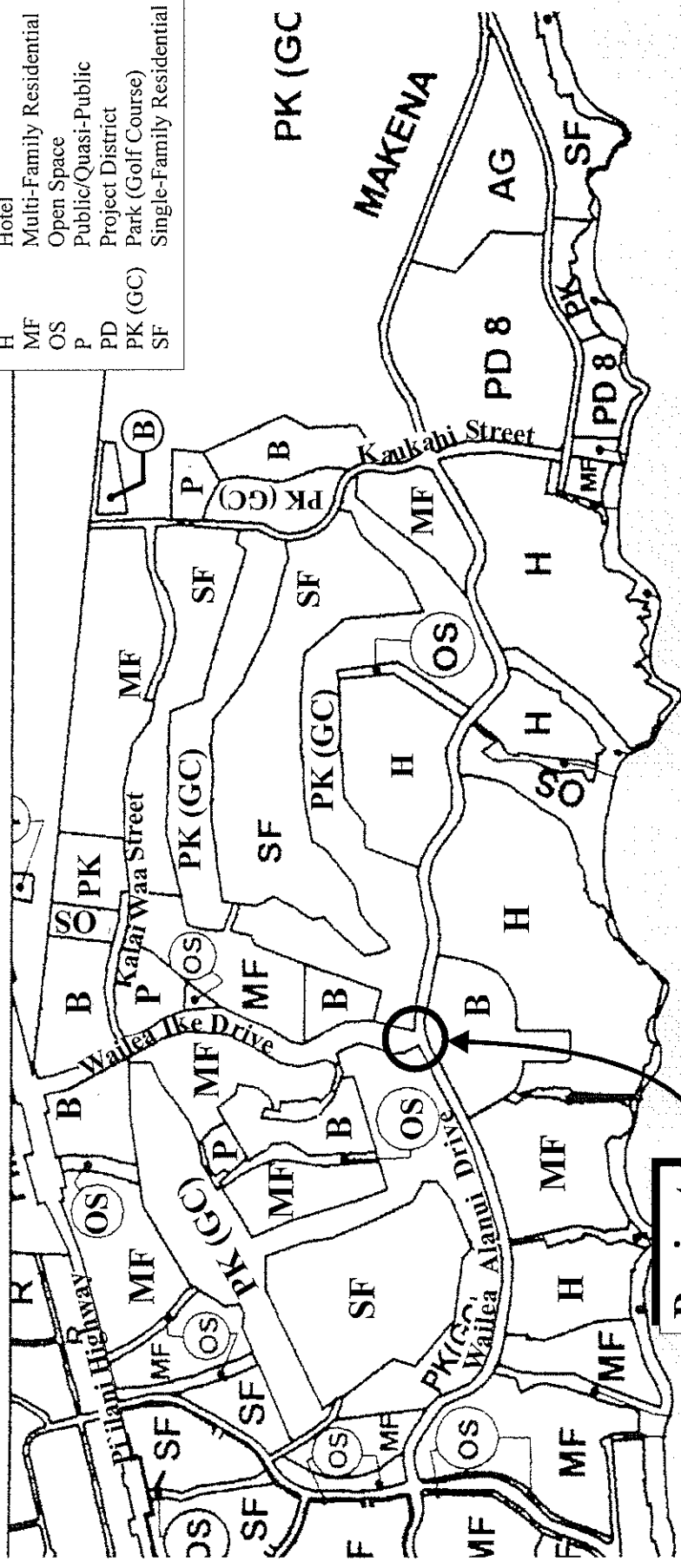
*"The County of Maui in general, and Kihei-Makena in particular, witnessed significant growth in the 1980s and early 1990s. In many instances, however, public facility and infrastructure improvements lagged behind development in the region. As such, a significant upgrade and expansion of existing public facilities and infrastructure is necessary."*

The proposed improvements to the Wailea Ike Drive and Wailea Alanui Drive intersection is supportive of this basic theme and will help upgrade the transportation infrastructure in the Kihei-Mākena area prior to development of Honua`ula and ongoing development in Wailea Resort and Makena Resort.



**KEY**

- B Business
- H Hotel
- MF Multi-Family Residential
- OS Open Space
- P Public/Quasi-Public
- PD Project District
- PK (GC) Park (Golf Course)
- SF Single-Family Residential



**Pacific Ocean**

Source: Kiheti-Makena Community Plan, 1998

**Figure 8** Wailea Ike Drive and Wailea Alanui Drive  
 Intersection Improvements  
 Community Plan Land Use Designations



NOT TO SCALE

Prepared for: Honua'ula Partners, LLC



WCPT\intersection\CPLUD

## **2. Community Plan Land Use Goal**

A goal in the Community Plan related to land use states:

*“A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructure and community needs while preserving and enhancing the unique character of Ma`alaea, Kihei, Wailea and Makena as well as the region’s natural environment, marine resources and traditional shoreline uses.”*

The Wailea Ike Drive and Wailea Alanui Drive intersection improvements is a response to this goal by providing timely transportation infrastructure to address community needs.

## **3. Transportation Objectives and Policies**

The Community Plan includes the following applicable goals and objectives:

- Develop and implement a well-planned road and public transportation system to allow residents and visitors to move safely, effectively and comfortably within the region. Roadway improvements should be planned, designed, and constructed as prioritized under the Implementing Actions section below, and as generally described in the Kihei Traffic Master Plan.
- Encourage joint public/private participation in the planning, design and construction of roadway improvements, especially those identified in this plan.

The proposed project supports the foregoing goal and objectives of the Community Plan.

## **E. COUNTY ZONING**

Both Kihei Land Zoning Map No. 5 and Wailea Land Zoning Map No. 511 delineate Wailea Ike Drive and Wailea Alanui Drive as public roadways, while the portion of land to be acquired from the golf course is zoned PK-4, Park (Golf Course). Pursuant to Chapter 19, Maui County Code, 1980 as amended, roadways are permitted in all zoning districts.

## **F. COASTAL ZONE MANAGEMENT OBJECTIVES AND POLICIES**

The Wailea Ike Drive and Wailea Alanui Drive intersection is located within the County of Maui's Special Management Area. This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A and the Rules and Regulations of the Maui Planning Commission.

### **(1) Recreational Resources**

#### **Objective:**

Provide coastal recreational opportunities accessible to the public.

#### **Policies:**

- (A) Improve coordination and funding of coastal recreational 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 replacement 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 requiring 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 uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety 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; and
- (viii) Encouraging 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, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

**Response:** The proposed action is not anticipated to affect existing coastal recreational resources. Access to the shoreline areas will remain unaffected by the proposed roadway improvements.

(2) **Historic 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 resources.

**Response:** Work will be confined to the existing right-of-way (ROW) and developed portion of the Wailea Old Blue Golf Course. A monitoring plan will be submitted to SHPD and an archaeological monitor will be present during ground

altering activities. As a result, the proposed project will not affect historic resources.

(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.

**Response:** The proposed project is not anticipated to impact coastal and scenic open space resources. The project will involve roadway and landscaping improvements.

(4) **Coastal Ecosystems**

**Objective:**

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

**Policies:**

- (A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
- (B) Improve the technical basis for natural resource management;

- (C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
- (D) 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
- (E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

**Response:** The proposed roadway improvements are not expected to adversely impact coastal ecosystems. The project site is not located adjacent to the shoreline.

(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; and
- (C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments 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 effects are minimized; and
  - (iii) The development is important to the State's economy.

**Response:** The project will support short-term construction and construction-related jobs. The project area does not affect coastal development necessary to the State's economy.

(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 nonpoint source pollution hazards;
- (B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
- (C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
- (D) Prevent coastal flooding from inland projects.

**Response:** The proposed project is located within Zone "C", which is defined as areas of minimal flooding. It is noted that changes in drainage patterns are not anticipated with the construction of the proposed improvements and no adverse drainage impacts to surrounding properties are anticipated.

(7) **Managing Development**

**Objective:**

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

**Policies:**

- (A) Use, implement, and enforce existing law 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 and review process.

**Response:** The proposed project shall be reviewed and processed pursuant to Chapters 343 and 205A, Hawai'i Revised Statutes (HRS). Public review will be coordinated through these processes. A public informational meeting was held at the Kihei Community Center on April 16, 2009. Although the Wailea Community Association, Maui Meadows Homeowners Association and Kihei Community Association were invited, no one attended the community informational meeting. See **Appendix "E"**. In conjunction with the Special Management Area permit application process, public notification of surrounding land owners and a public hearing will be conducted.

(8) **Public Participation**

**Objective:**

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

**Policies:**

- (A) Promote public involvement in coastal zone management processes;
- (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 issues, developments, and government activities; and
- (C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

**Response:** As noted above, opportunity for public awareness, education and participation pertaining to significant resource attributes of the coastal zone is provided through Chapter 343 and 205A, HRS procedures, as well as the Special



Management Area (SMA) Rules of the Maui Planning Commission.

(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, minimize interference with natural shoreline processes, and 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.

**Response:** The proposed project will not impact shoreline activities. No adverse impact to beach processes is anticipated.

(10) **Marine Resources**

**Objective:**

Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

**Policies:**

- (A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
- (B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;
- (C) Assert and articulate the interests of the State as a partner with federal

agencies in the sound management of ocean resources within the United States exclusive economic zone;

- (D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
- (E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

**Response:** The improvements proposed for the Wailea Ike Drive and Wailea Alanui Drive intersection will not adversely impact ocean resources. Construction activities will be limited to the existing road ROW and portions of the previously disturbed Wailea Old Blue Golf Course. Runoff from the pavement widening is negligible and will be accommodated by the existing drainage system.

In addition to the foregoing objectives and policies, SMA permit review criteria pursuant to Act 224 (2005) provides that:

*No special management area use permit or special management area minor permit shall be granted for structures that allow artificial light from floodlights, uplights, or spotlights used for decorative or aesthetic purposes when the light:*

- (1) *Directly illuminates the shoreline and ocean waters;*  
*or*
- (2) *Is directed to travel across property boundaries toward the shoreline and ocean waters.*

**Response:** The proposed project is not located on or near the shoreline. The proposed improvements do not include any relocated or new lighting fixtures.

## **IV. ALTERNATIVES TO THE PROPOSED ACTION**

## **IV. ALTERNATIVES TO THE PROPOSED ACTION**

### **A. PREFERRED ALTERNATIVE**

The proposed project represents the preferred alternative. The intersection operates adequately, and the improvements will improve future vehicular traffic flow on Wailea Ike Drive and Wailea Alanui Drive by accommodating future traffic to be generated by planned developments in the Wailea-Mākena region. The private-public partnership allows private development of public infrastructure.

The improvements are required pursuant to the zoning condition imposed on Honua`ula Partners, LLC in Ordinance No. 3554. The Maui County Council made a legislative decision that as a mitigation measure this improvement is necessary to accommodate future traffic from the future implementation of land uses for Honua`ula, Wailea Resort, and Makena Resort.

### **B. NO ACTION ALTERNATIVE**

Although the existing intersection operates adequately, the “no action alternative” does not represent a responsible option toward improving future traffic circulation from planned growth in the Honua`ula, Wailea and Mākena area. It is noted that the public/private partnership opportunity for planning, design, and construction would be removed under this alternative.

### **C. DEFERRED ACTION ALTERNATIVE**

A “deferred action” alternative will have similar consequences as a “no action” alternative. Growth in the area will continue and will generate additional traffic which will require future improvements to the intersection. Deferring the development will eliminate the public/private partnership opportunity for planning, design, and construction of the improvement. Deferred action will result in future need for public funding of the infrastructure improvements, as well as it may result in higher implementation costs in the future due to cost escalations.

**V. SUMMARY OF  
ADVERSE  
ENVIRONMENTAL  
EFFECTS WHICH  
CANNOT BE AVOIDED**

## **V. SUMMARY OF ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED**

The proposed project will result in impacts as described in Chapter II, Potential Impacts and Mitigation Measures.

Potential effects include noise-generated impacts occurring from construction activities. In addition, impacts will result in increased traffic congestion during construction. These impacts will be temporary and not expected to create long-term adverse environmental effects.

The proposed project is intended to improve future roadway operating conditions at the Wailea Ike Drive and Wailea Alanui Drive intersection. From a long-term perspective, there are no significant adverse environmental effects anticipated which cannot be mitigated as a result of the proposed intersection improvements.

**VI. IRREVERSIBLE AND  
IRRETRIEVABLE  
COMMITMENTS OF  
RESOURCES**

## **VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES**

The design and implementation of the proposed project will involve the commitment of certain material and fiscal resources required to construct and maintain the improvements. The future commitment of resources for the project is consistent with the need to provide an appropriate level of transportation service for the area. Impacts relating to the use of these resources should be weighed against the expected positive benefits to be derived from the project versus the consequences of taking no action.



# **VII. SIGNIFICANCE CRITERIA ASSESSMENT**

## VII. SIGNIFICANCE CRITERIA ASSESSMENT

The Wailea Ike Drive and Wailea Alanui Drive intersection is under the jurisdiction of the County of Maui. The proposed project will involve widening the north and south portion of the intersection to accommodate a double right-turn movement from Wailea Alanui Drive northbound traffic to eastbound turns on Wailea Ike Drive and two (2) left-turn lanes for southbound traffic on Wailea Alanui Drive from Wailea Ike Drive. The proposed improvements will require land acquisition on the adjoining Wailea Old Blue Golf Course.

Since a portion of the proposed action is on County lands, an Environmental Assessment (EA) has been prepared pursuant to Chapter 343, Hawai'i Revised Statutes (HRS), and Chapter 200 of Title 11, Administrative Rules of the State Department of Health.

Every phase of the proposed action, expected consequences, both primary and secondary, and the cumulative as well as the short-term and long-term effects of the action have been evaluated in accordance with the Significance Criteria of Section 11-200-12 of the Administrative Rules. Based on the analysis, the proposed project is not anticipated to result in any significant impacts. Discussion of project conformance to the criteria is noted as follows:

1. **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.**

Lands bordering the project site are vegetated with ornamental landscaping typical of golf courses and commercial developments. No wetlands will be impacted by the proposed action.

From an archaeological standpoint, the lands underlying and immediately surrounding the project site have been previously altered. Work will be carried out within the ROW and developed portions of the golf course. A monitoring plan will be submitted to SHPD for review and approval prior to construction. An archaeologist will monitor ground altering work to ensure the proposed project will not adversely impact archaeological resources.

The area in the vicinity of the project site has not been used for cultural gatherings, nor has it been cultivated using traditional Hawaiian practices. The proposed project

is not anticipated to adversely impact cultural resources.

2. **Curtails the range of beneficial uses of the environment.**

The roadway intersection encompassed by the proposed action encompasses lands which are designated for roadway and golf course uses. The proposed action is not anticipated to have a significant effect on beneficial uses of the environment.

3. **Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.**

The State Environmental Policy and Guidelines are set forth in Chapter 344, HRS. The proposed action is in consonance with the following policies and guidelines:

**Environmental Policy:**

Enhance the quality of life by:

- (A) Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian.

**Guidelines:**

Transportation

- (A) Encourage transportation systems in harmony with the lifestyle of the people and environment of the State.

4. **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.**

The proposed project will directly benefit the local economy by providing construction and construction-related employment. The proposed project will also have a beneficial effect upon the socio-economic fabric of the community by providing for the safe, convenient and efficient movement of traffic in the Kihei-Wailea-Mākena area. By improving roadway conditions, the proposed project will promote the public welfare by providing vehicular facilities which meet current design and safety standards. As previously noted, cultural practices will not be

affected by the proposed action.

5. **Substantially affects public health.**

No adverse impacts to the public's health and welfare are anticipated.

6. **Involves substantial secondary impacts, such as population changes or effects on public facilities.**

No significant population changes are anticipated as a result of the proposed project.

The project does not require any relocation of existing utilities or improvements to existing facilities. Stormwater runoff will not be affected by the proposed project and there will be minimal impact to the existing drainage system. The proposed project is not anticipated to have any adverse impacts upon public services and facilities.

7. **Involves a substantial degradation of environmental quality.**

Construction activities will create temporary short-term nuisances related to noise, dust, and traffic disruptions. Appropriate dust control and noise mitigation measures will be implemented by the contractor to ensure that fugitive dust and noise generated in connection with construction is minimized. Additionally, appropriate construction traffic controls will be implemented to ensure the safe passage of vehicles, pedestrians and bicyclists around active construction zones.

8. **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.**

The proposed action is an upgrade of an existing intersection to accommodate future vehicular traffic requirements. This action is not expected to result in additional environmental effects as project-related work will be carried out within the existing roadway right-of-way and developed portions of the Wailea Old Blue Golf Course.

9. **Substantially affects a rare, threatened, or endangered species, or its habitat.**

Rare, threatened or endangered species of flora, fauna, avifauna or their habitats are not expected to be impacted by the proposed project as work will be conducted

within the existing roadway ROW and developed portions of the Wailea Old Blue Golf Course.

**10. Detrimentially affects air or water quality or ambient noise levels.**

Construction activities will result in short-term air quality and noise impacts. Dust control measures, such as regular watering and sprinkling, and erection of dust screens will be implemented to minimize wind-blown emissions. Short-term noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, are anticipated to mitigate noise from construction activities.

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

Existing drainage patterns will be maintained. Increase in storm water runoff as a result of the proposed project are minimal and will be accommodated by the existing drainage system. There will be no adverse impacts to environmentally sensitive areas nor to fresh or coastal waters.

**12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.**

Vertical construction is limited to installation of traffic signs and traffic signals. The proposed project will not affect coastal scenic and open space resources and will not affect scenic view corridors.

**13. Requires substantial energy consumption.**

The proposed project will involve the commitment of fuel for construction equipment, vehicles, and machinery during construction activities. However, this use will be short term and is not anticipated to result in a substantial consumption of energy resources.

Based on the foregoing findings, the proposed action is not anticipated to result in any significant adverse impacts. Accordingly, this draft environmental assessment is being processed in anticipation of a Finding of No Significant Impact (FONSI).

# **VIII. LIST OF PERMITS AND APPROVALS**

## **VIII. LIST OF PERMITS AND APPROVALS**

The following approvals will be required prior to the implementation of the project:

### **State of Hawai'i**

1. National Pollutant Discharge Elimination System (NPDES) Permit.
2. Noise Permit, if required.

### **County of Maui**

1. Special Management Area Permit
2. Construction Permits
3. Work to Perform Within County Right-of-Way

**IX. PARTIES  
CONSULTED DURING THE  
PREPARATION OF THE  
DRAFT ENVIRONMENTAL  
ASSESSMENT; LETTERS  
RECEIVED; AND  
RESPONSES TO  
SUBSTANTIVE  
COMMENTS**



# IX. PARTIES CONSULTED DURING THE PREPARATION OF THE DRAFT ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED; AND RESPONSES TO SUBSTANTIVE COMMENTS

The following agencies were consulted during preparation of the Draft Environmental Assessment (EA). Agency comments and responses to substantive comments are included herein.

## FEDERAL AGENCIES

1. Ranae Ganske-Cerizo,  
Soil Conservationist  
**Natural Resources Conservation Service**  
**U.S. Department of Agriculture**  
70 Hookele Street, Suite 202  
Kahului, Hawai'i 96732
2. George Young  
Chief, Regulatory Branch  
**U. S. Department of the Army**  
U. S. Army Engineer District, Honolulu  
Regulatory Branch  
Building 230  
Fort Shafter, Hawai'i 96858-5440
3. Patrick Leonard  
Field Supervisor  
**U. S. Fish and Wildlife Service**  
300 Ala Moana Blvd., Rm. 3-122  
Box 50088  
Honolulu, Hawai'i 96813
4. Carol Borgstrom, Director  
**U.S. Department of Energy**  
Office of NEPA Policy & Compliance  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585
5. Wayne Nastri, Regional Administrator  
**U. S. Environmental Protection Agency**  
Region 9  
75 Hawthorne Street  
San Francisco, California 94105

6. Dave Wesley, Deputy Regional Director  
**U. S. Fish and Wildlife Service**  
Pacific Region  
911 NE 11<sup>th</sup> Avenue  
Portland, Oregon 97232
7. Cynthia Burbank, Associate Administrator  
**U. S. Department of Transportation**  
Planning, Environment and Realty  
Federal Highway Administration  
400 7<sup>th</sup> Street, S.W.  
Washington, D.C. 20590-9898

## STATE AGENCIES

8. Russ K. Saito, State Comptroller  
**Department of Accounting and General Services**  
1151 Punchbowl Street, #426  
Honolulu, Hawai'i 96813
9. Sandra Lee Kunimoto, Chair  
**Department of Agriculture**  
1428 South King Street  
Honolulu, Hawai'i 96814-2512
10. Theodore E. Liu, Director  
State of Hawai'i  
**Department of Business, Economic Development & Tourism**  
P.O. Box 2359  
Honolulu, Hawai'i 96804

11. Chiyome Fukino, M.D., Director  
State of Hawai'i  
**Department of Health**  
919 Ala Moana Blvd., Room 300  
Honolulu, Hawai'i 96814
12. Alec Wong, P.E., Chief  
**Clean Water Branch**  
State of Hawai'i  
**Department of Health**  
919 Ala Moana Blvd., Room 300  
Honolulu, Hawai'i 96814
13. Herbert Matsubayashi  
District Environmental Health  
Program Chief  
State of Hawai'i  
**Department of Health**  
54 High Street  
Wailuku, Hawai'i 96793
14. Laura Thielen, Chairperson  
State of Hawai'i  
**Department of Land and Natural  
Resources**  
P. O. Box 621  
Honolulu, Hawai'i 96809
15. Dr. Puaalaokalani Aiu, Administrator  
State of Hawai'i  
**Department of Land and Natural  
Resources**  
**State Historic Preservation Division**  
601 Kamokila Blvd., Room 555  
Kapolei, Hawai'i 96707
16. Hinano Rodrigues  
**Maui/Lanai Islands Burial Council**  
130 Mahalani Street  
Wailuku, Hawai'i 96793
17. Brennon Morioka, Director  
State of Hawai'i  
**Department of Transportation**  
869 Punchbowl Street  
Honolulu, Hawai'i 96813
- cc: Fred Cajigal
18. Major General Robert G.S. Lee, Director  
**Hawai'i State Civil Defense**  
3949 Diamond Head Road  
Honolulu, Hawai'i 96816-4495
19. Haunani Apoliona  
**Office of Hawaiian Affairs**  
711 Kapiolani Boulevard, Suite 500  
Honolulu, Hawai'i 96813
20. Abbey Seth Mayer, Director  
State of Hawai'i  
**Office of Planning**  
P.O. Box 2359  
Honolulu, Hawai'i 96804
21. Orlando "Dan" Davidson,  
Executive Officer  
State of Hawai'i  
**State Land Use Commission**  
P.O. Box 2359  
Honolulu, Hawai'i 96804
22. Katherine Kealoha, Director  
**Office Of Environmental Quality  
Control**  
235 S. Beretania Street, Suite 702  
Honolulu, Hawai'i 96813
- COUNTY AGENCIES**
23. Charmaine Tavares, Mayor  
County of Maui  
200 South High Street  
Wailuku, Hawai'i 96793
24. Deidre Tegarden, Director  
County of Maui  
**Office of Economic Development**  
2200 Main Street, Suite 305  
Wailuku, Hawai'i 96793
25. Gen Inuma, Administrator  
**Maui Civil Defense Agency**  
200 South High Street  
Wailuku, Hawai'i 96793
26. Jeffrey A. Murray, Fire Chief  
County of Maui  
**Department of Fire  
and Public Safety**  
200 Dairy Road  
Kahului, Hawai'i 96732

27. Lori Tshako, Director  
County of Maui  
**Department of Housing and  
Human Concerns**  
One Main Plaza  
2200 Main Street, Suite 546  
Wailuku, Hawai'i 96793

28. Tamara Horcajo, Director  
County of Maui  
**Department of Parks and Recreation**  
700 Halia Nakoia Street, Unit 2  
Wailuku, Hawai'i 96793

29. Jeffrey Hunt, Director  
County of Maui  
**Department of Planning**  
250 South High Street  
Wailuku, Hawai'i 96793

30. Thomas Phillips, Chief  
County of Maui  
**Police Department**  
55 Mahalani Street  
Wailuku, Hawai'i 96793

31. Milton Arakawa, Director  
County of Maui  
**Department of Public Works**  
200 South High Street  
Wailuku, Hawai'i 96793

32. Cheryl Okuma, Director  
County of Maui  
**Department of Environmental  
Management**  
One Main Plaza  
2200 Main Street, Suite 176  
Wailuku, Hawai'i 96793

33. Donald Medeiros, Director  
County of Maui  
**Department of Transportation**  
200 South High Street  
Wailuku, Hawai'i 96793

34. Jeffrey Eng, Director  
County of Maui  
**Department of Water Supply**  
200 South High Street  
Wailuku, Hawai'i 96793

35. Danny Mateo, Council Chair  
**Maui County Council**  
200 South High Street  
Wailuku, Hawai'i 96793

#### UTILITIES

36. **Hawaiian Telcom**  
60 South Church Street  
Wailuku, Hawai'i 96793

37. Greg Kauhi, Manager, Customer  
Operations  
**Maui Electric Company, Ltd.**  
P.O. Box 398  
Kahului, Hawai'i 96733

#### COMMUNITY ORGANIZATIONS

38. **Kihei Community Association**  
P. O. Box 662  
Kihei, Hawai'i 96753

39. Pamela Tumpap, Executive Director  
**Maui Chamber of Commerce**  
313 Ano Street  
Kahului, Hawai'i 96732

40. Carol Reimann, Executive Director  
**Maui Hotel Association**  
1727 Wili Pa Loop, Suite B  
Wailuku, Hawai'i 96793

41. Bud Pikrone  
**Wailea Community Association**  
555 Kaukahi Street, Suite 214  
Wailea, Hawai'i 96753-8333

42. Anne Takabuki  
**Wailea Golf Club**  
4030 Kalai Wai  
Kihei, Hawaii 96753

43. Barry Helle and Ron Allred  
**Wailea Old Blue LLC**  
120 Kaukahi Street  
Kihei, Hawaii 96753

44. Sandy Baz, Executive Director  
**Maui Economic Opportunity**  
99 Mahalani Street  
Wailuku, Hawai'i 96793

APR 03 2009



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

REPLY TO  
ATTENTION OF:

April 1, 2009

Regulatory Branch

File No. POH-2009-109

Gwen Ohashi Hiraga, Principal  
Munekiyō & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793

Dear Ms. Hiraga,

This letter is in response to your request, dated March 20, 2009, for early consultation comments on the preparation of the Draft Environmental Assessment (DEA) for the **Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements** located in Wailea, Island of Maui, Hawai'i.

Section 10 of the Rivers and Harbors Act (RHA) of 1899 requires that a Department of Army (DA) permit be obtained for structures or work in or affecting navigable waters (e.g., Pacific Ocean) of the U.S. (33 U.S.C. 403). Section 10 waters are those subject to the ebb and flow of the tide extending shoreward to the mean high water mark. Section 404 of the Clean Water Act (CWA) of 1972 requires that a DA permit be obtained for the discharge (placement) of dredge and/ or fill material into waters of the U.S., including jurisdictional wetlands. The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

We have reviewed the above cited project information with respect to the Corps' authority to issue DA permits pursuant to Section 10 of the RHA and Section 404 of the CWA. Based on the information you provided, we are unable to verify whether waters of the United States exist within the project area and if so, the extent of our geographical jurisdiction. We recommend your DEA identify all streams and wetlands on the project site and in the immediate vicinity of the proposed project, characterize the hydrology and ecology of those features, and provide a description of all ground-disturbing activities associated with the project construction occurring on the project site.

Thank you for the opportunity to comment. If you have any questions, please contact Ms. Meris Bantilan-Smith, of my Regulatory staff at 808-438-7701 (FAX: 808-438-4060) or by electronic mail at [Meris.Bantilan-Smith@usace.army.mil](mailto:Meris.Bantilan-Smith@usace.army.mil). Please include File No. POH-2009-109 in any future correspondence regarding this project. Please be advised you can provide comments on your experience with the Corps' Honolulu District Regulatory Branch by accessing our web-based customer survey form at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

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



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

George P. Young, Chief  
Regulatory Branch  
**Department of the Army**  
U.S. Army Corps of Engineers  
Honolulu District  
Fort Shafter, Hawai'i 96858-5440

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Mr. Young:

Thank you for your letter dated April 1, 2009. In response to your comments, the proposed improvements will be located within the existing roadway right-of-ways and portions of the Wailea Old Blue Golf Course and does not involve any wetlands. We understand that a Department of Army permit may be required for the project prior to the initiation of construction.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.a

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APR 0 1 2009

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 / CWB

03128PDCL.09

March 30, 2009

Ms. Gwen Ohashi Hiraga  
Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Hiraga:

**Subject: Early Consultation Comments for Environmental Assessment (EA) Preparation for Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements within the Wailea Resort, Wailea, Island of Maui, Hawaii**

The Department of Health (Department), Clean Water Branch (CWB), acknowledges receipt of your memorandum, dated March 20, 2009, requesting early consultation comments for the EA preparation for the subject project. The CWB has reviewed the memorandum and offers these comments on your project. Please note that our review is based solely on the information provided in the memorandum and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>.

1. Any project and its potential impacts to State waters must meet the following criteria:
  - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
  - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.
  - c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
2. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater into State surface waters (HAR, Chapter 11-55). This includes discharges of storm water associated with construction activities (excavation, grading, clearing, demolition, uprooting of vegetation, equipment staging, storage areas, etc.)

that result in the disturbance of one (1) acre or more of total land area. The total land area includes a contiguous area where multiple, separate, and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.

For discharges of storm water associated with construction activities into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form. The NOI must be submitted 30 calendar days before the start of construction activities. The NOI form may be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

3. For types of wastewater not listed in Item No. 2 above or wastewater discharging into Class 1 or Class AA waters, you must obtain an NPDES individual permit. Class 1 waters include, but is not limited to, all State waters in natural reserves, preserves, sanctuaries, and refuges established by the Department of Land and Natural Resources under chapter 195, Hawaii Revised Statutes (HRS), or similar reserves for the protection of aquatic life established under Chapter 195, HRS.

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://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.

4. You must also submit a copy of the NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.
5. The EA should specify all types of pollutant discharges to State waters from project construction.
6. All State waters that may be impacted by project construction should be identified in the EA.
7. The EA should address construction and post construction Best Management Practices (BMPs) that will be implemented to minimize storm water runoff, to reduce the risk of erosion, and to prevent water quality degradation of State waters downstream of the project site.
8. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification 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.

Ms. Gwen Ohashi Hiraga  
March 30, 2009  
Page 3

03128PDCL.09

If you have any questions, please visit our website at  
<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the  
Engineering Section, CWB, at (808) 586-4309.

Sincerely,



ALEC WONG, P.E., CHIEF  
Clean Water Branch

DCL:cu





MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Alec Wong, P.E., Chief  
Clean Water Branch  
**Department of Health**  
State of Hawai'i  
P.O. Box 3378  
Honolulu, Hawai'i 96801-3379

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Mr. Wong:

Thank you for your letter dated March 30, 2009, providing a detailed list of regulations that may be applicable to the proposed project. As the project continues to move forward, the applicable project consultant(s) will ensure that compliance with the Department of Health regulations are met. We are aware that a National Pollutant Discharge Elimination System (NPDES) permit will be required for the project prior to the initiation of construction.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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APR 07 2009

IDA LINGLE  
GOVERNOR



RUSS K. SAITO  
COMPTROLLER

BARBARA A. ANNIS  
DEPUTY COMPTROLLER

(P)1109.9

STATE OF HAWAII  
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES  
P.O. BOX 119, HONOLULU, HAWAII 96810

APR - 6 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Ohashi Hiraga:

Subject: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive  
Intersection Improvements within the Wailea Resort  
Wailea, Maui, Hawaii

Thank you for the opportunity to provide comments on the Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection Improvement within the Wailea Resorts. The project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400 or have your staff call Mr. Clarence Kubo of the Public Works Division at 586-0488.

Sincerely,

Handwritten signature of Russ K. Saito in cursive.  
RUSS K. SAITO  
State Comptroller

APR 08 2009

LINDA LINGLE  
GOVERNOR

MAJOR GENERAL ROBERT G. F. LEE  
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA  
VICE DIRECTOR OF CIVIL DEFENSE



PHONE (808) 733-4300  
FAX (808) 733-4287

**STATE OF HAWAII**  
**DEPARTMENT OF DEFENSE**  
**OFFICE OF THE DIRECTOR OF CIVIL DEFENSE**  
3949 DIAMOND HEAD ROAD  
HONOLULU, HAWAII 96816-4495

April 7, 2009

Ms. Gwen Ohashi Hiraga  
Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Ohashi Hiraga:

Early Consultation Request on the Wailea Alanui Drive and Wailea Ike Drive Intersection  
Improvements Within the Wailea Resort, Wailea, Maui, Hawai'i

Thank you for the opportunity to comment on this development. After a review of the information on this project, we have no comments to make. The proposed area falls within coverage arcs of existing warning sirens. We will anticipate reviewing the Environmental Assessment when it is completed and make any appropriate comments at that time.

If you have any questions please call Ms. Havinne Okamura, Hazard Mitigation Planner, at (808) 733-4300, extension 556.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward T. Teixeira".

EDWARD T. TEIXEIRA  
Vice Director of Civil Defense

APR 13 2009

LINDA LINGLE  
GOVERNOR OF HAWAII



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

LORRIN W. PANG, M. D., M. P. H.  
DISTRICT HEALTH OFFICER

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
MAUI DISTRICT HEALTH OFFICE  
54 HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2102

April 9, 2009

Ms. Gwen Ohashi Hiraga  
Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793

Dear Ms. Ohashi Hiraga:

**Subject: Early Consultation on the Wailea Alanui Drive & Wailea Ike Drive  
Intersection Improvements within the Wailea Resort, Wailea, Maui**

Thank you for the opportunity to comment on the Early Consultation. The following comments are offered:

The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control." A noise permit may be required and should be obtained before the commencement of this project.

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.

Sincerely,

A handwritten signature in black ink that reads "Patti Kitkowski".

Patti Kitkowski  
Acting District Environmental Health Program Chief



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Patti Kitkowski  
Acting District Environmental Health Program Chief  
Department of Health  
Maui District Health Office  
State of Hawai'i  
54 High Street  
Wailuku, Hawai'i 96793

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Ms. Kitkowski:

Thank you for your letter of April 9, 2009. We are aware that a noise permit may be required prior to the initiation of construction. We will review the Department's standard comments and incorporate applicable comments for the project.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

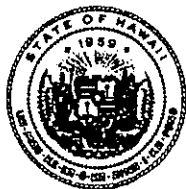
Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC

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LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

APR 15 2009

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRIAN H. SEKIGUCHI  
JIRO A. SUMADA

IN REPLY REFER TO:

STP 8.3216

April 13, 2009

Ms. Gwen Ohashi Hiraga  
Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Hiraga:

Subject: Honua'ula Partners, LLC  
Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements  
Within the Wailea Resort  
Wailea, Maui, Hawaii  
Early Consultation (EC)

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project for improvements to the Wailea Alanui Drive and Wailea Ike Drive intersection located within the Wailea Resort in the Kihei-Makena region of Maui.

DOT's previous comments on Honua'ula Partners' related projects, including the project to widen Piilani Highway (letter STP 8.3152, dated March 5, 2009, attached) and the Honua'ula development (letter STP 8.3207 dated April 6, 2009, attached), are also applicable to the subject project.

As stated in these prior letters, DOT reserves the right to provide supplemental comments pending the outcome of the cost-sharing meeting between the major developers for projects in the area. Further, the environmental documents and associated traffic impact assessment report (TIAR) for the subject intersection improvements project should be consistent with the TIAR's for both the Piilani Highway widening project and the Honu'ula development project. The applicant should continue consultation with the DOT Highways Division Planning Branch and the Highways Division Maui District Office, and may need to direct all design and construction plans to these offices, subject to the results of the consultations.

Ms. Gwen Ohashi Hiraga  
April 13, 2009  
Page 2

DIR 0451  
STP 8.3216

DOT appreciates the opportunity to provide comments and requests four (4) copies of the project's Draft Environmental Assessment (DEA). If there are any questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at (808) 587-2356.

Very truly yours,



BRENNON T. MORIOKA, PH.D., P.E.  
Director of Transportation

c: Mr. Jeffrey Hunt, Maui Planning Department  
Ms. Kathy Kealoha, Office of Environmental Quality Control  
Mr. Tom Schnell, PBR Hawaii

MAR 10 2009

LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
JANCIS PAUL KEENO  
RIAN H. SEKIGUCHI  
JIRO A. SUMADA

IN REPLY REFER TO:

STP 8.3152

March 5, 2009

Mr. Mark Roy  
Project Manager  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Mr. Roy:

Subject: Piilani Highway Widening to Four Lanes Between Kilohana Drive and  
Wailea Ike Drive – Early Consultation (EC)

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project to widen Piilani Highway from two to four lanes between Kilohana Drive to Wailea Ike Drive. DOT welcomes this consultation process.

DOT understands your firm is working with the DOT Highways Division Planning Branch to arrange a meeting regarding the subject project and the cost-sharing agreement for highway improvements between developers of the three major projects in the Wailea-Makena area. Your firm should continue consultation with the DOT Highways Division Planning Branch and the Highways Division Maui District Office. All plans and designs for the construction of the project should be directed to these offices.

In response to the subject EC and in anticipation of the proposed meeting, the following comments by the DOT Highways Division are offered.

1. The environmental documents related to the proposed widening of Piilani Highway should be submitted to DOT for review and acceptance before being published.
2. The applicant must completely resurface any and all existing highway lanes damaged during the widening of the highway.
3. The design guidelines and/or the basis of design for all widening of Piilani Highway should be included in the Draft Environmental Assessment (DEA).
4. The undergrounding of the existing overhead electric transmission lines should be considered along Piilani Highway.



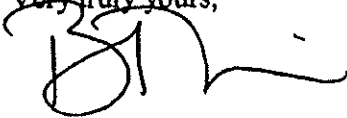
Mr. Mark Roy  
Page 2  
March 5, 2009

STP 8.3152

5. Detouring of traffic and/or a temporary closure of Piilani Highway will most likely be required as the excavation of 40 to 50-feet of the rock embankment is anticipated with this proposed widening project. The potential impacts of such detours and/or road closures on adjacent roadways should be considered and appropriately addressed.
6. A Traffic Impact Assessment Report (TIAR) should be prepared as a part of the DEA. This TIAR should be submitted for DOT's review and acceptance.
7. The DEA should address the acquisition of right-of-way (ROW) necessary to construct the proposed improvements.
8. County zoning requires the developer to extend Piilani Highway to Kaukahi Street along an alignment that includes unimproved State highway ROW. Any such proposed improvements on State highway ROW must be submitted for review and approval by DOT. If an extension is being proposed, then it should also be appropriately addressed in the DEA.

DOT appreciates the opportunity to provide comments and requests that four (4) copies of the project DEA, including the TIAR, be provided. If there are any other questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at (808) 587-2356.

Very truly yours,



BRENNON T. MORIOKA, PH.D., P.E.  
Director of Transportation

STP  
CLP

DA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRIAN H. SEKIGUCHI  
JIRO A. SUMADA

IN REPLY REFER TO:

DIR 0366  
STP 8.3207

April 6, 2009

Mr. Tom Schnell  
PBR HAWAII  
ASB Tower, Suite 650  
1001 Bishop Street  
Honolulu, Hawaii 96813

Dear Mr. Schnell:

Subject: Honua'ula  
Environmental Impact Statement Preparation Notice (EISPN)  
TMK: 2-1-008: 056 and 71

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project for the Honua'ula mixed-use development project, located in the Kihei-Makena region of Maui, adjacent to the Wailea Resort.

DOT's previous comments on Honua'ula Partners' related projects, including the project to widen Piilani Highway (letter STP 8.3152, dated March 5, 2009, is attached), are also applicable to the subject project.

DOT staff and the applicant are coordinating a meeting to discuss the proposed projects in the Wailea-Makena area, and the cost-sharing agreement for highway improvements between developers of the three major projects in this area. DOT reserves the right to provide supplemental comments pending the outcome of this meeting.

In the interim, the environmental documents and associated traffic impact assessment report (TIAR) for the subject land development project should be consistent with the TIAR for the Piilani Highway widening project. The applicant should continue consultation with the DOT Highways Division Planning Branch and the Highways Division Maui District Office, and should direct all design and construction plans to these offices.

Mr. Tom Schell  
Page 2  
April 6, 2009

STP 8.3207

DOT appreciates the opportunity to provide comments and requests four (4) copies of the project's Draft Environmental Impact Statement (DEIS). If there are any questions, please contact Mr. David Shimokawa of the DOT Statewide Transportation Planning Office at (808) 587-2356.

Very truly yours,

BRENNON T. MORIOKA, B.H.D., P.E.  
Director of Transportation

Attach.

SLP:km

c: Katherine Kealoha, Office of Environmental Quality Control  
Jeffrey Hunt, Maui Planning Department

bc: HWY-P(PS 09-102), -M, STP(SLP)



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Brennon T. Morioka, PH.D., P.E.  
Director  
**Department of Transportation**  
State of Hawai'i  
869 Punchbowl Street  
Honolulu, Hawai'i 96813

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements, STP 8.3216

Dear Mr. Morioka:

Thank you for your letter of April 13, 2009. We are aware of the previous comments on Honua`ula Partner's related projects. The traffic engineer for the Pi`ilani Widening project, the Honua`ula Project District and this project, has coordinated the findings in the various Traffic Impact Analysis Reports with the other Honua`ula projects. Your comments of March 5, 2009 and April 6, 2009 will be addressed in the Pi`ilani Widening Project and Honua`ula Project District environmental documents, respectively.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

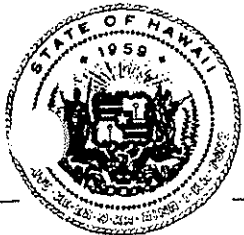
Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC  
Keith Niiya, Austin, Tsutsumi & Associates, Inc.

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APR 15 2009



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

LINDA LINGLE  
GOVERNOR  
THEODORE E. LIU  
DIRECTOR  
MARK K. ANDERSON  
DEPUTY DIRECTOR  
ABBEY SETH MAYER  
DIRECTOR  
OFFICE OF PLANNING

**OFFICE OF PLANNING**

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846  
Fax: (808) 587-2824

Ref. No. P-12523

April 13, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Ohashi Hiraga:

Subject: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive  
Intersection Improvements Within the Wailea Resort  
Wailea, Maui, Hawaii

Thank you for your request for early consultation regarding the Environmental Assessment (EA) for the above referenced proposal in Wailea, Maui.

The Office of Planning requests that the Environmental Assessment consider the impacts of the proposed project on the following issues of State concern:

1. **Cultural, Archaeological, and Historic Resources** – Please include an inventory of archaeological and historic sites on the subject property. Please also identify the status of any monitoring and preservation plans being prepared for or approved by the State Historic Preservation Division. Please identify and describe any cultural resources and cultural practices, including visual landmarks, if applicable, on the subject property and within the ahupua`a in which the property is situated. Please discuss the impact of the proposed project on identified cultural resources and practices, alternatives considered, and proposed mitigation measures.
2. **Environmental, Recreational, and Scenic Resources** – Please include an inventory 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. Flora and fauna of concern should not be limited to listed threatened or endangered species or those under consideration for listing, and should include those species and ecosystems identified as “rare” by The Nature Conservancy of Hawai`i. The EA should discuss measures to be taken to protect rare, threatened or endangered species or ecosystems of concern. You should consider in the design of your field

observations including both wet and dry season surveys to capture the fullest range of flora and fauna. Please include a description of recreational uses on or near the project site. A description of scenic resources should also be included.

3. **Coastal Zone Management (CZM)** – The State oversees protection of natural, cultural, and economic resources within the coastal zone, which 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 (§205A-1, Hawaii Revised Statutes). Please discuss how the proposed project will balance the competing values of economic development and preservation of coastal resources, including the following CZM objective areas.

- a. **Coastal and Ocean Resources** – The State has an affirmative duty to protect Hawaii’s nearshore waters. Please discuss important coastal and marine resources and ecosystems that may be impacted by the proposed project. Please discuss how stormwater and wastewater generated by the project will be prevented from reducing the quality of nearshore waters.

The EA should discuss the impact of the project on existing site and offsite hydrology and how the project will manage stormwater and runoff. OP recommends the use of best management practices (BMP) that promote onsite infiltration and minimize runoff from storm events. More information on stormwater BMPs can be found at <http://hawaii.gov/dbedt/czm/initiative/lid.php>.

- b. **Coastal and Other Hazards** – Please describe any hazard conditions that are relevant to the site, such as potential risk or harm from flood, erosion, earthquake, landslide, and point and nonpoint source pollution. Please describe the measures that are proposed to mitigate any hazard impacts.

The Office of Planning looks forward to receiving the EA with the potential impacts and mitigation measures for the above issues addressed. If you have any questions, please call Scott Derrickson in the Land Use Division at 587-2888.

Sincerely,



Abbey Seth Mayer  
Director

c: Theodore Liu, DBEDT



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Abbey Seth Mayer, Director  
**Department of Business, Economic  
Development & Tourism**  
Office of Planning  
P.O. Box 2359  
Honolulu, Hawai'i 96804

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for the  
Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

Dear Mr. Mayer:

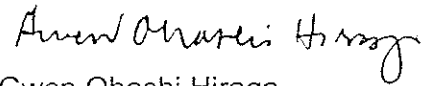
Thank you for your letter of April 13, 2009. In response to your comments, the following are noted:

1. Pursuant to early consultation with the State Historic Preservation Division (SHPD), it was determined that an archaeological inventory survey would not be required provided a monitoring plan is reviewed and approved by SHPD. Prior to construction a monitoring plan will be submitted to SHPD for review and approval and implemented during construction.
2. A Biological Study was conducted for the project site and is included in the Draft Environmental Assessment (EA). A description of recreational resources and scenic resources is also included in the Draft EA.
3. The subject site is located within the Special Management Area for the island of Maui and has been evaluated pursuant to Chapter 205-A, Hawai'i Revised Statutes. A Special Management Area application will be filed with the County of Maui Planning Department.

Abbey Seth Mayer  
August 24, 2009  
Page 2

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015.  
A copy of the Draft EA will be provided to your agency.

Very truly yours,



Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC

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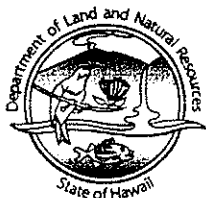


APR 15 2009

LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
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

April 13, 2009

Munekiyo & Hiraga  
305 High Street Suite 104  
Wailuku, Hawaii 96793

Attention: Ms. Gwen Ohashi Hiraga, Principal

Ladies and Gentlemen:

Subject: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive  
Intersection Improvements Within the Wailea Resort

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

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Morris M. Atta".

Morris M. Atta  
Administrator

LINDA EINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED  
LAND DIVISION



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

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POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

March 27, 2009

DIRECTOR	
ADM. FISH.	
RES/ENV	
REC	
PLANNER	
STAFF SVCS	
RCU/HU	
STATISTICS	
AFRC/FED AID	
EDUCATION	
SECRETARY	
OFFICE SVCS	
TECH ASST	
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Due Date:	

MEMORANDUM

TO:

DLNR Agencies:

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

FROM:

*Morris M. Atta*

SUBJECT: Early consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements within the Wailea Resort

LOCATION: Wailea, Maui

APPLICANT: Munekiyo & Hiraga, Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 9, 2009.

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: *[Signature]*

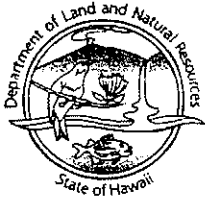
Date: 5 April 2009



LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
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

March 27, 2009

MEMORANDUM

TO: **DLNR Agencies:**  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division -

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LAND DIVISION  
2009 APR - 6 A 10:23  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

FROM: *for* Morris M. Atta *Charles*  
SUBJECT: Early consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection  
Improvements within the Wailea Resort  
LOCATION: Wailea, Maui  
APPLICANT: Munekiyo & Hiraga, Inc.

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by April 9, 2009.

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: *Cait Heine*  
Date: 4/3/09

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

**LD/ Morris Atta**

**Ref.: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection  
Improvements within the Wailea Resort  
Maui.005**

**COMMENTS**

- ( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone \_\_\_\_.
- (X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone C. The National Flood Insurance Program (NFIP) does not regulate developments within Zone C.
- ( ) 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. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
  - ( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
  - ( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- ( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
  - ( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
  - ( ) Additional Comments: \_\_\_\_\_  
\_\_\_\_\_
  - ( ) Other: \_\_\_\_\_

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed:   
ERIC T. HIRANO, CHIEF ENGINEER

Date: 4/3/09

PHONE (808) 594-1888

FAX (808) 594-1865



**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
711 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

HRD09/3208 E

April 16, 2009

Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793

**RE: Early consultation request for proposed improvements to the Wailea Alanui Drive and Wailea Ike Drive intersection within the Wailea Resort, Wailea, Maui**

Aloha e Kyle Ginoza,

The Office of Hawaiian Affairs (OHA) received the above-mentioned letter, dated March 20, 2009, which requests early consultation on modifying the Wailea Alanui and Wailea Ike drives intersection to add a turn lanes and signals prior to re-zoning for the Kihei-Makena Project District 9 (Honua'ula). OHA apologizes for the delayed response, and offers the following comments.

OHA has substantive obligations to protect the cultural and natural resources of Hawai'i for its beneficiaries, the people of this land. The Hawaii Revised Statutes mandate that OHA "[s]erve as the principal public agency in the State of Hawaii responsible for the performance, development, and coordination of programs and activities relating to native Hawaiians and Hawaiians; . . . and [t]o assess the policies and practices of other agencies impacting on native Hawaiians and Hawaiians, and conducting advocacy efforts for native Hawaiians and Hawaiians." (HRS § 10-3)

Chapter 343 of the Hawaii Revised Statues (HRS) requires that the Draft EA include a Cultural Impact Assessment (CIA). The CIA should include information relating to the traditional and customary practices and beliefs of the area's Native Hawaiians, and the community should be involved in this assessment. Consideration must also be afforded to any individuals accessing the project area for constitutionally protected traditional and customary purposes, in accordance with the Hawai'i State Constitution, Article XII, Section 7.

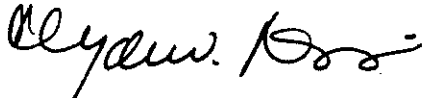
Gwen Ohashi Hiraga, Principal  
April 16, 2009  
Page 2

We request the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

In addition, OHA recommends that the applicant use native vegetation in its landscaping plan for the subject parcel. Landscaping with native plants furthers the traditional Hawaiian concept of mālama 'āina and creates a more Hawaiian sense of place.

Thank you for the opportunity to comment at this early juncture. We look forward to reviewing the forthcoming Draft Environmental Assessment. If you have further questions, please contact Heidi Guth by phone at (808) 594-1962 or e-mail her at [heidig@oha.org](mailto:heidig@oha.org).

'O wau iho nō me ka 'oia'i'o,



Clyde W. Nāmu'o  
Administrator

C: OHA Maui CRC Office



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Clyde W. Nāmu`o, Administrator  
**Office of Hawaiian Affairs**  
State of Hawai`i  
711 Kapiolani Boulevard, Suite 500  
Honolulu, Hawai`i 96813

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for the Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

Dear Mr. Nāmu`o:

Thank you for your letter dated April 16, 2009. In response to your comments, we note that the intersection improvements will be located within the existing right-of-ways and portions of the existing Wailea Old Blue Golf Course. Based on early consultation with the Department of Land and Natural Resources, State Historic Preservation Division (SHPD), it was determined that an archaeological inventory survey would not be required, provided an archaeological monitoring plan is submitted to SHPD for review and approval. Accordingly, an archaeological monitoring plan is being prepared.

A review and assessment of cultural considerations will be included in the Draft Environmental Assessment (EA).

Further, should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during the construction of the project, work will cease in the immediate area of the find and the appropriate agencies will be contacted. Recommended measures shall be followed prior to commencement of further construction work.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft EA will be provided to your agency.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh

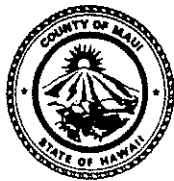
cc: Charles Jencks, Honua`ula Partners, LLC

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environment  
planning  
government

MAR 31 2009

CHARMAINE TAVARES  
MAYOR



JEFFREY A. MURRAY  
CHIEF

ROBERT M. SHIMADA  
DEPUTY CHIEF

**COUNTY OF MAUI**  
**DEPARTMENT OF FIRE AND PUBLIC SAFETY**  
**FIRE PREVENTION BUREAU**

780 ALUA STREET  
WAILUKU, HAWAII 96793  
(808) 244-9161  
FAX (808) 244-1363

March 25, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, HI 96793

**Subject: Early Consultation for Wailea Alanui Drive & Wailea Ike Drive Intersection  
Improvements, Wailea, Maui, Hawaii**

Dear Ms. Hiraga,

I have had the opportunity to review the subject correspondence. Our office has no specific concerns at this time.

Please feel free to contact me if there are any questions or concerns about this project..

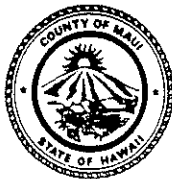
Sincerely,

A handwritten signature in black ink, appearing to read "Valeriano F. Martin". The signature is stylized and written in cursive.

Valeriano F. Martin  
Captain  
Fire Prevention Bureau



CHARMAINE TAVARES  
MAYOR



DON A. MEDEIROS  
Director  
WAYNE A. BOTEILHO  
Deputy Director  
Telephone (808) 270-7511  
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Wailuku, Hawaii, USA 96793-2155

March 31, 2009

Ms. Gwen Ohashi Hiraga  
Munekiyo & Hiraga Inc.  
305 High Street, Suite 104  
Wailuku, Maui, Hawaii 96793

Subject: Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements  
within the Wailea Resort

Dear Ms. Hiraga,

Thank you for the opportunity to comment on this project.

We currently have a bus stop just east of the proposed intersection improvements on Wailea Ike Drive. The proposed double right hand turn lane onto Wailea Ike Drive will create a safety issue with our current bus stop. We would propose that a bus pull in and shelter with benches be installed at a new bus stop location to mitigate this issue.

Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Don Medeiros", is written over a horizontal line.

Don Medeiros  
Director

Xc: Jeff Hunt, Department of Planning Director  
Milton Arakawa, Department of Public Works Director



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Don Medeiros, Director  
**Department of Transportation**  
County of Maui  
200 S. High Street  
Wailuku, Hawai'i 96793

**SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements**

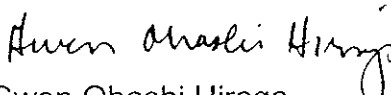
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Dear Mr. Medeiros:

Thank you for your letter of March 31, 2009. We will make every effort to coordinate the intersection improvements with your agency to maintain public safety for the current County of Maui bus stop.

Should you require additional clarification please do not hesitate to contact me at 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

  
Gwen Ohashi Hiraga  
Principal

GOH:lh  
cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.  
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LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BOULEVARD, ROOM 555  
KAPOLEI, HAWAII 96707

LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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

July 16, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793  
[planning@mhpplanning.com](mailto:planning@mhpplanning.com)

LOG NO: 2009.1118  
DOC NO: 0907PC31  
Archaeology

**SUBJECT: Chapter 6E-42 Historic Preservation Review – Early Consultation on the Wailea Resort Intersection Improvements to Wailea Alanui Drive and Wailea Ike Drive Paeahu Ahupua'a, Makawao District, Island of Maui**  
**TMK: (2) 2-1-008:999**

---

Thank you for the opportunity to comment on the aforementioned project, correspondence for which we received on March 20 of 2009. Please accept our apologies for the lengthy delay in responding.

Based on the submitted document, the project involves intersection improvements to Wailea Alanui Drive and Wailea Iki Drive, as requested by the County of Maui in association with the rezoning application made by Honua'ula Partners, LLC. More specifically, the County requested that the applicant "*modify the Wailea Alanui/Wailea Ike Drive intersection to add signalized double right-turn movement from northbound to eastbound turning traffic and to provide two left-turn lanes for southbound traffic from Wailea Ike Drive...*" The proposed area of effect is within an existing County roadway/road right-of-way. The proposed project is also located in an area where numerous isolated and clustered pre-Contact period human burials and other culturally significant deposits have been found. Given the above information, the most reasonable form of mitigation appears to be precautionary archaeological monitoring during all project related ground altering disturbance.

Therefore, upon review of any permit application associated with the proposed project forwarded to us by the County of Maui, we will likely recommend the following:

A qualified archaeological monitor shall be present during *those portions of the project which involve ground altering disturbance* in order to document any historic properties which may be encountered and to provide mitigation measures as necessary. *Please note that ground altering disturbance includes previously disturbed stratigraphy, as culturally significant subsurface deposits are often found in these contexts.*

As per Hawai'i Administrative Rules (HAR) §13-279, this means that prior to the commencement of ground altering disturbance associated with the proposed project, the project developer or developer's agent must submit an appropriately prepared *monitoring plan* to this office for review and acceptance. The plan must contain the following provisions:

- 1) Specify the kinds of historically or culturally significant sites or remains of sites anticipated and where in the construction area they are likely to be found;
- 2) Specify how such sites or remains of sites will be documented;
- 3) Specify how such sites or remains of sites will be treated;
- 4) Specify that the archaeologist (s) conducting the monitoring has (have) the authority to halt construction in the immediate area of the find in order to carry out the plan;
- 5) Specify that coordination between the archaeologist and construction crew has been scheduled so that all involved parties are aware of the plan and what it means;
- 6) Specify what laboratory work will be performed on any cultural sites or remains of sites that might be found in the project area;
- 7) Specify details concerning the archiving of any collections that are made;
- 8) Specify a schedule of report preparation and that the report will be submitted within the required 180 days after completion of the proposed undertaking.

A list of those meeting the requirements to perform such work can be obtained on the SHPD's website at <http://hawaii.gov/dlnr/hpd/pdfs/2009-Permittee.pdf> or by contacting our main office at (808) 692-8015.

If you have any questions or comments regarding this letter, please contact the SHPD's Lead Maui Archaeologist, Ms. Patty Conte ([Patty.J.Conte@hawaii.gov](mailto:Patty.J.Conte@hawaii.gov)).

Aloha,



Nancy McMahon, Deputy SHPO/State Archaeologist  
State Historic Preservation Division

c: Sinoto Consulting, LLC: [akihikosinoto@aol.com](mailto:akihikosinoto@aol.com)  
Jeff Hunt, Director, Dept. of Planning, FAX (808) 270-7634



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Nancy McMahon, Deputy SHPO  
State Archaeologist  
**State Historic Preservation Division**  
Department of Land and Natural Resources  
601 Kamokila Boulevard, Room 555  
Kapolei, Hawai'i 96707

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Ms. McMahon:

Thank you for your letter of July 16, 2009 and concurrence that due to the scope of the project an archaeological inventory survey is not required. However, an archaeological monitoring plan will be prepared and submitted to the State Historic Preservation Office (SHPO) for review and approval prior to the initiation of any ground altering disturbance.

Should you require additional clarification please contact me at (808) 244-2015 or email [colleen@mhplanning.com](mailto:colleen@mhplanning.com). A copy of the Draft Environmental Assessment (EA) will be forwarded to your agency.

Very truly yours,

 Colleen Suyama  
Project Manager

CS:yp

cc: Charles Jencks, Honua`ula Partners, LLC  
Aki Sinoto, Aki Sinoto Consulting and Cultural Resource Management

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DEPARTMENT OF  
**HOUSING AND HUMAN CONCERNS**  
COUNTY OF MAUI

APR 09 2009

CHARMAINE TAVARES  
Mayor

LORI TSUHAKO  
Director

JO-ANN T. RIDAO  
Deputy Director

---

2200 MAIN STREET • SUITE 546 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165  
MAILING ADDRESS: 200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • EMAIL [director.hhc@mauicounty.gov](mailto:director.hhc@mauicounty.gov)

April 7, 2009

Ms. Gwen Ohashi Hiraga  
Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Dear Ms. Hiraga:

**SUBJECT: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection Improvements within the Wailea Resort, Wailea, Maui, Hawaii**

The Department has reviewed the Early Consultation Request for the above subject project. Based on our review, we have determined that the subject project is not subject to Chapter 2.96, Maui County Code. At the present time, the department has no additional comments to offer.

Please call Mr. Wayne Oshiro of our Housing Division at 270-7355 if you have any questions.

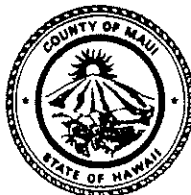
Sincerely,

LORI TSUHAKO, LSW, ACSW  
Director of Housing and Human Concerns

xc: Housing Division

APR 15 2009

CHARMAINE TAVARES  
Mayor



TAMARA HORCAJO  
Director

ZACHARY Z. HELM  
Deputy Director

(808) 270-7230  
FAX (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nako'a Street, Unit 2, Wailuku, Hawaii 96793

April 9, 2009

Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

**SUBJECT: Early Consultation on the Wailea Alanui Drive and Wailea  
Ike Drive Intersection Improvements within the Wailea  
Resort, Wailea, Maui, Hawaii**

Dear Ms. Ohashi Hiraga:

We have reviewed the proposed subject project and have no comments or objections to submit at this time.

Thank you for the opportunity to review and comment on this matter. Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development at 270-7387 should you have any other questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Tamara Horcajo", is written over a faint, larger version of the same signature.

TAMARA HORCAJO  
Director of Parks & Recreation

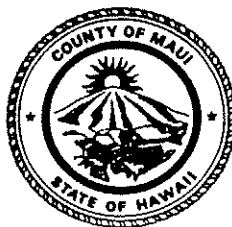
xc: Patrick Matsui, Chief of Parks Planning and Development

TH:PM:do

CHARMAINE TAVARES  
Mayor

CHERYL K. OKUMA, Esq.  
Director

GREGG KRESGE  
Deputy Director



TRACY TAKAMINE, P.E.  
Solid Waste Division

DAVID TAYLOR, P.E.  
Wastewater Reclamation  
Division

**COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT**

2200 MAIN STREET, SUITE 100  
WAILUKU, MAUI, HAWAII 96793

April 13, 2009

Ms. Gwen Ohashi Hiraga  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

**SUBJECT: WAILEA ALANUI DRIVE AND WAILEA IKI DRIVE INTERSECTION  
IMPROVEMENTS WITHIN THE WAILEA RESORT  
EARLY CONSULTATION  
WAILEA, MAUI, HAWAII**

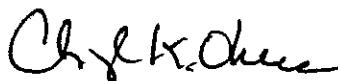
Dear Ms. Ohashi Hiraga,

We reviewed the subject project as a pre-application consultation and have the following comments:

1. Solid Waste Division comments:
  - a. None.
2. Wastewater Reclamation Division (WWRD) comments:
  - a. The Wastewater Reclamation Division has existing wastewater system improvements within the proposed project area, therefore proposed construction plans shall reflect the aforementioned wastewater system improvements and be submitted to our division for review and approval prior to construction.

If you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,



Cheryl Okuma, Director





MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Cheryl Okuma, Director  
**Department of Environmental Management**  
County of Maui  
2200 Main Street, Suite 100  
Wailuku, Hawai'i 96793

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Ms. Okuma:

Thank you for your letter of April 13, 2009. We will coordinate the intersection improvements with the County of Maui to ensure that construction of the improvements will not adversely impact the County's wastewater system.

Should you require additional clarification please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

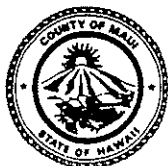
Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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APR 15 2009



# POLICE DEPARTMENT COUNTY OF MAUI

**CHARMAINE TAVARES**  
MAYOR

55 MAHALANI STREET  
WAILUKU, HAWAII 96793  
(808) 244-6400  
FAX (808) 244-6411

**THOMAS M. PHILLIPS**  
CHIEF OF POLICE

**GARY A. YABUTA**  
DEPUTY CHIEF OF POLICE

OUR REFERENCE  
↑  
YOUR REFERENCE

April 13, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, HI 96793

Dear Ms. Ohashi Hiraga:

**SUBJECT: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive  
Intersection Improvements with the Wailea Resort**

Thank you for your letter of March 20, 2009, requesting comments on the above subject.

We have enclosed our comments and would also like to have the opportunity to review the Draft Environmental Assessment when it is produced. Thank you for giving us the opportunity to comment on this project.

Very truly yours,

Assistant Chief Wayne T. Ribao  
for: Thomas M. Phillips  
Chief of Police

c: Jeffrey Hunt, Planning Department

# COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI

VIA : CHANNELS

FROM : BRAD HICKLE, POLICE OFFICER III, DISTRICT VI KIHEI

SUBJECT : EARLY CONSULTATION ON THE WAILEA ALANUI DRIVE AND WAILEA IKE DRIVE INTERSECTION IMPROVEMENTS WITHIN THE WAILEA RESORT, WAILEA, MAUI, HAWAII

CONCUR  
AC W. M.  
4/9/09

*Est H*  
04-08-09

### APPLICANT INFORMATION:

The applicant, Gwen OHASHI HIRAGA of Munekiyo & Hiraga, Inc. is requesting Early Consultation on the Wailea Alanui Drive/Wailea Ike Drive Intersection Roadway Improvements.

The information is being requested on behalf of the Honua'ula Partners, LLC in preparation for the Draft Environmental Assessment (EA).

The roadway widening and intersection improvements are a condition which Honua'ula Partner's, LLC must compete prior to the commencement of any construction on the future Honua'ula-Wailea 670 job site.

### POLICE CONCERNS:

After reviewing the information received it was discovered the request for Early Consultation does not specify information regarding road closers, redirecting traffic or the effect the intersection improvements may have on the businesses in the area.

Based upon the information received I have no further concerns or comments regarding this project. I would however appreciate the opportunity to submit my comments and concerns after reviewing the Draft Environmental Assessment (EA).

Respectfully Submitted,

Officer Brad Hickle  
04/04/09

*BH*

E-9966  
10:15 hours

### COMMENTS:

OFFICER B. HICKLE'S CONCERNS ARE VALID AND I AGREE THAT WE BE AFFORDED AN OPPORTUNITY TO REVIEW & COMMENT ONCE THE DRAFT DOCUMENT IS PREPARED.

*4. J. W. #146*  
04/01/09



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Gary Yabuta, Chief  
**Maui Police Department**  
County of Maui  
55 Mahalani Street  
Wailuku, Hawai'i 96793

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for  
the Wailea Ike Drive and Wailea Alanui Drive Intersection  
Improvements

Dear Chief Yabuta:

Thank you for your department's letter of April 13, 2009. Prior to the initiation of construction we will coordinate construction activity with the Police Department to ensure the efficient and safe movement of traffic in the area.

Should you require additional clarification, please do not hesitate to contact me at (808) 244-2015. A copy of the Draft Environmental Assessment will be provided to your agency.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh

cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.  
Keith Niiya, Austin, Tsutsumi & Associates, Inc.

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CHARMAINE TAVARES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director

Telephone: (808) 270-7845  
Fax: (808) 270-7955



APR 16 2009  
RALPH 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**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

April 14, 2009

Ms. Gwen Ohashi Hiraga, Principal  
MUNEKIYO & HIRAGA, INC.  
305 High Street, Suite 104  
Wailuku, Maui, Hawaii 96793

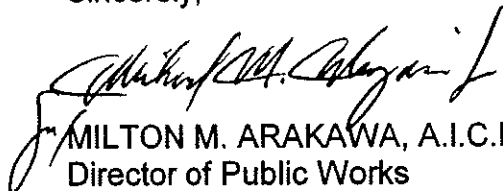
Dear Ms. Ohashi:

**SUBJECT: EARLY CONSULTATION ON THE WAILEA ALANUI  
DRIVE AND WAILEA IKE DRIVE INTERSECTION  
IMPROVEMENTS WITHIN THE WAILEA RESORT,  
WAILEA, MAUI, HAWAII**

We reviewed your early consultation request and comments will be provided upon submittal of more detailed documentation regarding traffic signal operations and traffic volume counts.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,

  
MILTON M. ARAKAWA, A.I.C.P.  
Director of Public Works

MMA:MMM:ls

xc: Highways Division  
Engineering Division

S:\LUCA\ZM\Wailea\_Alanui\_Dr\_Wailea\_Ike\_Dr\_Intersec\_ec\_ls.wpd

MAR 30 2009



March 27, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 South High Street, Suite 104  
Wailuku, Maui, Hawaii, 96793

Dear Ms. Hiraga,

Subject: Early Consultation on the Wailea Alanui Drive and Wailea Ike Drive Intersection  
Improvements Within the Wailea Resort  
Wailea Alanui Drive and Wailea Ike Drive  
Wailea, Maui, Hawaii

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) has underground facilities in the project site and may need to get involved in the process. We would highly encourage the customer to submit survey and civil plans to us as soon as practical to verify the project's location requirements and address any possible relocations or conversions of our facilities.

Should you have any questions or concerns, please call me at 871-2340.

Sincerely,

A handwritten signature in black ink that reads "Ray Okazaki". The signature is written in a cursive, flowing style.

Ray Okazaki  
Staff Engineer



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Ray Okazaki  
Maui Electric Company  
P.O. Box 398  
Kahului, Hawai'i 96732

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for the Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

Dear Mr. Okazaki:

Thank you for your letter of March 27, 2009. We will coordinate the plans for the intersection improvements with Maui Electric Company (MECO) to ensure MECO's underground facilities are not impacted by the project as well as any electrical upgrades for the project.

Should you require additional clarification, please do not hesitate to contact me at 244-2015. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh  
cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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MAR 26 2009



555 Kaukahi Street  
Wailea, Hawaii 96753-8333  
(808) 874-6866 • FAX (808) 874-4027  
info@wcamaui.com

March 24, 2009

Gwen Ohashi Hiraga, Principal  
Munkeyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, HI 96793

Aloha Gwen,

Thank you for the opportunity to comment on the "intersection improvements within the Wailea Resort". Whoever in the Council suggested this as a condition for Honua'ula, did so without consulting the community it directly affects – Wailea Resort.

I drive this route 4 times a day and have not encountered any problem that would warrant this change. I can only surmise that this so called improvement, as well as the widening of Piilani Highway and the additional turn lanes onto Ike Drive from Piilani, is geared toward future traffic going to Makena. I don't believe either properly addresses the future needs of Makena and yet impact the very heart of Wailea Resort.

The real solution to present and future traffic to Makena is the extension of Piilani Highway through Honua'ula to Makena. The community has stressed this for years with no support from the County. The reasons are simple, as Makena develops this extension will become its primary entry road, instead of funneling all traffic through Wailea and onto Makena Alanui. It also would provide a much needed safety outlet even today as present Makena properties would be isolated should something happen to Makena Alanui.

Widening roads and intersections is not the answer to our future traffic problems, building more roads creates alternatives during peaks and disasters while preserving our island ambience. This notion was proposed in 2003 by the South Maui Coalition of Community Associations, but was stopped by the former Planning Director for fear of development. Let's not keep making the same mistakes because certain small special interest groups on this island want to punish developers by adding conditions that make no sense.

I suggest that the resources and effort for this project be redirected to getting the Piilani Highway extended for the present and future well-being of south Maui residents.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank", written over a horizontal line.

Frank "Bud" Pikrone  
General Manager





MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Frank "Bud" Pikrone  
**Wailea Community Association**  
555 Kaukahi Street  
Wailea, Hawai'i 96753

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for the Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

Dear Mr. Pikrone:

Thank you for your letter of March 24, 2009. As you have noted, the improvement to the intersection was made a condition of the zoning approval (Condition No. 2.e. of Ordinance 3554) for the Honua`ula Project District.

While the proposed action does not relate to the extension of Pi'ilani Highway, the applicant will continue its coordination efforts with the Wailea Community Association to ensure that regional traffic matters are addressed in a collaborative manner.

We appreciate your comments, and will provide a copy of the Draft Environmental Assessment (EA) to your association. Should you have any questions, please do not hesitate to call me at 244-2015.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh  
cc: Charles Jencks, Honua`ula Partners, LLC  
F:\DATA\WCPT\Intersection\WCAecres.wpd

MAR 25 2009

# Wailea Old Blue

— GOLF CLUB —

120 Kaukahi Street, Wailea, Maui, Hawaii 96753  
Tel 808.879.2530 Fax 808.875.5162

March 25, 2009

Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Subject: Wailea Alanui and Wailea Ike Drive Intersection Improvements

Dear Ms. Hiraga:

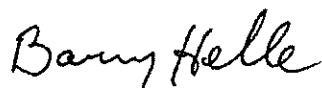
Thank you for the opportunity to provide comments regarding the Wailea Alanui and Wailea Ike Drive intersection improvements.

We understand that the proposed improvements are a requirement on Honua'ula Partners, LLC., by the County of Maui as part of the approval for their rezoning application. As the owner of the land adjacent to this intersection we have no objections to the project.

We also understand that the majority of the land is owned by the County of Maui, however a very small portion of the improvements will require land owned by Wailea Old Blue LLC. We have no objection to use of this land for the subject improvement provided proper easements are executed by Wailea Old Blue LLC and the involved parties.

Again, I would like to thank you for the opportunity to review and comment on this project.

Sincerely,



Barry Helle  
General Manager



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

August 24, 2009

Barry Helle  
**Wailea Old Blue Golf Club**  
120 Kaukahi Street  
Wailea, Hawai'i 96753

SUBJECT: Early Consultation on the Draft Environmental Assessment (EA) for the Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements

Dear Mr. Helle:

Thank you for your letter of March 25, 2009. We acknowledge that a small portion of the improvements are to be located on property owned by Wailea Old Blue LLC. As noted in our preliminary discussions, land acquisitions will be sought from Wailea Old Blue LLC prior to the initiation of construction.

Should you require additional clarification please call me at 244-2015. A copy of the Draft Environmental Assessment will be provided to you.

Very truly yours,

Gwen Ohashi Hiraga  
Principal

GOH:lh  
cc: Charles Jencks, Honua`ula Partners, LLC  
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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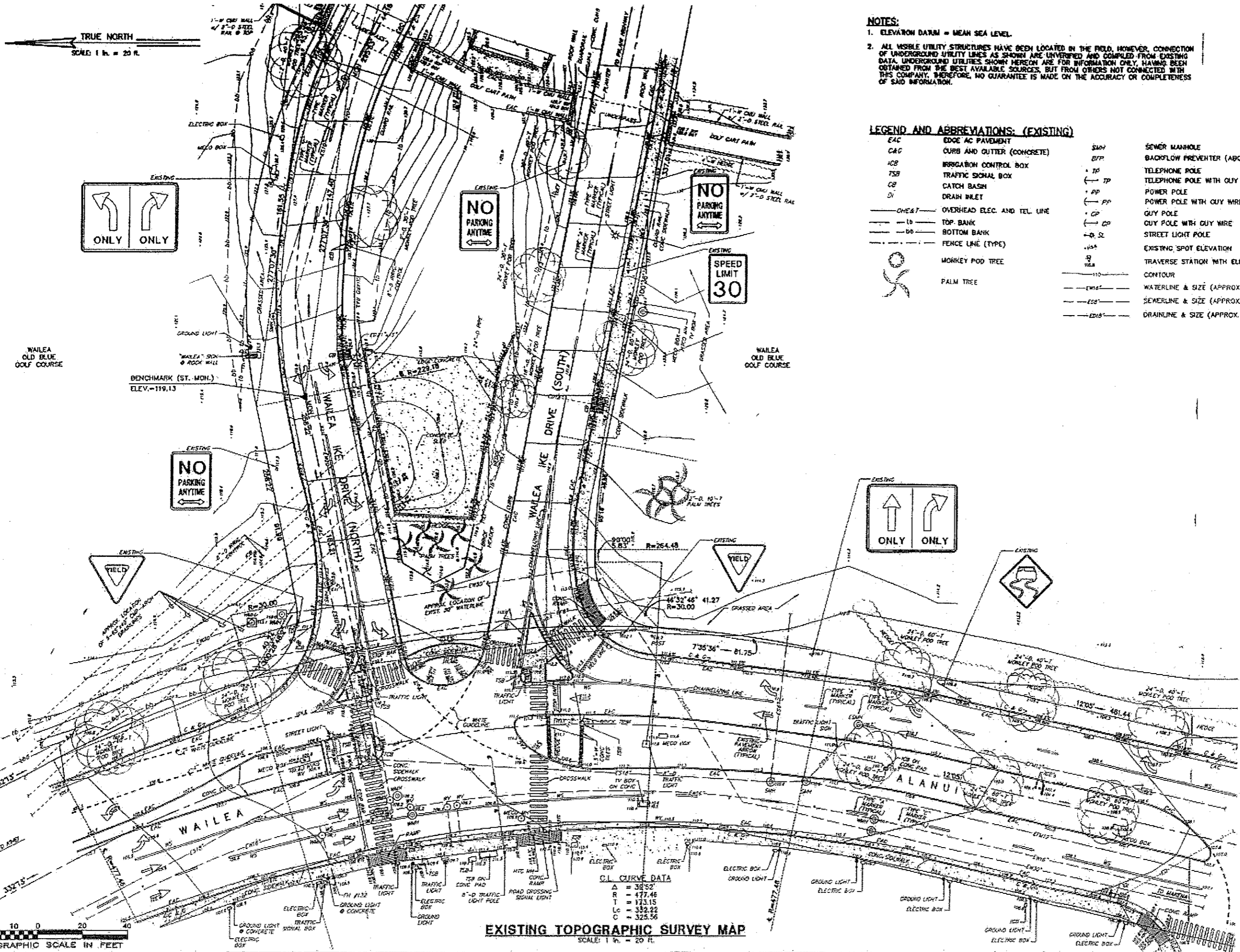
## **X. REFERENCES**

## X. REFERENCES

- County of Maui, Kihei-Mākena Community Plan, March 6, 1998
- County of Maui, Office of Economic Development, Maui County Data Book 2008
- County of Maui, Socio-Economical Forecast, The Economic Projections for the Maui County General Plan 2030, June 2006
- County of Maui, The General Plan of the County of Maui, September 1990 Update
- Federal Emergency Management Agency, Flood Insurance Rate Map, 1981
- Hana Pono, LLC, Cultural Impact Assessment for the Proposed Pi'ilani Highway Widening Project, prepared for Honua'ula Partners, LLC, April 2009.
- Munekiyo & Hiraga, Inc., Interim Pi'ilani Highway Improvements Final Environmental Assessment, April 2002
- State of Hawai'i, Department of Labor and Industrial Relations: <http://www.hiwi.org>, June 2009
- State of Hawai'i, Land Use Commission, Land Use District Boundary Maps
- State of Hawai'i, Office of State Planning, The Hawai'i State Plan, 1991
- University of Hawai'i at Hilo, Department of Geography, Atlas of Hawai'i, Third Edition, 1998
- U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawai'i, August 1972

# **APPENDIX A.**

## **Preliminary Plans**



**NOTES:**  
 1. ELEVATION DATA = MEAN SEA LEVEL.  
 2. ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD. HOWEVER, CONNECTION OF UNDERGROUND UTILITY LINES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, BUT FROM OTHERS NOT CONNECTED WITH THIS COMPANY. THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.

**LEGEND AND ABBREVIATIONS: (EXISTING)**

EAC	EDGE AC PAVEMENT	SMH	SEWER MANHOLE
C&G	CURB AND GUTTER (CONCRETE)	BFP	BACKFLOW PREVENTER (ABOVE GROUND)
ICB	IRRIGATION CONTROL BOX	TP	TELEPHONE POLE
TSB	TRAFFIC SIGNAL BOX	TP	TELEPHONE POLE WITH GUY WIRE
CB	CATCH BASIN	PP	POWER POLE
DI	DRAIN INLET	PP	POWER POLE WITH GUY WIRE
OE&T	OVERHEAD ELEC. AND TEL. LINE	GP	GUY POLE
tb	TOP BANK	GP	GUY POLE WITH GUY WIRE
bb	BOTTOM BANK	SL	STREET LIGHT POLE
FL	FENCE LINE (TYPE)	SE	EXISTING SPOT ELEVATION
MP	MONKEY POD TREE	TR	TRAVERSE STATION WITH ELEVATION
PT	PALM TREE	CON	CONTOUR
		EW	WATERLINE & SIZE (APPROX. LOCATION)
		ES	SEWERLINE & SIZE (APPROX. LOCATION)
		ED	DRAINLINE & SIZE (APPROX. LOCATION)

**C.L. CURVE DATA**  
 Δ = 38°52'  
 R = 477.46  
 T = 133.15  
 Lc = 332.22  
 C = 325.56

**EXISTING TOPOGRAPHIC SURVEY MAP**  
 SCALE: 1 in. = 20 ft.

**KIRK Y. TANAKA**  
 CIVIL & STRUCTURAL ENGINEERS  
 LAND SURVEYORS  
 871 KOLU STREET SUITE 201  
 WAILUKU, MAUI, HAWAII  
 PHONE No.: 242-8881

CONSTRUCTION PLANS FOR  
**WAILA ALANUI/WAILA IKE DRIVE INTERSECTION**  
 AT HONAUULA, MAUI, HAWAII  
 EXISTING TOPOGRAPHIC SURVEY MAP

**KIRK Y. TANAKA**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 8948-C  
 HAWAII, U.S.A.  
 LICENSE EXPIRES 04-30-16

THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THE PROJECT WILL BE UNDER MY OBSERVATION.

DATE: \_\_\_\_\_

**REVISIONS:**


T.M.K. (2) 2-01-008  
 SCALE: AS NOTED  
 DESIGNED BY: R.H.  
 CHECKED BY: K.Y.  
 DRAWN BY: N.D.  
 DATE: AUGUST 2008  
 JOB No.: 08-034

**FIGURE 8**

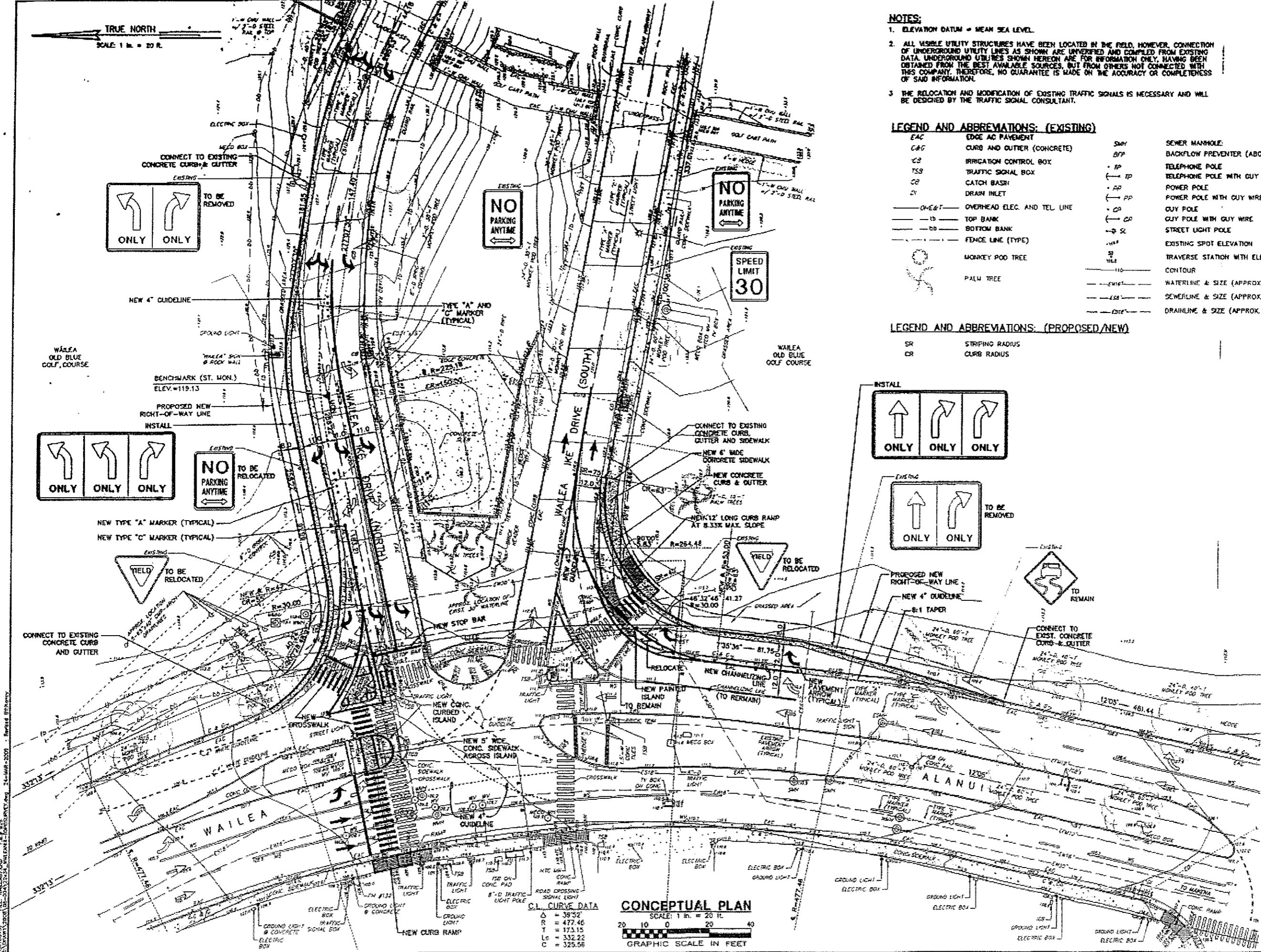
- NOTES:**
- ELEVATION DATUM = MEAN SEA LEVEL.
  - ALL VISIBLE UTILITY STRUCTURES HAVE BEEN LOCATED IN THE FIELD. HOWEVER, CONNECTION OF UNDERGROUND UTILITY LINES AS SHOWN ARE UNVERIFIED AND COMPILED FROM EXISTING DATA. UNDERGROUND UTILITIES SHOWN HEREON ARE FOR INFORMATION ONLY, HAVING BEEN OBTAINED FROM THE BEST AVAILABLE SOURCES, BUT FROM OTHERS NOT CONNECTED WITH THIS COMPANY. THEREFORE, NO GUARANTEE IS MADE ON THE ACCURACY OR COMPLETENESS OF SAID INFORMATION.
  - THE RELOCATION AND MODIFICATION OF EXISTING TRAFFIC SIGNALS IS NECESSARY AND WILL BE DESIGNED BY THE TRAFFIC SIGNAL CONSULTANT.

**LEGEND AND ABBREVIATIONS: (EXISTING)**

EAC	EDGE AC PAVEMENT	SMH	SEWER MANHOLE
C&G	CURB AND GUTTER (CONCRETE)	BFP	BACKFLOW PREVENTER (ABOVE GROUND)
CS	IRRIGATION CONTROL BOX	TP	TELEPHONE POLE
TSS	TRAFFIC SIGNAL BOX	TP	TELEPHONE POLE WITH GUY WIRE
CB	CATCH BASIN	PP	POWER POLE
DI	DRAIN INLET	PP	POWER POLE WITH GUY WIRE
OE&T	OVERHEAD ELEC. AND TEL. LINE	CP	GUY POLE
TS	TOP BANK	CP	GUY POLE WITH GUY WIRE
DB	BOTTOM BANK	SL	STREET LIGHT POLE
FL	FENCE LINE (TYPE)	SE	EXISTING SPOT ELEVATION
MP	MONKEY POO TREE	TS	TRAVERSE STATION WITH ELEVATION
PT	PALM TREE	CON	CONTOUR
		W-L	WATERLINE & SIZE (APPROX. LOCATION)
		S-L	SEWERLINE & SIZE (APPROX. LOCATION)
		D-L	DRAINLINE & SIZE (APPROX. LOCATION)

**LEGEND AND ABBREVIATIONS: (PROPOSED/NEW)**

SR	STRIPING RADIUS
CR	CURB RADIUS



**CONCEPTUAL PLAN**  
SCALE: 1 in. = 20 ft.  
GRAPHIC SCALE IN FEET

**CURVE DATA**

Δ	= 39°32'
R	= 477.46'
T	= 173.15'
Lc	= 332.22'
C	= 325.58'

DATE: 08/20/08 10:54 AM



REVISIONS:

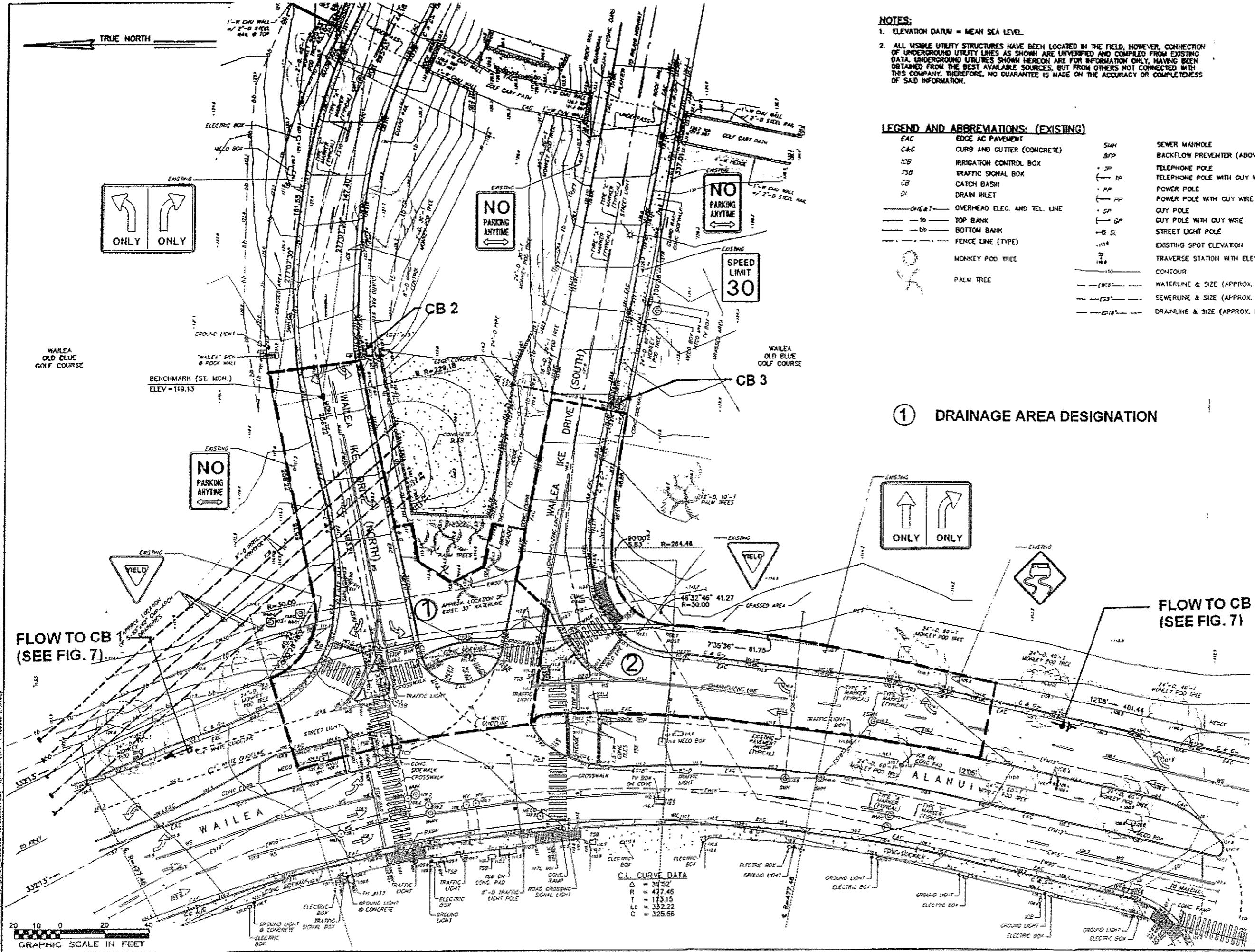

TALK: (2) 2-01-008  
 SCALE: AS NOTED  
 DESIGNED BY: R.H.  
 CHECKED BY: K.T.  
 DRAWN BY: N.D.  
 DATE: AUGUST 2008  
 JOB No.: 08-034

**NOTES:**  
 1. ELEVATION DATUM = MEAN SEA LEVEL.  
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**LEGEND AND ABBREVIATIONS: (EXISTING)**

EAC	EDGE AC PAVEMENT	S404	SEWER MAINHOLE
C&G	CURB AND GUTTER (CONCRETE)	BOP	BACKFLOW PREVENTER (ABOVE GROUND)
ICB	IRRIGATION CONTROL BOX	TP	TELEPHONE POLE
TSB	TRAFFIC SIGNAL BOX	PP	TELEPHONE POLE WITH GUY WIRE
CB	CATCH BASIN	PP	POWER POLE
DI	DRAIN INLET	PP	POWER POLE WITH GUY WIRE
—OVERT—	OVERHEAD ELEC. AND TEL. LINE	CP	GUY POLE
—TO—	TOP BANK	GP	GUY POLE WITH GUY WIRE
—BB—	BOTTOM BANK	SL	STREET LIGHT POLE
---	FENCE LINE (TYPE)	119.8	EXISTING SPOT ELEVATION
○	MONKEY POOD TREE	119.9	TRAVERSE STATION WITH ELEVATION
○	PALM TREE	119.0	CONTOUR
		---	WATERLINE & SIZE (APPROX. LOCATION)
		---	SEWERLINE & SIZE (APPROX. LOCATION)
		---	DRAINLINE & SIZE (APPROX. LOCATION)

**① DRAINAGE AREA DESIGNATION**



**C.I. CURVE DATA**

Δ	= 38°52'
R	= 427.46
T	= 173.15
LC	= 332.22
C	= 325.56



WAILEA ALANUI/WAILA IKE DRIVE INTERSECTION AT HONAUOLA, MAUI, HAWAII  
 27-AUG-2008  
 R.H.

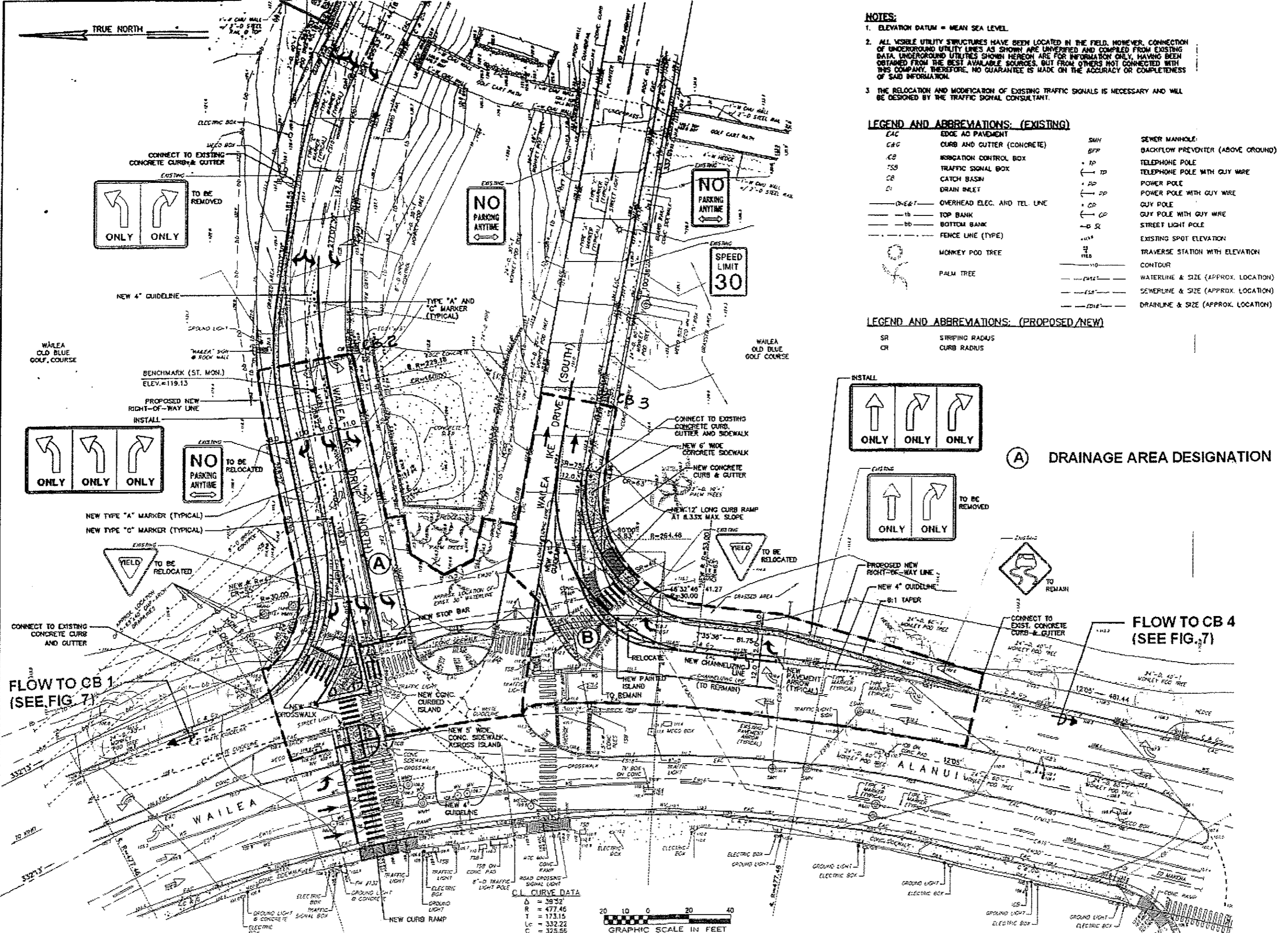
- NOTES:**
- ELEVATION DATUM = MEAN SEA LEVEL.
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C&G	CURB AND GUTTER (CONCRETE)	BFP	BACKFLOW PREVENTER (ABOVE GROUND)
CB	IRIGATION CONTROL BOX	TP	TELEPHONE POLE
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—O&T—	OVERHEAD ELEC. AND TEL. LINE	GP	GUY POLE
—tb—	TOP BANK	GP	GUY POLE WITH GUY WIRE
—db—	BOTTOM BANK	SL	STREET LIGHT POLE
---	FENCE LINE (TYPE)	SE	EXISTING SPOT ELEVATION
⊙	MONKEY POD TREE	TS	TRAVERSE STATION WITH ELEVATION
⊙	PALM TREE	CON	CONTOUR
		---	WATERLINE & SIZE (APPROX. LOCATION)
		---	SEWERLINE & SIZE (APPROX. LOCATION)
		---	DRAINLINE & SIZE (APPROX. LOCATION)

**LEGEND AND ABBREVIATIONS: (PROPOSED/NEW)**

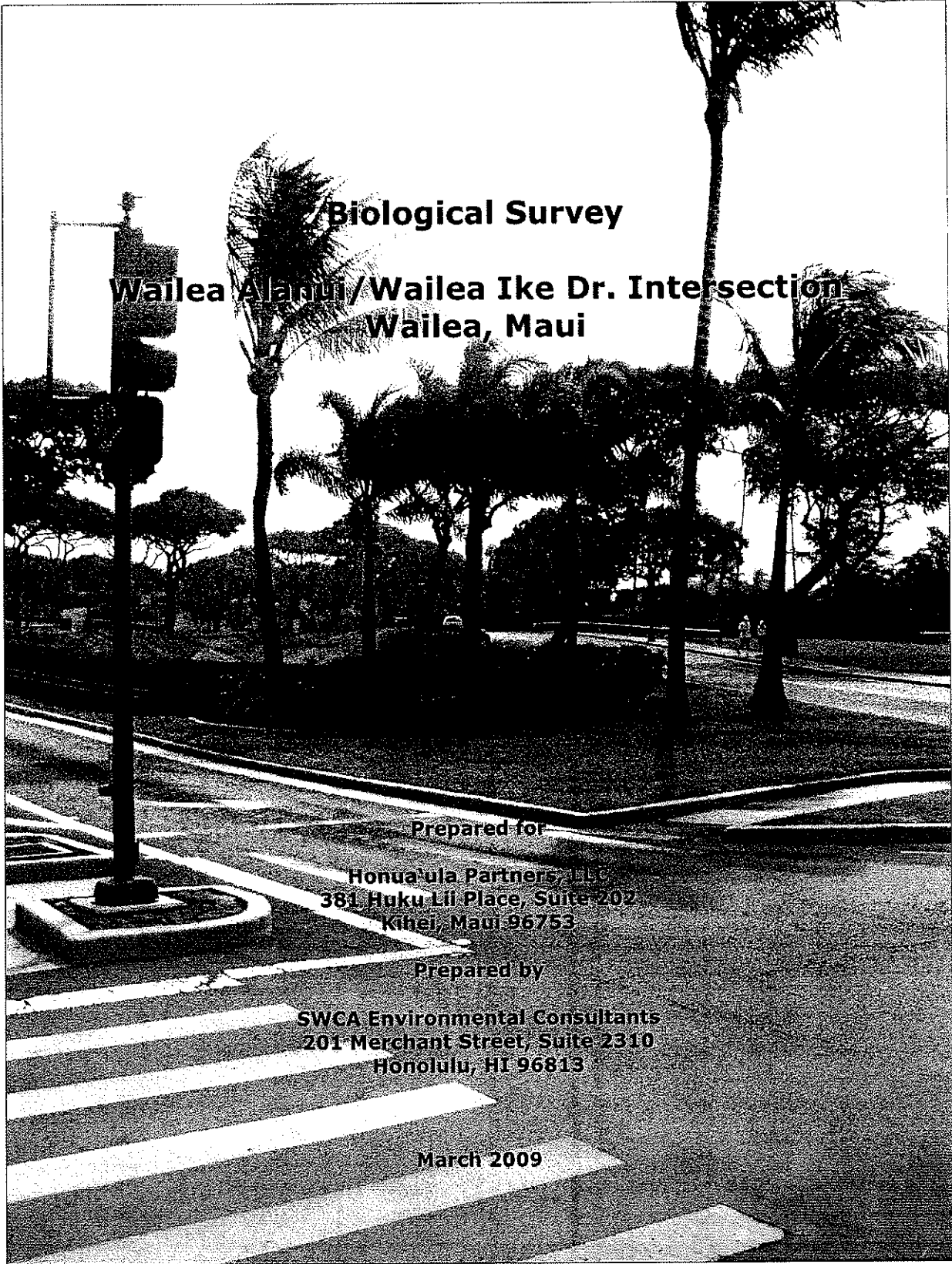
SR	STRIPING RADII
CR	CURB RADII



PROJECT: WALEA ALANUI/WALEA IKE DRIVE INTERSECTION, HONAUULA, MAUI, HAWAII  
 DATE: AUGUST 2008  
 DRAWN BY: H.D.  
 CHECKED BY: K.T.  
 DESIGNED BY: R.H.  
 T.M.K.: (2) 2-01-008

# **APPENDIX B.**

## **Biological Survey**



**Biological Survey**

**Wailea Alanui/Wailea Ike Dr. Intersection  
Wailea, Maui**

Prepared for

**Honua'ula Partners, LLC  
381 Huku Lii Place, Suite 202  
Kihei, Maui 96753**

Prepared by

**SWCA Environmental Consultants  
201 Merchant Street, Suite 2310  
Honolulu, HI 96813**

**March 2009**

**TABLE OF CONTENTS**

1.0 INTRODUCTION ..... 1

2.0 DESCRIPTION OF THE SURVEY AREA ..... 1

3.0 METHODS..... 1

    3.1 Ecosystems..... 1

    3.2 Flora ..... 1

    3.3 Fauna..... 1

        3.3.1 Avifauna ..... 1

        3.3.2 Other Fauna ..... 4

4.0 FINDINGS ..... 4

    4.1 Ecosystems..... 4

    4.2 Flora ..... 4

    4.3 Fauna..... 4

        4.3.1 Avifauna ..... 5

        4.3.2 Mammals ..... 6

        4.3.3 Reptiles and Amphibians ..... 6

        4.3.4 Insects and Other Invertebrates..... 6

5.0 CONCLUSIONS AND RECOMMENDATIONS ..... 6

6.0 LITERATURE CITED..... 8

APPENDIX 1 List of Plant Species Observed. .... 9

**LIST OF FIGURES**

Figure 1. Location Map..... 2

Figure 2. Survey Area..... 3

Figure 3. Typical vegetation and habitat along North Wailea Ike Drive near the Wailea Alanui intersection. .... 5

Figure 4. Typical vegetation and habitat along South Wailea Ike Drive near the Wailea Alanui intersection. .... 6

**LIST OF TABLES**

Table 1. Relative abundance of birds observed during point counts. .... 6

## **1.0 INTRODUCTION**

In February 2009, SWCA Environmental Consultants (SWCA) was tasked by Honua'ula Partners, LLC to conduct a flora and fauna survey at the intersection of Wailea Alanui and Wailea Ike Drive in Wailea, Maui (Figure 1). The survey was prepared in support of an environmental assessment (EA) for a proposed project at the Wailea Alanui/Wailea Ike Drive intersection. The project involves adding a signalized double right-turn movement from northbound to eastbound turning traffic on Wailea Alanui and providing two left-turn lanes for southbound traffic from Wailea Ike Drive (PBR Hawaii 2009). Modification of the Wailea Alanui/Wailea Ike Drive intersection is required as a condition of the County of Maui Ordinance No. 3554 for Honua'ula, a master-planned community located in the Kihei-Makena area.

This report summarizes the findings of the floral and fauna survey conducted by SWCA biologists John Ford, M.S. and Tiffany Thair (M.S. candidate) on March 12, 2009 at the Wailea Alanui/Wailea Ike Drive intersection. The area surveyed (referred to as the "survey area") is shown in Figure 2. The objectives of the survey were:

1. To identify and document the presence and relative abundance of all plant species which occur within the survey area;
2. To provide a general description of the vegetation on the survey area;
3. To identify and document the presence and relative abundance of bird, mammal, amphibian, reptile, and invertebrate macrofauna which occur within the survey area;
4. To map any state or federally listed candidate, threatened, or endangered species, species of concern and/ or rare (either locally or State-wide) species within the survey area.

## **2.0 DESCRIPTION OF THE SURVEY AREA**

The property is landscaped as a golf course and public right-of-way. The site is immediately bordered by the Wailea Blue Golf Course fairway and adjacent to a commercial shopping center, The Shops at Wailea. The topography of the survey area is relatively flat to gently sloping seaward toward Wailea Alanui (see Figures 2 and 3).

## **3.0 METHODS**

SWCA biologists initially conducted a literature review of natural resources within the region that encompasses the project site, and considered the concerns expressed by resource agencies in prior correspondence.

### **3.1 Ecosystems**

We evaluated the project location in light of the known occurrences of rare, threatened and endangered ecosystems in southeastern Maui.

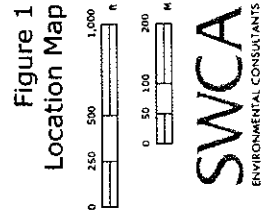
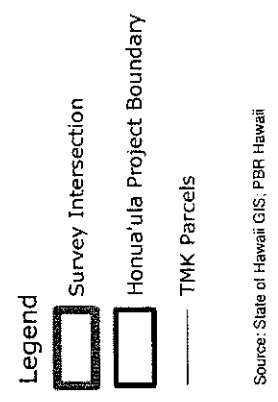
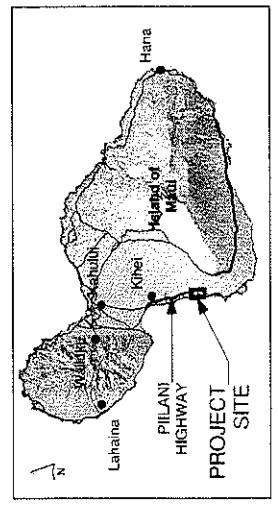
### **3.2 Flora**

SWCA staff conducted a walk-through survey method of the survey area on the morning of March 12, 2009. All plant species were documented and notes were made on plant communities, relative abundances, disturbances, and substrate types. Plant identifications were made in the field; however, plants which could not be positively identified were collected for later determination in the herbarium, and for comparison with the most recent taxonomic literature. A Garmin GPS unit was employed together with the preliminary design map to determine the survey area.

### **3.3 Fauna**

#### **3.3.1 Avifauna**

Point count surveys were conducted by SWCA biologists on March 12, 2009. Two point count stations were placed on each side of the intersection. The location of the observers at each point count site







was established in the field with a Garmin GPS receiver. Field observations of birds were recorded using 10 x 50 binoculars with a 6.5 degree field of vision. The observers also listened for vocalizations. The relative densities of species were estimated using eight-minute 50 m (164 ft) radius point counts (Lynch 1995) during peak bird activity periods (0800 - 1100) to maximize the likelihood of detecting birds during the survey. Observations were confined to the same side of the road that the point count was on since the terrain did not permit a clear field of vision for all areas across the road. Birds observed between count stations were also noted.

### 3.3.2 Other Fauna

Mammals, reptiles, amphibians, insects, and other invertebrates seen or heard during the point count surveys or between count stations were also documented.

## **4.0 FINDINGS**

The weather during our survey was overcast and rainy with strong trade winds gusting at 15-20 kts, which are not the best conditions for observing avifauna. It is unlikely that the plants found within the project area change appreciably between 'wet' and 'dry' seasons since this area is manicured year-round as a golf course and public right of way. The birds observed were indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. It is likely that additional surveys conducted at a different time of the year would likely result variations in the number and species of birds observed. Given that this site has been highly altered by human activity and is located immediately adjacent to a busy intersection, and given what is already known about wildlife in the area, additional surveys were deemed to be unnecessary.

### **4.1 Ecosystems**

No ecosystems or elements considered as 'rare' by The Nature Conservancy of Hawai'i, the Hawai'i Biodiversity Database, or Hawaii Ecosystems At Risk ([www.hear.org](http://www.hear.org)) are located within or immediately adjacent to the proposed project area. The intersection is in the center of a landscaped resort destination, mixed residential and commercial, and golf course development. There are no known lava tube caves within the boundaries of the project.

### **4.2 Flora**

No state or federally listed threatened, endangered, or candidate endangered plant species (USFWS 2009a, 2009b), or rare native Hawaiian plant species were observed within the survey area during the survey. A total of 49 plant species were recorded within the survey area. Of this total, only glossy nightshade (*Solanum americanum*) is native to the Hawaiian Islands. This indigenous species is widely distributed in Hawai'i and is generally associated with disturbed areas (Wagner et al. 1999).

The vegetation within the project site is dominated by Bermuda grass (*Cynodon dactylon*), and by monkeypod trees (*Samanea saman*) approximately 10 to 12 m (33 to 40 ft) tall (Figures 3 and 4). Along Wailea Alanui on the south side of Wailea Ike Drive, the shrub natal plum (*Carissa microcarpa*) is dominant, forming a landscaped hedge approximately 2 m (7 ft) high. Low-growing wedelia (*Sphagneticola trilobata*) is abundant along Wailea Alanui on the north side of Wailea Ike Drive. The vegetation within the median between South Wailea Ike Drive and North Wailea Ike Drive is dominated by Japanese honeysuckle (*Lonicera japonica*), bougainvillea (*Bougainvillea* sp.), and Bermuda grass. Coconut trees (*Cocos nucifera*) are widely scattered throughout the survey area. All of these species were landscaped for the golf course and adjacent rights-of-way. An inventory of all the plants observed within the survey area is included in Appendix 1 of this report.

### **4.3 Fauna**

No state or federally listed threatened, endangered, or candidate bird, mammal, or insect species were observed during our survey. The only native fauna recorded was the Pacific golden plover (*Pluvialis fulva*), an indigenous migratory bird species that occurs in Hawai'i as well as elsewhere in the world. This species is a common visitor to the Hawaiian Islands and is often seen in urban areas, such as lawns, fields, and mudflats (HAS 2005).

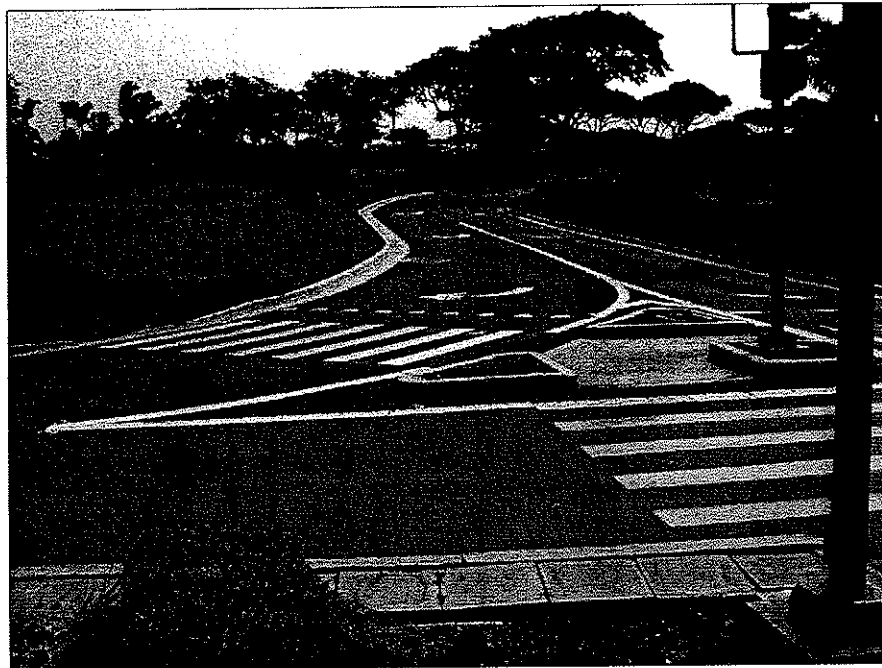
Although not seen during the survey, native pueo (*Asio flammeus sandwichensis*) may hunt along the fairways and greens at night. Pueo have been observed at Honua'ula upland from the survey area (SWCA 2009). Also not seen during our survey, the threatened Newell's shearwater (*Puffinus auricularis newelli*) and the endangered Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), are known to traverse the area.

The endangered Blackburn sphinx moth (*Manduca blackburni*) and the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), which are also known to occur in lands adjacent to the survey area, were not observed by SWCA biologists during their survey. No host plants for the endangered Blackburn sphinx moth (*Manduca blackburni*), such as the non-native tree tobacco (*Nicotiana glauca*), were observed within the survey area. No signs of caterpillars or other life stages of the Blackburn sphinx moth were documented. Blackburn sphinx moth caterpillars have been observed at Honua'ula inland of the survey area (SWCA 2009).

The endangered ae'o (*Himantopus himantopus knudseni*), the endangered 'alae ke'oke'o (*Fulica americana alai*), and the endangered 'alae 'ula (*Gallinula chloropus sandvicensis*), and the endangered Hawaiian duck (*Anas wyvilliana*), and the endangered nene or Hawaiian goose (*Branta sandvicensis*) are known to frequent water hazards and manicured fairways and greens adjacent to water hazards on landscaped golf courses in Wailea. None were observed by SWCA biologists during this study.

#### 4.3.1 Avifauna

Ten bird species were recorded during the survey, of which nine are introduced. The common myna (*Acridotheres tristis*) was the most abundant during the survey. Zebra doves (*Geopelia striata*) and spotted doves (*Streptopelia chinensis*) were also common (Table X). Migratory bird species observed during the survey include two Pacific golden plovers, three mallard ducks (*Anas platyrhynchos*), and a cattle egret (*Bulbulcus ibis*). Mallards are not native to the Hawaiian Islands and pose a threat to endangered *koloa* (*Anas wyvilliana*) due to hybridization (USFWS 2005a). Cattle egrets are common visitors to all the main Hawaiian Islands, particularly in disturbed areas (HAS 2005).



**Figure 3. Typical vegetation and habitat along North Wailea Ike Drive near the Wailea Alanui intersection.**



**Figure 4. Typical vegetation and habitat along South Wailea Ike Drive near the Wailea Alanui intersection.**

#### 4.3.2 Mammals

No mammals were observed during the survey, although it is likely that non-native feral cats (*Felis catus*), mongoose (*Herpestes javanicus*), and rats (*Rattus* spp.) occur in the area.

#### 4.3.3 Reptiles and Amphibians

There are no native reptiles or amphibians in Hawai'i (McKeown 1996). Mourning geckos (*Lepidodactylus lugubris*) were observed in tree bark on a large monkeypod tree. A gravid house gecko (*Hemidactylus frenatus*) was seen under electrical conduits on the walls of the golf cart path which pass under Wailea Ike Drive.

#### 4.3.4 Insects and Other Invertebrates

Insects and other invertebrates observed in the survey area include: monarch butterflies (*Danaus plexippus*), garden spiders (*Argiope appensa*), Asian spiny-backed spiders (*Gasteracantha mammosa*), big-headed ants (*Pheidole megacephala*), and houseflies (*Musca domestica*). Pacific beetle cockroaches (*Diploptera punctata*) were also seen scattered throughout the site under rocks and paving stones. Two non-native snail species, the giant African snail (*Achatina fulica*) and the rosy wolf snail (*Euglandina rosea*), were seen in the survey area.

### **5.0 CONCLUSIONS AND RECOMMENDATIONS**

Construction of the proposed modifications to the Wailea Alanui/Wailea Ike Drive intersection would not have a significant negative impact on the flora and fauna within the survey area, which are all found commonly throughout Maui and the main Hawaiian Islands, provided that best management practices are employed. Any outdoor lighting could result in seabird disorientation, fallout, injury and/or mortality particularly during the peak fledgling period from September 15 to December 15. Potential impacts to seabirds can be minimized by shielding outdoor lights associated with the project,

avoiding night-time construction, and providing all project staff with information regarding seabird fallout. All project lights should be shielded so the bulb can only be seen from below. This is a common and successful mitigation measure employed throughout the Hawaiian Islands. To minimize impacts to the endangered Hawaiian hoary bat, woody plants suitable for bat roosting should not be removed or trimmed during the bat birthing and pup rearing season (April to August). A qualified wildlife biologist should conduct a survey of the site for bats and other endangered species immediately before construction is scheduled to begin. Should any endangered species be found on site at that time, construction should be postponed and assistance requested from the US Fish and Wildlife Service office in Honolulu.

To the maximum extent practicable, native plants should be employed for landscaping the newly constructed intersection. If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information can be gleaned from the following sites for use in selecting appropriate native species for landscaping: <http://www.hear.org/Pier>; [http://www.botany.hawaii.edu/faculty/daehler/wra/full\\_table.asp](http://www.botany.hawaii.edu/faculty/daehler/wra/full_table.asp); and <http://www.hear.org/gcw>.

The use of plants within the Solenaceae (nightshade family) must be avoided so as not to attract endangered Blackburn sphinx moths to the roadside where they are at higher risk for injury or death.

**Table 1. Relative abundance of birds observed during point counts.**

<b>FAMILY Genus and species</b>	<b>Common Names</b>	<b>Status</b>	<b>Birds per point count</b>	<b>Abundance Rank</b>
<b>ANATIDAE</b>				
<i>Anas platyrhynchos</i>	Mallard	X	*	--
<b>CHARADRIIDAE</b>				
<i>Pluvialis fulva</i>	Pacific golden-plover, kolea	MI	1	4
<b>ARDEIDAE</b>				
<i>Bubulcus ibis</i>	Cattle egret	X	0.5	6
<b>COLUMBIDAE</b>				
<i>Streptopelia chinensis</i>	Spotted dove	X	1.5	3
<i>Geopelia striata</i>	Zebra dove	X	2.5	2
<b>ZOSTEROPIDAE</b>				
<i>Zosterops japonicus</i>	Japanese white-eye	X	0.5	6
<b>STURNIDAE</b>				
<i>Acridotheres tristis</i>	Common myna	X	7	1
<b>EMBERIZIDAE</b>				
<i>Cardinalis cardinalis</i>	Northern cardinal	X	1	4
<b>FRINGILLIDAE</b>				
<i>Carpodacus mexicanus</i>	House finch	X	0.5	6
<b>PASSERIDAE</b>				
<i>Passer domesticus</i>	House sparrow	X	*	--
<b>ESTRILDIDAE</b>				
<i>Lonchura cantans</i>	African silverbill	X	0.5	6

\* = observed outside of point count stations, X = non-native/introduced, MI = migratory indigenous (migratory bird species that occur in Hawaii naturally, as well as elsewhere in the world)

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**APPENDIX 1**  
**List of Plant Species Observed**

The following checklist is an inventory of all the plant species observed by SWCA biologists on March 12, 2009 at the intersection of Wailea Alanui and Wailea Iki Drive in Wailea, Maui. The plant names are arranged alphabetically by family and then by species into each of two groups: Monocots and Dicots. The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1990, 1999), Wagner and Herbst (1999), and Staples and Herbst (2005). Recent name changes are those recorded in the Hawaii Biological Survey series (Evenhuis and Eldredge, eds., 1999-2002).

**Status:**

- E= endemic= native only to the Hawaiian Islands.
- I= indigenous= native to the Hawaiian Islands and elsewhere.
- P = introduced by Polynesians
- X=introduced or alien = all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact (Cook's arrival in the islands in 1778).

**Location:**

- S = South Wailea Ike Dr.
- N = North Wailea Ike Dr.
- M = Median between North and South Wailea Ike Dr.

**Relative Site Abundance:**

- Abundant = forming a major part of the vegetation within the survey area.
- Common = widely scattered throughout the area or locally abundant within a portion of it.
- Uncommon = scattered sparsely throughout the area or occurring in a few small patches.
- Rare = only a few isolated individuals within the survey area.

Scientific Name and Author	Common Names	Status	Location	Relative Site Abundance
<b>MONOCOTS</b>				
<b>Arecaceae</b>				
<i>Cocos nucifera</i> L.	coconut, <i>ololani, niu</i>	X	S	Common
<i>Roystonea regia</i> (Kunth) O. F. Cook	Cuban royal palm	X	M	Uncommon
<b>Commelinaceae</b>				
<i>Commelina diffusa</i> Burm.f.	<i>hono hono, blue day flower</i>	X	S	Rare
<b>Cyperaceae</b>				
<i>Cyperus rotundus</i> L.	purple nut sedge, nut grass, <i>kili'opu</i>	X	N	Rare
<b>Liliaceae</b>				
<i>Asparagus densiflorus</i> (Kunth) Jessop	asparagus fern	X	S, N	Uncommon

Scientific Name and Author	Common Names	Status	Location	Relative Site Abundance
<i>Liriope muscari</i> (Decaisne) L. H. Bailey	lilyturf	X	M	Uncommon
<i>Ophiopogon japonicus</i> (Linnaeus filius) Ker Gawler	dwarf lilyturf, mondo grass	X	M	Uncommon
<b>Poaceae</b>				
<i>Axonopus compressus</i> (Sw.) Beauv.	broadleaf carpetgrass	X	N	Rare
<i>Cenchrus ciliaris</i> L.	buffelgrass	X	M, N	Rare
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	X	N	Rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass, manienie	X	S, N	Abundant
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass, mānienie ali'i	X	S	Rare
<i>Panicum maximum</i> Jacq.	guinea grass	X	M	Uncommon
<i>Paspalum conjugatum</i> Bergius	Hilo grass, mau'u	X	S, N	Rare
<i>Setaria gracilis</i> Kunth	yellow foxtail	X	S	Rare
<i>Sporobolus indicus</i> (L.) R. Br.	west Indian dropseed, smutgrass	X	N	Rare
<b>DICOTS</b>				
<b>Apocynaceae</b>				
<i>Carissa microcarpa</i> (Ecklon) A. DC.	natal plum	X	S	Abundant
<b>Araliaceae</b>				
<i>Centella asiatica</i> (L.) Urb.	Asiatic pennywort, pohe kula	X	N	Uncommon
<i>Hydrocotyle bowlesoides</i> Mathias & Constance		X	S, N	Uncommon
<i>Schefflera actinophylla</i> (Endl.) Harms	octopus tree	X	S, N	Rare
<b>Asteraceae</b>				
<i>Ageratum conyzoides</i> L.	maile hohono, maile honohono, maile kula	X	M	Rare
<i>Bidens pilosa</i> L.	Spanish needle, beggartick, ki, ki nehe, ki pi	X	M	Rare
<i>Pluchea indica</i> (L.) Less	Indian fleabane, Indian pluchea	X	S	Rare
<i>Sonchus asper</i> (L.) J. Hill	prickly sow thistle	X	N	Rare
<i>Sonchus oleraceus</i> L.	sow thistle, pualele	X	S, N	Uncommon
<i>Sphagneticola trilobata</i> (L.) Pruski	wedelia	X	N	Abundant
<b>Bignoneaceae</b>				
<i>Spathodea campanulata</i> P. Beauv.	African tulip tree, fountain tree	X	N	Rare
<b>Boraginaceae</b>				
<i>Tournefortia argentea</i> L. fil.	tree heliotrope	X	S	Rare

Scientific Name and Author	Common Names	Status	Location	Relative Site Abundance
<b>Brassicaceae</b>				
<i>Lepidium virginicum</i> L.	pepperwort, peppergrass	X	N	Rare
<b>Caprifoliaceae</b>				
<i>Lonicera japonica</i> Thunb.	Japanese honeysuckle, honekakala	X	M	Abundant
<b>Convolvulaceae</b>				
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	morning glory	X	M	Common
<i>Ipomoea triloba</i> L.	little bell	X	M	Common
<b>Euphorbiaceae</b>				
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	X	N	Uncommon
<i>Chamaesyce prostrata</i> (Aiton) Small	prostrate spurge	X	N	Uncommon
<i>Codiaeum variegatum</i> (Linnaeus) Blume	croton	X	M	Uncommon
<b>Fabaceae</b>				
<i>Desmanthus pernamibucanus</i> (L.) Thell.	slender mimosa, virgate mimosa	X	M	Rare
<i>Leucaena leucocephala</i> (Lam.) de Wit	koa haole	X	S	Rare
<i>Prosopis pallida</i> (Humb. & Bonpl. Ex Willd.) Kunth	kiawe, algarroba, mesquite	X	N	Uncommon
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod, rain tree, 'ohai, pū 'ohai	X	S, M, N	Abundant
<i>Senna surattensis</i> (N.L. Burm.) H. Irwin & Barneby	<i>kolomona, kalamona</i>	X	S	Rare
<b>Malvaceae</b>				
<i>Hibiscus rosa-sinensis</i> L.	red hibiscus, Chinese hibiscus, aloalo	X	S	Uncommon
<i>Malva parviflora</i> L.	cheese weed	X	N	Rare
<b>Moraceae</b>				
<i>Ficus</i> sp. L.	fig	X	N	Rare
<b>Nyctaginaceae</b>				
<i>Boerhavia coccinea</i> Mill.		X	N	Uncommon
<i>Bougainvillea</i> sp.	bougainvillea	X	M, N	Abundant
<b>Oxalidaceae</b>				
<i>Oxalis corniculata</i> L.	yellow wood sorrel, 'ihi 'ai, 'ihi 'awa	P?	S, N	Uncommon



Scientific Name and Author	Common Names	Status	Location	Relative Site Abundance
<b>Plumbaginaceae</b>				
<i>Plumbago auriculata</i> Lam.		X	N	Uncommon
<b>Portulacaceae</b>				
<i>Portulaca oleracea</i> L.	pigweed, 'ākulikuli kula, 'ākulikuli lau li'i, 'ihi	X	S, N	Uncommon
<b>Solanaceae</b>				
<i>Solanum americanum</i> Mill.	glossy nightshade, pōpōlo	I	N	Uncommon

# **APPENDIX C.**

## **Traffic Impact Analysis Report**

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# TRAFFIC IMPACT ANALYSIS REPORT WAILEA ALANUI DRIVE/WAILEA IKE DRIVE INTERSECTION IMPROVEMENTS WAILEA, MAUI, HAWAII

## FINAL

June 5, 2009

Prepared for:

Honua'ula Partners LLC  
381 Huku Li'i Place, Suite 202  
Kihei, Hawaii 96753



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Honolulu • Wailuku • Hilo, Hawaii

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**TRAFFIC IMPACT ANALYSIS REPORT  
WAILEA ALANUI DRIVE/WAILEA IKE DRIVE  
INTERSECTION IMPROVEMENTS**  
Wailea, Maui, Hawaii

**FINAL**

Prepared for  
**Honua'ula Partners LLC**

Prepared by  
**Austin, Tsutsumi & Associates, Inc.**  
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## TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION.....	1-3
A. Background .....	1
B. Location.....	1
C. Study Methodology.....	2
II. EXISTING CONDITIONS .....	3-7
A. Roadway System and Intersection Configuration .....	3
B. Existing Traffic Volumes.....	4
C. Existing Traffic Conditions Analysis and Observations .....	6
III. FUTURE TRAFFIC FORECAST .....	7-11
A. Defacto Growth Rate.....	7
B. Traffic Forecasts for Known Developments.....	8
IV. TRAFFIC CONDITIONS AND ANALYSIS .....	12-13
A. Year 2022 WITHOUT Project Traffic and Analysis.....	12
B. Year 2022 WITH Project Traffic and Analysis .....	12
V. SUMMARY AND RECOMMENDATIONS .....	13-14
REFERENCES .....	15



**TABLE OF CONTENTS**  
**Cont'd**

	<u>Page</u>
<b>TABLES</b>	
1. KNOWN DEVELOPMENT'S LAND USES AND TRIP GENERATION IN YEAR 2016 .....	10
2. KNOWN DEVELOPMENT'S TRIP GENERATION RATES.....	11
<b>FIGURES</b>	
1. LOCATION MAP .....	2
2. EXISTING LANE CONFIGURATION .....	5
3. EXISTING CONDITIONS TRAFFIC VOLUMES AND LEVELS OF SERVICE .....	7
4. YEAR 2022 WITHOUT PROJECT TRAFFIC VOLUMES AND LEVELS OF SERVICE .....	12
5. YEAR 2016 WITH PROJECT TRAFFIC VOLUMES AND LEVELS OF SERVICE .....	13



## TABLE OF CONTENTS Cont'd

### APPENDICES

- A. TRAFFIC COUNT DATA
- B. LEVEL OF SERVICE CRITERIA
- C. LEVEL OF SERVICE CALCULATIONS
- D. LEVEL OF SERVICE SUMMARY TABLE



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**TRAFFIC IMPACT ASSESSMENT REPORT**

**WALEA ALANUI DRIVE/WALEA IKE DRIVE INTERSECTION**

**IMPROVEMENTS**

**Wailea, Maui, Hawaii**

**I. INTRODUCTION**

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the traffic impacts at the Wailea Alanui Drive/Wailea Ike Drive intersection. This assessment is based upon the traffic impacts resulting from the buildout of three proposed developments; Honua'ula (formally known as Wailea 670), Wailea Resort, and Makena Resort.

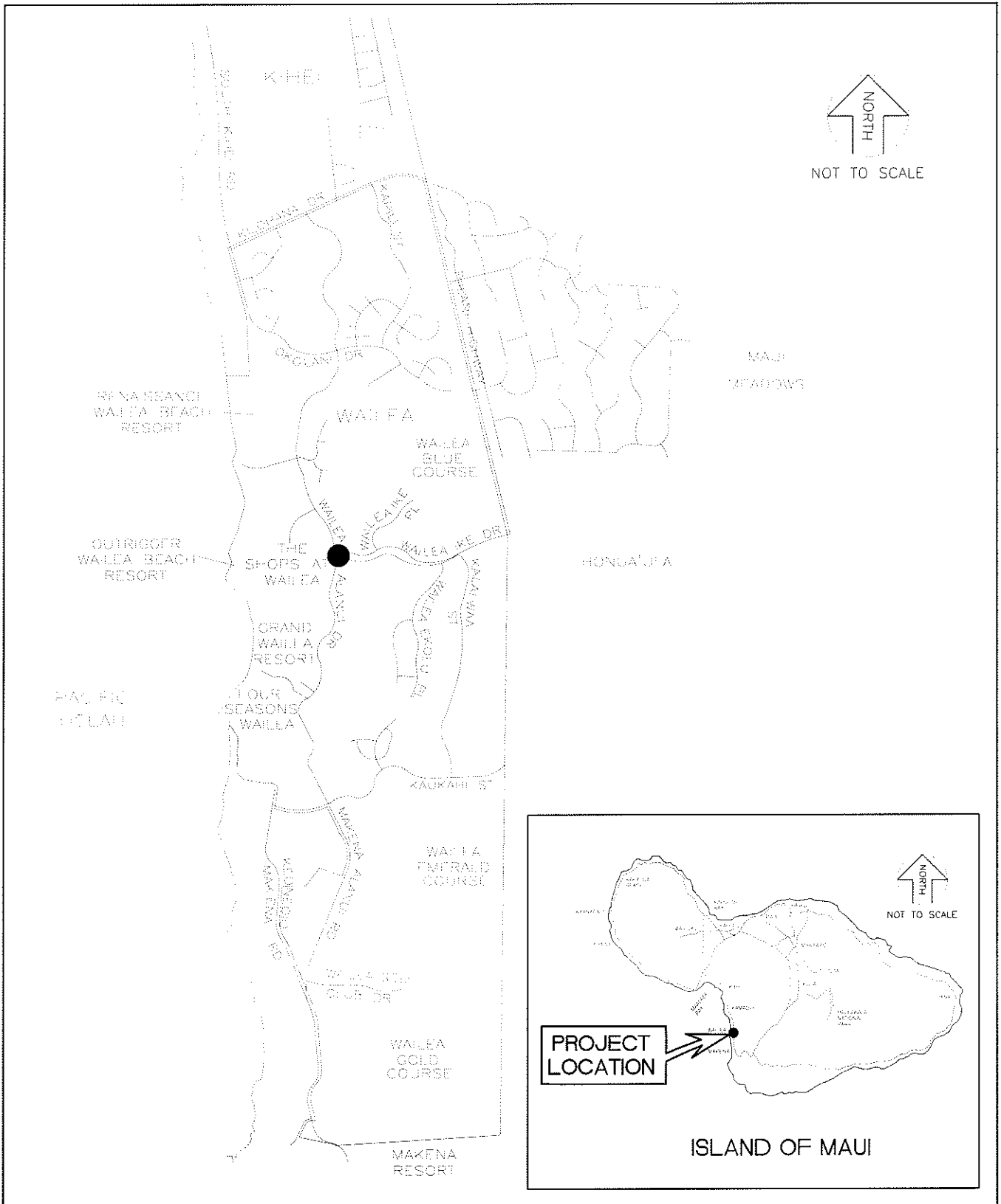
**A. Background**

As a Zoning Condition of Honua'ula, improvements to the Wailea Alanui Drive/Wailea Ike Drive intersection are required. Hereinafter, the intersection improvements at Wailea Alanui Drive/Wailea Ike Drive, as required by the Zoning Condition, shall be referred to as Project.

**B. Location**

The Wailea Alanui Drive/Wailea Ike Drive intersection is bounded by the Shops at Wailea to the west and Wailea Blue Golf Course to the east. Figure 1 shows the location of the intersection of Wailea Alanui Drive/Wailea Ike Drive.





WALEA ALANUI DRIVE/  
 WALEA IKE DRIVE  
 INTERSECTION IMPROVEMENTS

**AUSTIN, TSUTSUMI & ASSOCIATES, INC.**  
 ENGINEERS, SURVEYORS • HONOLULU, HAWAII

**LOCATION MAP**

**FIGURE**  
**1**



### C. Study Methodology

This study will address the following:

1. Existing traffic operating conditions at the Wailea Alanui Drive/Wailea Ike Drive intersection.
2. Traffic Projections for Year 2022 includes traffic generated by an annual defacto growth rate consistent with the Maui Travel Demand Forecasting Model and known developments in the vicinity of the Project. These known developments in consideration are projects within Honua'ula, Wailea Resort, and Makena Resort that are currently under construction or are known new/future developments that are expected to affect traffic demand and operations within the study area.
3. Identify potential traffic conditions for Year 2022 projected traffic without the improvements to Wailea Alanui Drive/Wailea Ike Drive intersection, and Year 2022 projected traffic with the improvements to Wailea Alanui Drive/Wailea Ike Drive intersection.
4. Recommendations for improvements or other mitigative measures, as appropriate, to reduce or eliminate the adverse impacts resulting from traffic generated by the surrounding developments.

## II. EXISTING CONDITIONS

### A. Roadway System and Intersection Configuration.

The following are brief descriptions of the existing roadway network in the vicinity of the Project:

Wailea Ike Drive - is a four-lane, divided, east/west County collector roadway that is striped as a two-lane roadway just before its connection to Pi'ilani Highway. Wailea Ike Drive is the main entrance to the Wailea Resort and connects Pi'ilani Highway with Wailea Alanui Drive. Its vertical alignment is a relatively steep grade with a posted speed limit of 30 mph. Wailea Ike Drive, from its intersection with Wailea Ekolu Place to Wailea Alanui Drive, has a major drainage channel in its median area.



Wailea Alanui Drive - is a four-lane, divided, north/south County collector roadway between Kaukahi Street to the south and Okolani Drive to the north. North of Okolani Drive, Wailea Alanui Drive narrows to a two-lane, undivided, north/south County collector road to its intersection with Kilohana Drive. Wailea Alanui Drive becomes Makena Alanui Road at its intersection with Kaukahi Street. The segment of Wailea Alanui Drive between Wailea Ike Drive and Kaukahi Street has a rolling profile and meandering alignment. The segment of Wailea Alanui Drive north of Wailea Ike Drive has a less pronounced rolling profile and meandering alignment. The posted speed limit on Wailea Alanui Drive is 30 mph.

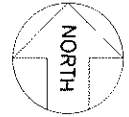
Wailea Alanui Drive/Wailea Ike Drive - forms a signalized tee-intersection with Wailea Ike Drive as the stem of the "tee." The lane configuration at each approach is as follows:

- Northbound approach: Accommodated by a through lane, and an exclusive right-turn lane. The right-turn lane is controlled by a yield sign.
- Southbound approach: Accommodated by two through lanes and an exclusive left-turn lane.
- Westbound approach: Accommodated by an exclusive left-turn lane and an exclusive right-turn lane controlled by a stop sign.

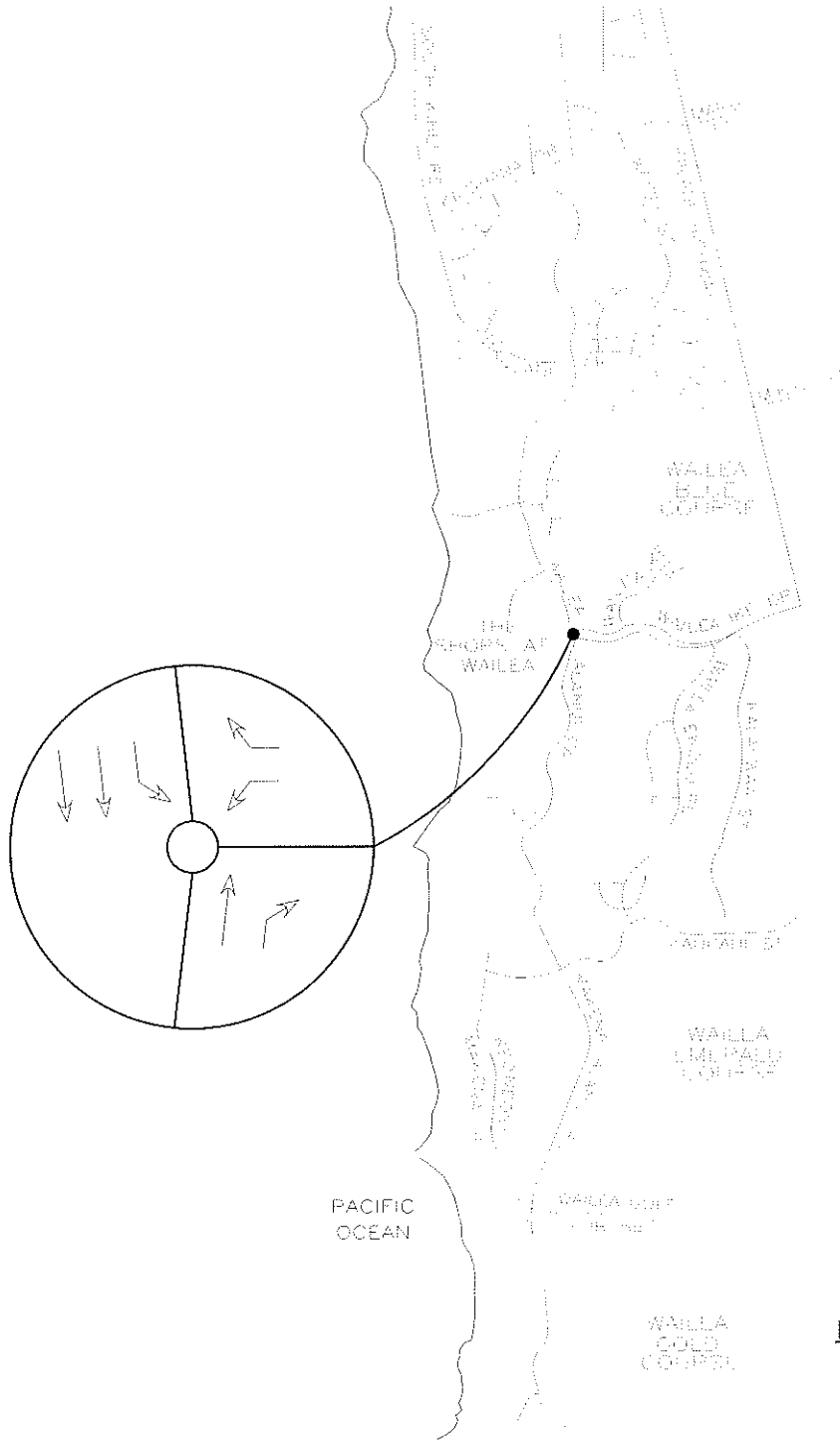
Figure 2 shows the existing lane configuration at the study intersections.

## **B. Existing Traffic Volumes**

The AM and PM Peak hour turning movement data utilized in this report were collected on Tuesday June 24, 2008 and Wednesday June 25, 2008 at the Wailea Alanui Drive/Wailea Ike Drive signalized intersection. Based on traffic count data, the peak hours of traffic were determined to be from 7:00 AM to 8:00 AM and 4:00 PM to 5:00 PM on the weekdays. The traffic count data is provided in Appendix A.



NOT TO SCALE



**LEGEND:**

- ◊ - UNSIGNALIZED INTERSECTION
- - SIGNALIZED INTERSECTION
- - STOP-CONTROLLED APPROACH

WAILEA ALANUI DRIVE/ WAILEA IKE DRIVE INTERSECTION IMPROVEMENTS	<b>ATA</b> AUSTIN, TSUTSUMI & ASSOCIATES, INC. ENGINEERS, SURVEYORS	HONOLULU, HAWAII	FIGURE
	EXISTING LANE CONFIGURATION		<b>2</b>



### **C. Existing Traffic Conditions Analysis and Observations**

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual – Special Report 209 (HCM), dated 2000, methods for calculating volume to capacity ratios, delays and corresponding Levels of Service were utilized in this study. LOS definitions for signalized intersections are provided in Appendix B.

#### **Methodology**

Analysis for the Wailea Alanui Drive/Wailea Ike Drive intersection were performed using the traffic analysis software Synchro, which is able to prepare Highway Capacity Manual (HCM) reports. The reports contain quantitative delay results, as based on intersection lane geometry, signal timing, and hourly traffic volume.

Based on the vehicular delay at the intersection, a LOS is assigned (see Appendix B) as a qualitative measure of performance. These results, as confirmed or refined by field observations, constitute the technical analysis that will form the basis of the recommendations outlined in this report.

#### **Field Observations**

The general path vehicles utilize when traveling between areas north of Wailea and south in Makena are Pi'ilani Highway, Wailea Ike Drive, and Wailea Alanui Drive. Therefore, at the Wailea Alanui Drive/Wailea Ike Drive intersection, the turning movement volumes are the higher volumes.

In its present configuration, Wailea Alanui Drive/Wailea Ike Drive intersection operates well. The westbound left-turn movement varied from 3 to 8 cars per cycle, but all vehicles were able to clear the intersection during one cycle length.

#### **Results of Intersection Analysis**

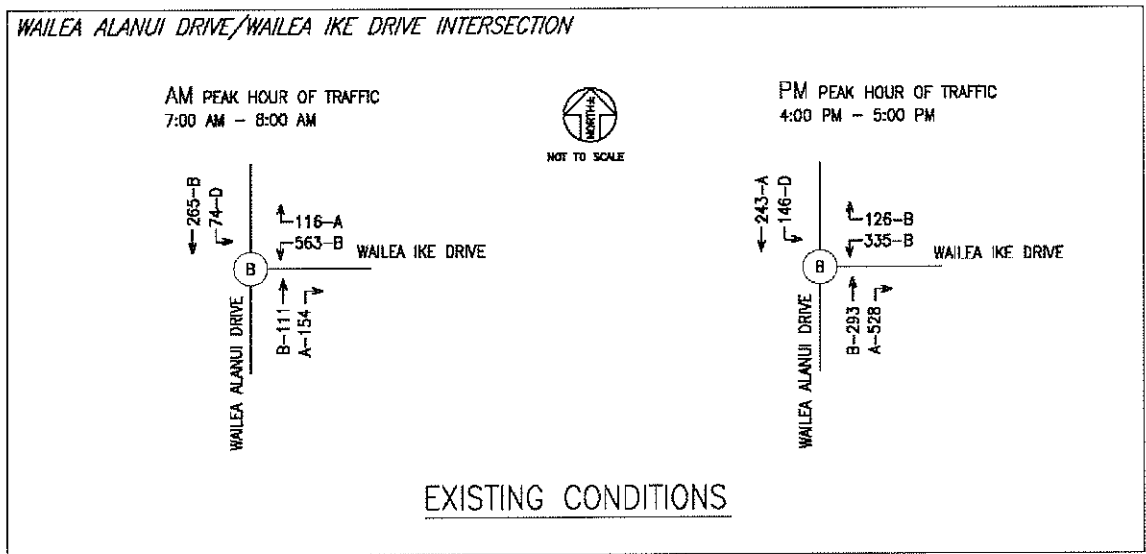
The analysis and observations described below are based on prevailing conditions during the time at which the data was collected. Hereinafter,



observations that are expressed as ongoing and current shall represent the conditions that prevailed at the time at which the data was collected.

During the AM and PM peak hour of traffic all movements operate at LOS D or better. Figure 3 shows the existing traffic volumes and LOS at the Wailea Alanui Drive/Wailea Ike Drive intersection.

Figure 3: Existing Conditions Traffic Volumes and LOS



### III. FUTURE TRAFFIC FORECAST

Year 2022 was selected to reflect the full build-out of Honua'ula, Wailea Resort and Makena Resort. Traffic projections were formulated by applying a defacto growth rate and trips generated by known developments in the vicinity of the Project.

#### A. Defacto Growth Rate

The growth rate of an area is the natural percentage by which an area will grow over a period of time. The Maui Travel Demand Forecasting Model was utilized to determine a defacto growth rate in the vicinity of the Project. Since Honua'ula, Wailea Resort, and Makena Resort are the main projects proposed in the Wailea/Makena area, data from the Maui Travel Demand Forecasting Model was adjusted to project growth excluding these three projects. The results from the Maui Travel Demand Forecasting Model show a defacto growth rate of



approximately 0.5 percent per year. Therefore, a defacto growth rate 7.2 percent for Year 2022 was applied to existing traffic volumes.

## **B. Traffic Forecasts for Known Developments**

Known developments to be constructed or completed by Year 2022 are Honua'ula, Wailea Resort and Makena Resort, and the Grand Wailea Resort Renovations which are further described below. Peak hour vehicular trips were estimated by applying appropriate trip generation rates from the Trip Generation, 8<sup>th</sup> Edition, published by the Institute of Transportation Engineers (ITE) and the Resort Residential Trip Generation Rate Development prepared by Parsons Brinkerhoff Quade & Douglas, Inc. dated October 2, 2006 as accepted by the SDOT, (herein after referred to as PB resort rate). Vehicular trips generated from the known developments were distributed to the roadway network based on distribution obtained from the Maui Travel Demand Forecasting Model.

Honua'ula is comprised of the area east of Pi'ilani Highway and Wailea Ike Drive, south of Maui Meadows Subdivision and east of Wailea Road. Honua'ula proposes to construct approximately 26,000 square feet of Office Space, 74,000 square feet of Commercial space, 450 Multi-Family Affordable Units, 300 Multi-Family Market Rate Units, and 400 Single-Family Units. An estimation of the percentage of internal trip capture was obtained from the ITE Trip Generation Handbook, Second Edition, which was determined to be approximately 15 percent. The internal trip capture was only applied to the PM peak hour of traffic since commercial areas are typically closed during the AM peak hour of traffic. The 15 percent internal trip capture rate was applied to the number of residential trips and the result was applied to the commercial trips, in order to match the number of internal trips traveling between the residential areas and commercial areas. Internal trips are assumed within Honua'ula.

Wailea Resort is comprised of the area west of Pi'ilani Highway, north of Makena Road, east of Makena Alanui and the Pacific Ocean, and south of Kilohana Drive. Currently, Wailea Resort has constructed most of its parcels. Wailea Resort proposes to construct 12,000 square feet of Grocery space, 30,850 square feet of Retail space, 12,200 square feet of Office space, 8,340



square feet of Restaurant space, 164 Multi-Family Units, and 234 Single-Family Units.

Within the Wailea Resort, Wailea Gateway and Kai Malu (MF-8) was under construction at the time of data collection. Since traffic studies for these Wailea Resort developments were completed, trip generation volumes and distribution were obtained from the Traffic Impact Analysis Report for Wailea MF-8, dated May 13, 2004 and the Traffic Impact Analysis Report for Wailea Gateway, dated March 6, 2006, both prepared by Phillip Rowell and Associates. Kai Malu (MF-8) is located south of Okolani Drive, east of Wailea Alanui Drive, and north of Pi'ilani Highway, with access from Okolani Drive. Kai Malu (MF-8) proposes to construct 153 multi-family units by Year 2016. Wailea Gateway is located on the northwest corner of the Pi'ilani Highway/Wailea Ike Drive intersection with access from Wailea Ike Drive. Wailea Gateway proposes to construct 32,000 square feet of commercial space to be utilized by small businesses, small restaurants, and small retail shops.

Also within the Wailea Resort, Grand Wailea Resort proposes to renovate two existing restaurants, construct 310 additional hotel rooms, an additional bar, a new cultural center and garden, and additional parking spaces by Year 2016. The Grand Wailea Resort is located south of the Shops at Wailea, east of the Pacific Ocean and west of Wailea Alanui Drive. Trip generation volumes and distribution were obtained from the Traffic Impact Report for the Grand Wailea Resort Renovation, dated January 2009, prepared by Wilson Okamoto Corporation.

Makena Resort is comprised of the area east of the Pacific Ocean and south of Makena Road. Makena Resort proposes to construct 179 Multi-Family Luxury Units and 370 Single-Family Luxury Units.

Table 1 shows the Known Developments Land Uses and Trip Generation and Table 2 shows the Known Developments Trip Generation Rates for the known developments which utilized the ITE Trip Generation, 8<sup>th</sup> Edition.



<b>Table 1</b>						
<b>Known Development's Land Uses and Trip Generation</b>						
	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
<b>WAILEA RESORT *</b>						
SF-8	20	57	77	64	37	101
MF-6	13	37	50	41	23	64
MF-10	118	98	216	207	242	449
MF-16	6	17	23	15	8	23
MF-7	8	34	42	33	15	48
SF-5	10	27	37	28	16	44
SF-11	6	15	21	14	7	21
MF-15	7	33	40	31	15	46
MF-12/13/SF-7A	49	118	167	227	174	401
MF-9	11	49	60	47	23	70
Business I	9	43	52	41	20	61
<b>SUBTOTAL</b>	<b>257</b>	<b>528</b>	<b>785</b>	<b>748</b>	<b>580</b>	<b>1328</b>
<b>MAKENA RESORT **</b>						
Single-Family Resort Units	108	67	175	91	84	175
Multi-Family Resort Units	50	62	112	74	96	170
<b>SUBTOTAL</b>	<b>158</b>	<b>129</b>	<b>287</b>	<b>165</b>	<b>180</b>	<b>345</b>
<b>HONU'A'ULA ***</b>						
VMX (General Office Building)	57	7	64	19	89	108
VMX (Commercial)	100	62	162	303	313	616
MF Affordable Housing	8	34	42	33	15	48
MF Townhouse	5	20	25	20	9	29
SF Detached Housing	35	24	59	30	29	59
MF Luxury Villas	15	21	36	28	26	54
<b>SUBTOTAL</b>	<b>220</b>	<b>168</b>	<b>388</b>	<b>433</b>	<b>481</b>	<b>914</b>
<b>YEAR 2016 TOTAL</b>	<b>635</b>	<b>825</b>	<b>1460</b>	<b>1346</b>	<b>1241</b>	<b>2587</b>

DU = Dwelling Units

SF = Single-Family

MF = Multi-Family

VMX = Village Mixed Use

\* Trips generated by these developments were estimated by applying appropriate rates contained in the Institute of Transportation Engineers, Trip Generation, 8th Edition.

\*\* Makena Resort Trips generated by these developments were estimated by applying Parsons Brinckerhoff's (PB) 2006 single-family and multi-family resort residential trip rates.

\*\*\* Both ITE Trip Generation Rates and PB rates were used to generate trips

*Note: Does not include trips generated by Kai Malu Project (MF-8), Wailea Gateway, and Wailea Resort Renovations. Volumes obtained by Traffic Studies.*

Table 2 Known Development's Trip Generation Rates						
Land Use	Independent Variable (X)	Average Daily Weekday Rate	AM Peak Hour of Traffic		PM Peak Hour of Traffic	
			Rate	% Entering	Rate	% Entering
Single-Family Detached Housing (ITE Land Use 210)	DU	$\ln(T) = 0.92\ln(X) + 2.71$	$T = 0.70(X) + 9.74$	25%	$\ln(T) = 0.90\ln(X) + 0.51$	63%
Residential Condominium/Townhouse (ITE Land Use 230)	DU	$\ln(T) = 0.87\ln(X) + 2.46$	$\ln(T) = 0.80\ln(X) + 0.26$	61%	$\ln(T) = 0.82\ln(X) + 0.32$	67%
Supermarket (ITE Land Use 850)	1000 SF GFA	$\ln(T) = 66.95\ln(X) + 1391.56$	3.59	63%	10.5	51%
Retail (ITE Land Use 814)	1000 SF GFA	$\ln(T) = 42.78\ln(X) + 37.66$	$\ln(T) = 4.91\ln(X) + 115.59$	48%	$\ln(T) = 2.40\ln(X) + 21.48$	44%
General Office Building (ITE Land Use 710)	1000 SF GFA	$\ln(T) = 0.77\ln(X) + 3.65$	$\ln(T) = 0.80\ln(X) + 1.55$	88%	$\ln(T) = 1.12\ln(X) + 78.81$	17%
Restaurant (ITE Land Use 932)	1000 SF GFA	127.15	11.52	52%	11.15	59%
Shopping Center (ITE Land Use 820)	1000 SF GFA	$\ln(T) = 0.65\ln(X) + 5.83$	1.00	61%	$\ln(T) = 0.67\ln(X) + 3.37$	49%
Multi-Family Resort Residential * (PB Trip Generated Rate)	DU	N/A	0.22	40%	0.34	49%
Single-Family Resort Residential * (PB Trip Generated Rate)	DU	N/A	0.46	58%	0.46	50%

DU = Dwelling Units

SF GFA = Square Feet of Gross Floor Area

T = Number of Trip Ends

X = Independent Variable

Source: Institute of Transportation Engineers, Trip Generation, 8th Edition.

Source: \* Parsons Brinckerhoff's 2006 single-family and multi-family resort residential trip rates.



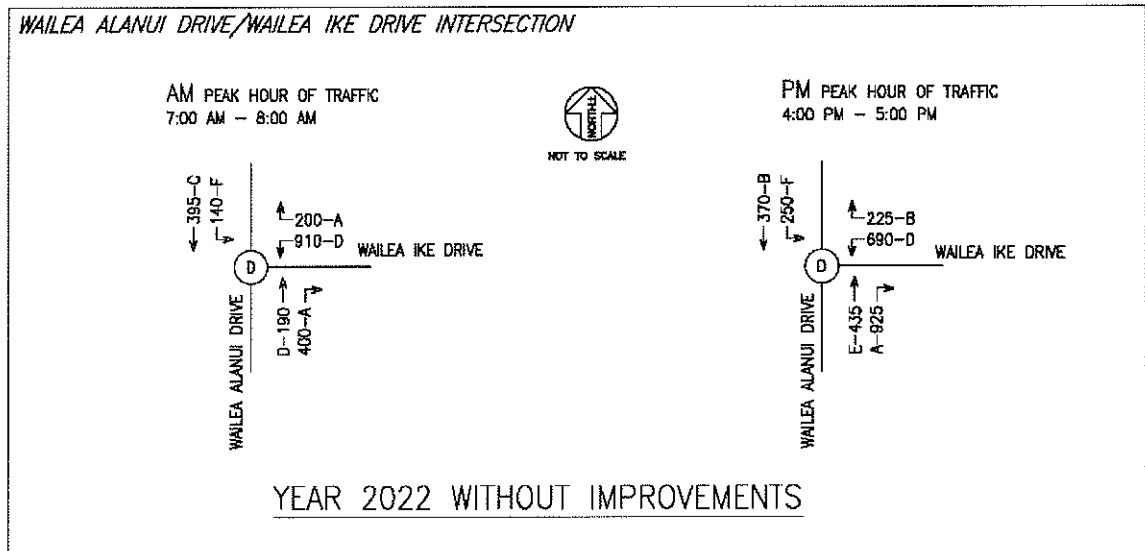
### III. TRAFFIC CONDITIONS AND ANALYSIS

#### A. Year 2022 WITHOUT Project Traffic and Analysis

With projected traffic volumes, due to a defacto growth rate of 0.5 percent and the generated trips from the known developments, analyses show for the Wailea Alanui Drive/Wailea Ike Drive intersection the southbound left-turn will operate at LOS F during the AM and PM peak hour of traffic, without the Project. Additionally, during the PM peak hour of traffic, the northbound through movement will operate at LOS E.

Figure 4 shows the Year 2022 Without Project Traffic Volumes and LOS at the Wailea Alanui Drive/Wailea Ike Drive intersection.

Figure 4: Year 2022 WITHOUT Project Traffic Volumes and LOS



#### B. Year 2022 WITH Project Traffic and Analysis

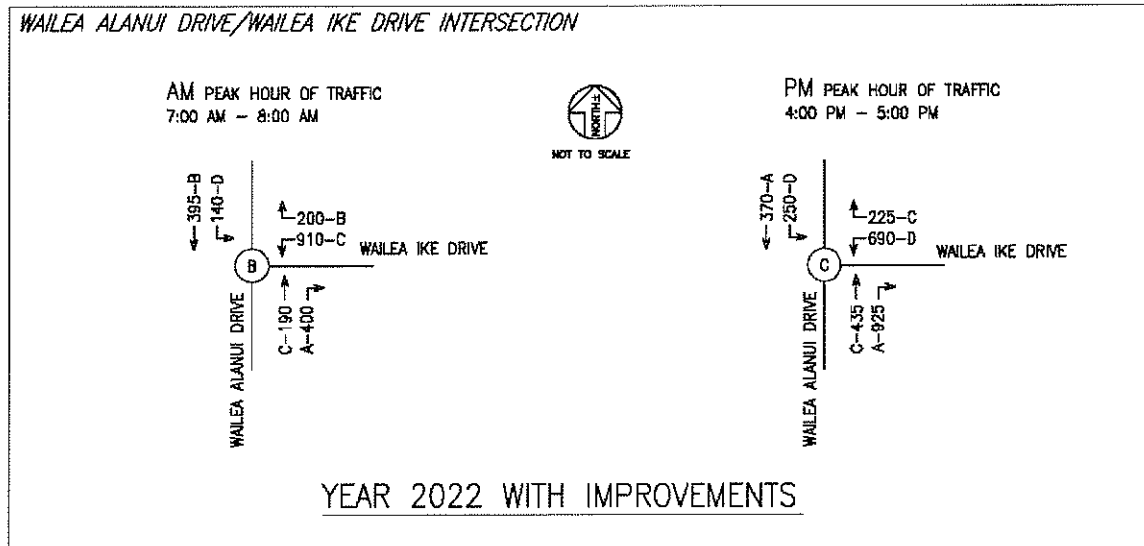
Per Honua'ula's Zoning Condition No. 2e, the Wailea Alanui Drive/Wailea Ike Drive intersection will be improved to the following lane configuration:

- Northbound Approach: Provide an exclusive through lane and two exclusive right-turn lanes. Signalize the two exclusive right-turn lanes.
- Southbound Approach: Provide an exclusive left-turn lane and two exclusive through lanes.

- Westbound Approach: Provide two exclusive left-turn lanes and an exclusive right-turn lane.

With the Project, the Wailea Alanui Drive/Wailea Ike Drive intersection will operate at LOS D or better during both the AM and PM peak hours of traffic. Figure 5 shows the Year 2022 With Project Traffic Volumes and LOS at the Wailea Alanui Drive/Wailea Ike Drive intersection.

Figure 5: Year 2022 WITH Project Traffic Volumes and LOS



Appendix D shows the level-of-service summary table at the Wailea Alanui Drive/Wailea Ike Drive intersection.

#### IV. Summary and Recommendations

As a Zoning Condition, Honua'ula is required to improve the Wailea Alanui Drive/Wailea Ike Drive intersection. Improvements to the intersection are as follows:

- Northbound Approach: Provide an exclusive through lane and two exclusive right-turn lanes. Signalize the two exclusive right-turn lanes.
- Westbound Approach: Provide two exclusive left-turn lanes and an exclusive right-turn lane.

The existing conditions show that the intersection operates well at LOS D during both the AM and PM peak hours of traffic. Field observations show that vehicles would



queue on the westbound left-turn movement however, clear within one signal cycle.

It is anticipated that full-build out of Honua'ula, Wailea Resort, and Makena Resort will be completed by Year 2022. Additionally, it is assumed, based on the Maui Travel Demand Forecasting Model, a defacto growth rate of 0.5 percent will occur annually.

With Year 2022 projected traffic volumes, the Wailea Alanui Drive/Wailea Ike Drive intersection southbound left-turn will operate at LOS F during the AM and PM peak hours of traffic without the Project. Additionally the northbound through movement will operate at LOS E during the PM peak hour of traffic.

With Year 2022 projected traffic volumes and the Project, all movements will operate at LOS D or better during the AM and PM peak hours of traffic. Therefore, with the Project, the Wailea Alanui Drive/Wailea Ike Drive will operate sufficiently and no further improvements are recommended.



## REFERENCES

1. Institute of Transportation Engineers, Trip Generation, 8<sup>th</sup> Edition
2. Institute of Transportation Engineers, Trip Generation Handbook, and ITE Recommended Practice, 2001
3. Phillip Rowell and Associates, Traffic Impact Analysis Report for Wailea Gateway, March 6, 2006.
4. Phillip Rowell and Associates, Traffic Impact Analysis Report for Wailea MF-8, May 13, 2004.
5. Transportation Research Board, Highway Capacity Manual, 2000.
6. Wilson Okamoto Corporation, Traffic Impact Report for the Grand Wailea Resort Renovation, January 2009.



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# APPENDICES

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# APPENDIX A

## TRAFFIC COUNT DATA

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Austin, Tsutsumi and Associates  
 501 Sumner Street, Suite 521  
 Honolulu, Hawaii 96817  
 Ph: 533-3646 Fax: 526-4267

File Name : Wailea Alanui - Wailea Ike AM  
 Site Code : 00000000  
 Start Date : 6/25/2008  
 Page No : 1

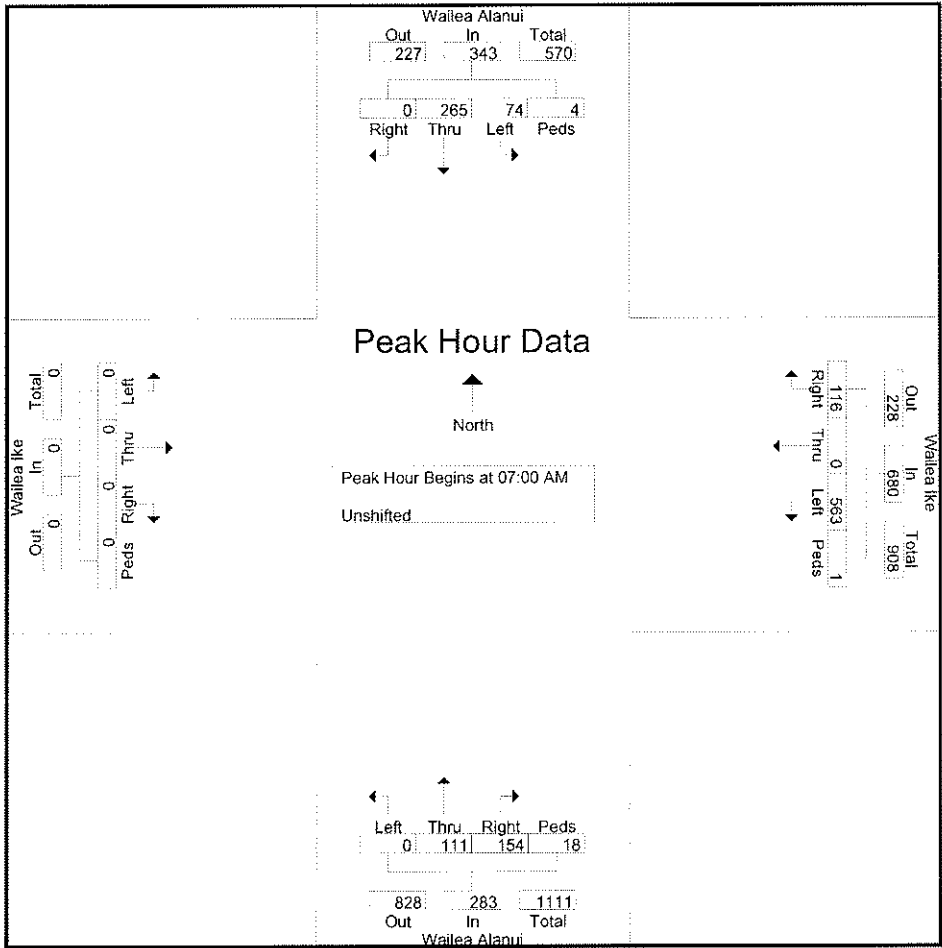
Groups Printed- Unshifted

Start Time	Wailea Alanui From North				Wailea Ike From East				Wailea Alanui From South				Wailea Ike From West				Int.	Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds		
06:30 AM	0	49	11	1	22	0	95	1	36	18	0	4	0	0	0	0	237	
06:45 AM	0	60	10	0	16	0	147	0	25	10	0	8	0	0	0	0	276	
Total	0	109	21	1	38	0	242	1	61	28	0	12	0	0	0	0	513	
07:00 AM	0	57	20	2	13	0	140	0	43	23	0	1	0	0	0	0	299	
07:15 AM	0	65	20	1	22	0	129	0	37	19	0	4	0	0	0	0	297	
07:30 AM	0	76	21	1	45	0	144	1	27	39	0	10	0	0	0	0	364	
07:45 AM	0	67	13	0	36	0	150	0	47	30	0	3	0	0	0	0	346	
Total	0	265	74	4	116	0	563	1	154	111	0	18	0	0	0	0	1306	
08:00 AM	0	45	16	0	20	2	110	0	32	26	0	3	0	0	0	0	254	
08:15 AM	0	50	20	0	37	0	75	0	37	31	0	4	0	0	0	0	254	
Grand Total	0	469	131	5	211	2	990	2	284	196	0	37	0	0	0	0	2327	
Apprch %	0	77.5	21.7	0.8	17.5	0.2	82.2	0.2	54.9	37.9	0	7.2	0	0	0	0		
Total %	0	20.2	5.6	0.2	9.1	0.1	42.5	0.1	12.2	8.4	0	1.6	0	0	0	0		

Austin, Tsutsumi and Associates  
 501 Sumner Street, Suite 521  
 Honolulu, Hawaii 96817  
 Ph: 533-3646 Fax: 526-4267

File Name : Wailea Alanui - Wailea Ike AM  
 Site Code : 00000000  
 Start Date : 6/25/2008  
 Page No : 2

Start Time	Wailea Alanui From North					Wailea Ike From East					Wailea Alanui From South					Wailea Ike From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	57	20	2	79	13	0	140	0	153	43	23	0	1	67	0	0	0	0	0	299
07:15 AM	0	65	20	1	86	22	0	129	0	151	37	19	0	4	60	0	0	0	0	0	297
07:30 AM	0	76	21	1	98	45	0	144	1	190	27	39	0	10	76	0	0	0	0	0	364
07:45 AM	0	67	13	0	80	36	0	150	0	186	47	30	0	3	80	0	0	0	0	0	346
Total Volume	0	265	74	4	343	116	0	563	1	680	154	111	0	18	283	0	0	0	0	0	1306
% App. Total	0	77.3	21.6	1.2	17.1	0	82.8	0.1		54.4	39.2	0	6.4		0	0	0	0	0		
PHF	.000	.872	.881	.500	.875	.644	.000	.938	.250	.895	.819	.712	.000	.450	.884	.000	.000	.000	.000	.000	.897

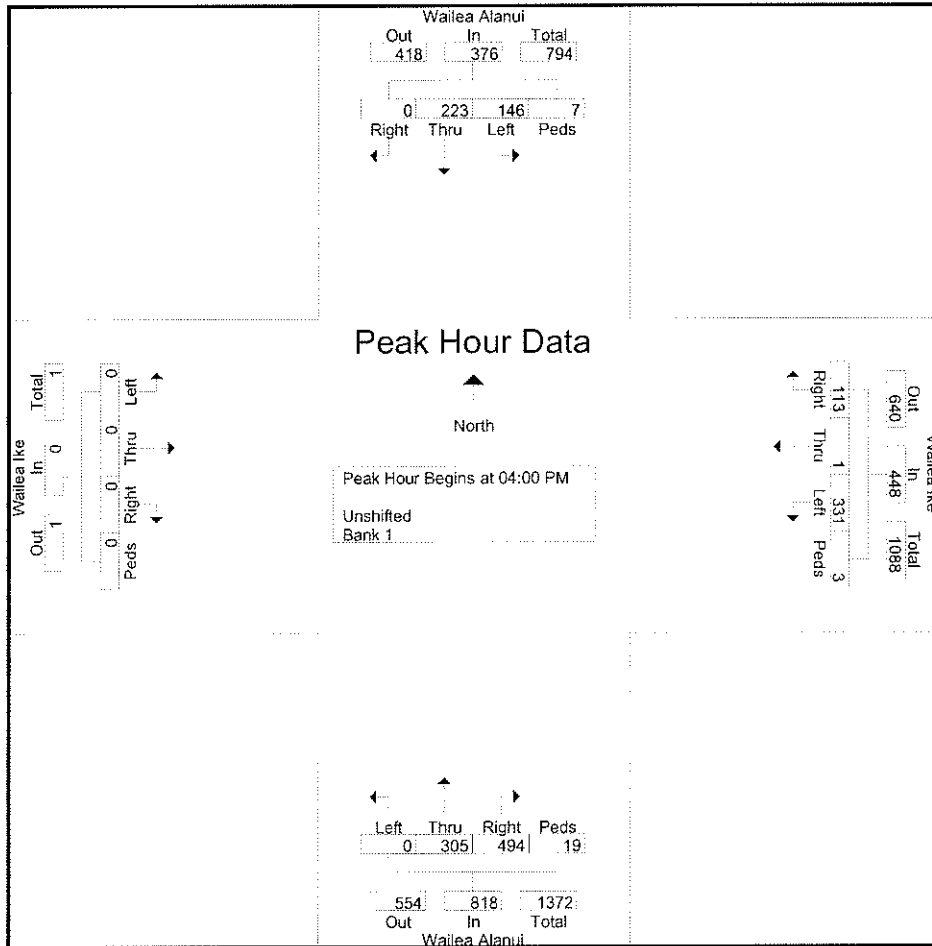




Austin, Tsutsumi and Associates  
 501 Sumner Street, Suite 521  
 Honolulu, Hawaii 96817  
 Ph: 533-3646 Fax: 526-4267

File Name : Wailea Alanui - Wailea Ike PM  
 Site Code : 00000000  
 Start Date : 6/24/2008  
 Page No : 2

Start Time	Wailea Alanui From North					Wailea Ike From East					Wailea Alanui From South					Wailea Ike From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	56	46	2	104	32	0	99	0	131	162	89	0	1	252	0	0	0	0	0	487
04:15 PM	0	76	35	2	113	31	1	73	3	108	128	71	0	6	205	0	0	0	0	0	426
04:30 PM	0	51	42	3	96	29	0	77	0	106	122	77	0	9	208	0	0	0	0	0	410
04:45 PM	0	40	23	0	63	21	0	82	0	103	82	68	0	3	153	0	0	0	0	0	319
Total Volume	0	223	146	7	376	113	1	331	3	448	494	305	0	19	818	0	0	0	0	0	1642
% App. Total	0	59.3	38.8	1.9	25.2	0.2	73.9	0.7		60.4	37.3	0	2.3		0	0	0	0			
PHF	.000	.734	.793	.583	.832	.883	.250	.836	.250	.855	.762	.857	.000	.528	.812	.000	.000	.000	.000	.000	.843





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# APPENDIX B

## LEVEL OF SERVICE CRITERIA

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## APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

### LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 2000)

Level of service for signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.



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# APPENDIX C

## LEVEL OF SERVICE CALCULATIONS

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## APPENDIX C LEVEL OF SERVICE CALCULATIONS

- Existing Conditions
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Timings

6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

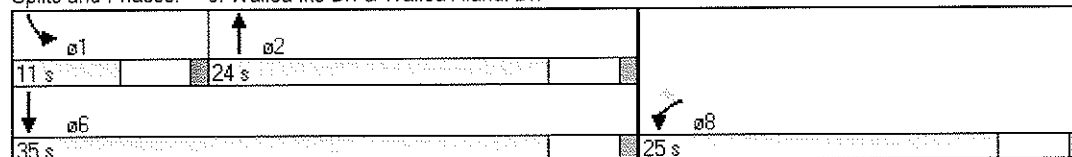
	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↕
Volume (vph)	563	116	111	154	74	265
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	25.0	25.0	24.0	0.0	11.0	35.0
Total Split (%)	41.7%	41.7%	40.0%	0.0%	18.3%	58.3%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None		None	None
Act Effct Green (s)	20.5	20.5	8.8	45.4	5.9	14.7
Actuated g/C Ratio	0.45	0.45	0.19	1.00	0.12	0.32
v/c Ratio	0.77	0.16	0.34	0.11	0.38	0.25
Control Delay	22.7	3.3	20.1	0.1	26.6	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.7	3.3	20.1	0.1	26.6	11.0
LOS	C	A	C	A	C	B
Approach Delay	19.4		8.5			14.4
Approach LOS	B		A			B

Intersection Summary

Cycle Length: 60  
 Actuated Cycle Length: 45.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.77  
 Intersection Signal Delay: 15.8  
 Intersection Capacity Utilization 50.3%  
 Analysis Period (min) 15

Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 6: Wailea Ike Dr. & Wailea Alanui Dr.



HCM Signalized Intersection Capacity Analysis  
 6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	563	116	111	154	74	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	612	126	121	167	80	288
RTOR Reduction (vph)	0	72	0	0	0	0
Lane Group Flow (vph)	612	54	121	167	80	288
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Actuated Green, G (s)	20.5	20.5	8.8	47.5	3.2	17.0
Effective Green, g (s)	20.5	20.5	8.8	47.5	3.2	17.0
Actuated g/C Ratio	0.43	0.43	0.19	1.00	0.07	0.36
Clearance Time (s)	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	764	683	345	1583	119	1267
v/s Ratio Prot	c0.35		c0.06		c0.05	0.08
v/s Ratio Perm		0.03		0.11		
v/c Ratio	0.80	0.08	0.35	0.11	0.67	0.23
Uniform Delay, d1	11.7	7.9	16.9	0.0	21.6	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.0	0.1	0.6	0.1	13.9	0.1
Delay (s)	17.8	8.0	17.5	0.1	35.6	10.8
Level of Service	B	A	B	A	D	B
Approach Delay (s)	16.1		7.4			16.1
Approach LOS	B		A			B

Intersection Summary			
HCM Average Control Delay	14.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timings

6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	335	126	293	528	146	243
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	22.0	22.0	25.0	0.0	13.0	38.0
Total Split (%)	36.7%	36.7%	41.7%	0.0%	21.7%	63.3%
Yellow Time (s)	4.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None		None	None
Act Effct Green (s)	14.8	14.8	14.1	49.2	7.8	23.6
Actuated g/C Ratio	0.30	0.30	0.29	1.00	0.15	0.48
v/c Ratio	0.68	0.24	0.60	0.36	0.59	0.16
Control Delay	25.5	5.0	21.7	0.6	34.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.5	5.0	21.7	0.6	34.5	7.0
LOS	C	A	C	A	C	A
Approach Delay	19.9		8.1			17.4
Approach LOS	B		A			B

Intersection Summary

Cycle Length: 60  
 Actuated Cycle Length: 49.2  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.68  
 Intersection Signal Delay: 13.5  
 Intersection Capacity Utilization 54.6%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service A

Splits and Phases: 6: Wailea Ike Dr. & Wailea Alanui Dr.

↙ ø1	↑ ø2		
13 s	25 s		
↓ ø6		↙ ø8	
38 s		22 s	

HCM Signalized Intersection Capacity Analysis  
 6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	335	126	293	528	146	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	4.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Fr <sub>t</sub>	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	137	318	574	159	264
RTOR Reduction (vph)	0	96	0	0	0	0
Lane Group Flow (vph)	364	41	318	574	159	264
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Actuated Green, G (s)	14.8	14.8	14.1	49.7	5.8	24.9
Effective Green, g (s)	14.8	14.8	14.1	49.7	5.8	24.9
Actuated g/C Ratio	0.30	0.30	0.28	1.00	0.12	0.50
Clearance Time (s)	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	527	471	529	1583	207	1773
v/s Ratio Prot	c0.21		c0.17		c0.09	0.07
v/s Ratio Perm		0.03		0.36		
v/c Ratio	0.69	0.09	0.60	0.36	0.77	0.15
Uniform Delay, d1	15.4	12.6	15.4	0.0	21.3	6.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	0.1	1.9	0.6	15.6	0.0
Delay (s)	19.3	12.7	17.3	0.6	36.9	6.7
Level of Service	B	B	B	A	D	A
Approach Delay (s)	17.5		6.6			18.1
Approach LOS	B		A			B

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



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## APPENDIX C

### LEVEL OF SERVICE CALCULATIONS

- Year 2022 Traffic Operations WITHOUT Project
-

Timings

6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓
Volume (vph)	910	200	190	400	140	395
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	54.0	54.0	24.0	0.0	12.0	36.0
Total Split (%)	60.0%	60.0%	26.7%	0.0%	13.3%	40.0%
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	4.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None		None	None
Act Effct Green (s)	49.1	49.1	14.3	85.4	8.0	26.3
Actuated g/C Ratio	0.57	0.57	0.17	1.00	0.09	0.31
v/c Ratio	0.97	0.22	0.66	0.27	0.92	0.39
Control Delay	42.6	2.2	43.9	0.4	92.8	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	2.2	43.9	0.4	92.8	24.2
LOS	D	A	D	A	F	C
Approach Delay	35.3		14.4			42.2
Approach LOS	D		B			D

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 85.4  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.97  
 Intersection Signal Delay: 31.5  
 Intersection Capacity Utilization 79.8%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service D

Splits and Phases: 6: Wailea Ike Dr. & Wailea Alanui Dr.

↙	↑		
σ1	σ2		
12 s	24 s		
↓		↙	
σ6		σ8	
36 s		54 s	

HCM Signalized Intersection Capacity Analysis  
 6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↓↓
Volume (vph)	910	200	190	400	140	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	4.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	989	217	207	435	152	429
RTOR Reduction (vph)	0	90	0	0	0	0
Lane Group Flow (vph)	989	127	207	435	152	429
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Actuated Green, G (s)	49.1	49.1	14.3	85.4	8.0	26.3
Effective Green, g (s)	49.1	49.1	14.3	85.4	8.0	26.3
Actuated g/C Ratio	0.57	0.57	0.17	1.00	0.09	0.31
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1018	910	312	1583	166	1090
v/s Ratio Prot	c0.56		c0.11		c0.09	0.12
v/s Ratio Perm		0.08		0.27		
v/c Ratio	0.97	0.14	0.66	0.27	0.92	0.39
Uniform Delay, d1	17.5	8.4	33.3	0.0	38.4	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.5	0.1	5.2	0.4	45.7	0.2
Delay (s)	38.9	8.5	38.5	0.4	84.1	23.5
Level of Service	D	A	D	A	F	C
Approach Delay (s)	33.5		12.7			39.4
Approach LOS	C		B			D

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c. Critical Lane Group			

Timings

6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↑↑
Volume (vph)	690	225	435	925	250	370
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	44.0	44.0	28.0	0.0	18.0	46.0
Total Split (%)	48.9%	48.9%	31.1%	0.0%	20.0%	51.1%
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	4.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None		None	None
Act Effct Green (s)	39.0	39.0	23.0	90.0	14.0	41.0
Actuated g/C Ratio	0.43	0.43	0.26	1.00	0.16	0.46
v/c Ratio	0.98	0.30	0.99	0.63	0.99	0.25
Control Delay	54.4	3.2	75.1	2.0	91.9	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	3.2	75.1	2.0	91.9	15.6
LOS	D	A	E	A	F	B
Approach Delay	41.8		25.4			46.4
Approach LOS	D		C			D

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.99  
 Intersection Signal Delay: 35.1  
 Intersection Capacity Utilization 86.6%  
 Analysis Period (min) 15

Intersection LOS: D  
 ICU Level of Service E

Splits and Phases: 6: Wailea Ike Dr. & Wailea Alanui Dr.

↙ ø1	↑ ø2	
18 s	28 s	
↓ ø6		↙ ø8
46 s		44 s



HCM Signalized Intersection Capacity Analysis  
6: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↖	↑	↗	↘	↘↘
Volume (vph)	690	225	435	925	250	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	4.0	4.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	0.95
Fr <sub>t</sub>	1.00	0.85	1.00	0.85	1.00	1.00
Fl <sub>t</sub> Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	1863	1583	1770	3539
Fl <sub>t</sub> Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1583	1863	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	245	473	1005	272	402
RTOR Reduction (vph)	0	139	0	0	0	0
Lane Group Flow (vph)	750	106	473	1005	272	402
Turn Type		Perm		Free	Prot	
Protected Phases	8		2		1	6
Permitted Phases		8		Free		
Actuated Green, G (s)	39.0	39.0	23.0	90.0	14.0	41.0
Effective Green, g (s)	39.0	39.0	23.0	90.0	14.0	41.0
Actuated g/C Ratio	0.43	0.43	0.26	1.00	0.16	0.46
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	767	686	476	1583	275	1612
v/s Ratio Prot	c0.42		c0.25		c0.15	0.11
v/s Ratio Perm		0.07		0.63		
v/c Ratio	0.98	0.15	0.99	0.63	0.99	0.25
Uniform Delay, d <sub>1</sub>	25.1	15.5	33.4	0.0	37.9	15.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d <sub>2</sub>	26.8	0.1	39.4	2.0	50.7	0.1
Delay (s)	51.8	15.6	72.8	2.0	88.6	15.1
Level of Service	D	B	E	A	F	B
Approach Delay (s)	42.9		24.6			44.8
Approach LOS	D		C			D

Intersection Summary

HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



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## **APPENDIX C**

### LEVEL OF SERVICE CALCULATIONS

- Year 2022 Traffic Operations WITH Project
-

Timings

7: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↘	↖↗	↑	↗↘	↙↘	↑↑
Volume (vph)	910	200	190	400	140	395
Turn Type		Perm		pt+ov	Prot	
Protected Phases	8		2	2 8	1	6
Permitted Phases		8				
Detector Phase	8	8	2	2 8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	42.0	42.0	27.0	69.0	21.0	48.0
Total Split (%)	46.7%	46.7%	30.0%	76.7%	23.3%	53.3%
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max		None	Max
Act Effct Green (s)	31.0	31.0	26.9	62.8	12.3	43.2
Actuated g/C Ratio	0.37	0.37	0.32	0.75	0.15	0.51
v/c Ratio	0.78	0.30	0.35	0.20	0.59	0.24
Control Delay	28.4	3.7	26.9	0.6	43.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	3.7	26.9	0.6	43.5	12.7
LOS	C	A	C	A	D	B
Approach Delay	24.0		9.1			20.7
Approach LOS	C		A			C

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 84.2  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.78  
 Intersection Signal Delay: 19.3  
 Intersection Capacity Utilization 55.4%  
 Analysis Period (min) 15  
 Intersection LOS: B  
 ICU Level of Service B

Splits and Phases: 7: Wailea Ike Dr. & Wailea Alanui Dr.

↙ ø1 21 s	↖ ø2 27 s	
↓ ø6 48 s		↗ ø8 42 s

HCM Signalized Intersection Capacity Analysis  
 7: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↖	↖	↑	↗↘	↘	↙↖
Volume (vph)	910	200	190	400	140	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.88	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	2787	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	2787	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	989	217	207	435	152	429
RTOR Reduction (vph)	0	137	0	110	0	0
Lane Group Flow (vph)	989	80	207	325	152	429
Turn Type		Perm		pt+ov	Prot	
Protected Phases	8		2	2 8	1	6
Permitted Phases		8				
Actuated Green, G (s)	31.0	31.0	26.9	62.9	12.3	43.2
Effective Green, g (s)	31.0	31.0	26.9	62.9	12.3	43.2
Actuated g/C Ratio	0.37	0.37	0.32	0.75	0.15	0.51
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	1264	583	595	2082	259	1816
v/s Ratio Prot	c0.29		c0.11	0.12	c0.09	0.12
v/s Ratio Perm		0.05				
v/c Ratio	0.78	0.14	0.35	0.16	0.59	0.24
Uniform Delay, d1	23.6	17.7	21.9	3.0	33.6	11.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.1	1.6	0.0	3.4	0.3
Delay (s)	26.8	17.8	23.5	3.1	37.0	11.7
Level of Service	C	B	C	A	D	B
Approach Delay (s)	25.2		9.7			18.3
Approach LOS	C		A			B

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Timings

7: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

	↙	↖	↑	↗	↘	↓
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↖	↑	↗↗	↘	↘↘
Volume (vph)	690	225	435	925	250	370
Turn Type		Perm		pt+ov	Prot	
Protected Phases	8		2	2 8	1	6
Permitted Phases		8				
Detector Phase	8	8	2	2 8	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0
Minimum Split (s)	22.0	22.0	24.0		10.0	24.0
Total Split (s)	30.0	30.0	36.0	66.0	24.0	60.0
Total Split (%)	33.3%	33.3%	40.0%	73.3%	26.7%	66.7%
Yellow Time (s)	4.0	4.0	4.0		3.0	4.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	4.0	5.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	Max		None	Max
Act Effct Green (s)	24.2	24.2	33.6	62.7	17.5	55.0
Actuated g/C Ratio	0.27	0.27	0.38	0.70	0.20	0.62
v/c Ratio	0.81	0.40	0.67	0.48	0.79	0.18
Control Delay	38.1	5.7	30.2	4.4	50.5	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.1	5.7	30.2	4.4	50.5	7.8
LOS	D	A	C	A	D	A
Approach Delay	30.1		12.7			25.0
Approach LOS	C		B			C

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 89.2  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.81  
 Intersection Signal Delay: 20.9  
 Intersection Capacity Utilization 68.1%  
 Analysis Period (min) 15

Intersection LOS: C  
 ICU Level of Service C

Splits and Phases: 7: Wailea Ike Dr. & Wailea Alanui Dr.

↙ ø1	↑ ø2	
24 s	36 s	
↓ ø6		↗ ø8
60 s		30 s

HCM Signalized Intersection Capacity Analysis  
 7: Wailea Ike Dr. & Wailea Alanui Dr.

5/30/2009

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖↗	↖	↑	↗↖	↖	↗↖
Volume (vph)	690	225	435	925	250	370
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	5.0
Lane Util. Factor	0.97	1.00	1.00	0.88	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	1583	1863	2787	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	1583	1863	2787	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	750	245	473	1005	272	402
RTOR Reduction (vph)	0	179	0	115	0	0
Lane Group Flow (vph)	750	66	473	890	272	402
Turn Type		Perm		pt+ov	Prot	
Protected Phases	8		2	2 8	1	6
Permitted Phases		8				
Actuated Green, G (s)	24.2	24.2	33.6	62.8	17.5	55.1
Effective Green, g (s)	24.2	24.2	33.6	62.8	17.5	55.1
Actuated g/C Ratio	0.27	0.27	0.38	0.70	0.20	0.62
Clearance Time (s)	5.0	5.0	5.0		4.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	930	429	701	1960	347	2184
v/s Ratio Prot	c0.22		c0.25	0.32	c0.15	0.11
v/s Ratio Perm		0.04				
v/c Ratio	0.81	0.15	0.67	0.45	0.78	0.18
Uniform Delay, d1	30.4	24.8	23.3	5.8	34.1	7.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.2	0.2	5.1	0.2	11.0	0.2
Delay (s)	35.5	24.9	28.4	5.9	45.1	7.6
Level of Service	D	C	C	A	D	A
Approach Delay (s)	32.9		13.1			22.7
Approach LOS	C		B			C

Intersection Summary			
HCM Average Control Delay		21.5	HCM Level of Service C
HCM Volume to Capacity ratio		0.74	
Actuated Cycle Length (s)		89.3	Sum of lost time (s) 14.0
Intersection Capacity Utilization		68.1%	ICU Level of Service C
Analysis Period (min)		15	
c Critical Lane Group			



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CIVIL ENGINEERS • SURVEYORS

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# APPENDIX D

## LEVEL-OF-SERVICE SUMMARY TABLE

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Table D-1  
LOS INTERSECTION ANALYSIS

Intersection	Existing 2008						Future Year 2022 WITHOUT Project						Future Year 2022 WITH Project					
	AM		PM		AM		PM		AM		PM		AM		PM			
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
<b>Walpole Lake Drive &amp; Walpole Abenaki Drive</b>																		
WB LT	17.8	0.8	B	19.3	0.69	B	38.9	0.97	D	51.8	0.98	D	26.8	0.78	C	35.5	0.81	D
WB RT	8	0.08	A	12.7	0.09	B	8.5	0.14	A	15.6	0.15	B	17.8	0.14	B	24.9	0.15	C
NB TH	17.5	0.35	B	17.3	0.6	B	38.5	0.66	D	72.8	0.99	E	23.5	0.35	C	28.4	0.67	C
NB RT	0.1	0.11	A	0.6	0.36	A	0.4	0.27	A	2	0.63	A	3.1	0.16	A	5.9	0.45	A
SB LT	35.6	0.67	d	36.9	0.77	D	84.1	0.92	F	88.6	0.99	F	37	0.59	D	45.1	0.78	D
SB TH	10.8	0.23	B	6.7	0.15	A	23.5	0.39	C	15.1	0.25	B	11.7	0.24	B	7.6	0.18	A
<b>Overall</b>	<b>14.3</b>	<b>0.67</b>	<b>B</b>	<b>12.3</b>	<b>0.67</b>	<b>B</b>	<b>29.4</b>	<b>0.9</b>	<b>C</b>	<b>34.7</b>	<b>0.98</b>	<b>C</b>	<b>19.5</b>	<b>0.58</b>	<b>B</b>	<b>21.5</b>	<b>0.74</b>	<b>C</b>



## **APPENDIX D.**

# **Preliminary Civil Engineering and Drainage Report**

**PRELIMINARY**  
**CIVIL ENGINEERING AND DRAINAGE REPORT**  
**FOR**  
**PROPOSED MODIFICATIONS**  
**OF THE**  
**WAILEA ALANUI/WAILEA IKE DRIVE INTERSECTION**  
**WAILEA, MAUI, HAWAII**  
**TAX MAP KEY: (2) 2-1-08**

**PREPARED FOR:**

**HONUA'ULA PARTNERS, LLC**  
**1300 NORTH HOLOPONO STREET, SUITE 201**  
**KIHEI, HAWAII - 96753**

**PREPARED BY:**



**CIVIL ENGINEERING • LAND SURVEYING • CONSTRUCTION MANAGEMENT & INSPECTIONAL SERVICES**

**871 KOLU STREET, SUITE 201**  
**WAILUKU, MAUI, HAWAII - 96793**  
**JOB 08-034**

**MARCH 30, 2009**

## **TABLE OF CONTENTS**

- I. INTRODUCTION
- II. PURPOSE
- III. LOCATION
- IV. FLOODING HAZARD
- V. EXISTING SOILS
- VI. UTILITIES
  - A. WATER
  - B. SEWER
  - C. ELECTRICAL
- VII. DRAINAGE
- VIII. GRADING AND SOIL EROSION CONTROL
  - A. GRADING REQUIREMENTS
  - B. BEST MANAGEMENT PRACTICES (BMPs)
- IX. CONSTRUCTION PLAN APPROVALS
- X. REFERENCES
- XI. EXHIBIT A - PRELIMINARY HYDROLOGIC CALCULATIONS
- XII. FIGURES
  - FIGURE 1 - LOCATION MAP
  - FIGURE 2 - VICINITY MAP
  - FIGURE 3 - FLOOD MAP
  - FIGURE 4 - SOILS MAP
  - FIGURE 5 - EXISTING WATER SYSTEM
  - FIGURE 6 - EXISTING SEWER SYSTEM

**FIGURE 7 - EXISTING DRAINAGE SYSTEM**

**FIGURE 8 - EXISTING TOPOGRAPHIC SURVEY MAP**

**FIGURE 9 - CONCEPTUAL PLAN - INTERSECTION MODIFICATION**

**FIGURE 10 - HYDROLOGY MAP (EXISTING CONDITION)**

**FIGURE 11 - HYDROLOGY MAP (FUTURE CONDITION)**

I. **INTRODUCTION:**

This Preliminary Engineering and Drainage Report was prepared in support of the project's EA and SMA Permit Application.

The proposed modification of the intersection of Wailea Ike Drive and Wailea Alanui was brought about in compliance with Condition 2e, Conditional Zoning for Honua'ula/Wailea 670 Project District 9. The proposed modifications will include widening the north and south portion of the intersection to accommodate a double right-turn movement from Wailea Alanui northbound traffic to eastbound turns on Wailea Ike Drive and two left-turn lanes for southbound traffic on Wailea Alanui from Wailea Ike Drive. Appurtenant to the proposed project are acquisition of lands on both sides of the intersection; construction of concrete curb and gutter, sidewalk and curb ramps; installation of asphalt concrete pavement; relocation and/or modification of traffic signal system; roadway pavement marking and signing; and grassing and/or landscaping. The conceptual plan of the proposed project is shown on Figure 9.

II. **PURPOSE:**

The purpose of this preliminary report is to investigate the impact of the proposed project on existing utilities and drainage conditions. This report will present a brief description of the existing conditions and provide anticipated improvements required for the proposed intersection improvements by appropriate governmental agencies. It will also include probable grading requirements and proposed measures to control soil erosion during construction.

III. **LOCATION:**

The proposed project is located in the Wailea area on the leeward side of the Island of Maui. Refer to Figures 1 and 2.

IV. **FLOODING HAZARD:**

The project area is located within Panel 15003-0330B (June 1, 1981), of the Flood Insurance Rate Map for the County of Maui. The site is within Zone C. Refer to Figure 3. Zone C are areas of minimal flooding; hence, the proposed project is not required to conform to the development standards set forth by Chapter 19.62, Flood Hazard Areas, of the Maui County Code.

V. **EXISTING SOILS:**

The U.S. Department of Agriculture Soil Conservation Service's Soils Survey of the Island of Kauai, Oahu, Maui, Molokai and Lanai [3 ], classifies the soils within the project site as Makena Loam, Stony Complex (MXC) as shown on Figure 4. MXC belongs to Makena Soil Series which consist of well-drained soils on uplands on the Island of Maui. These soils developed in volcanic ash.

MXC is particularly found on the leeward slopes of Haleakala between Makena and Kamaole. The stony part of the complex occurs on low ridges and is characterized by very rapid permeability and no erosion hazard. Meanwhile, the Makena part of the complex which occurs as gently sloping areas between the low ridges of the stony land is characterized by moderately rapid permeability, slow to medium runoff and slight to moderate erosion hazard.

VI. UTILITIES:

A. WATER:

There are existing waterlines at the project site as shown on Figures 5 and 8. The water system consist of 16-inch, 20-inch and 30-inch pipelines that are part of the Central Maui Water Transmission System serving the Wailea/Makena region.

The proposed project will not increase water demand from the County system as there are no associated improvements that will require additional water usage. Impact of the proposed project to the existing water facilities at the intersection is not anticipated, however, it should be verified during the design stage of the project. Adjustment of water facilities such as manholes and water valves, if any, will be done in compliance with the requirements of the Department of Water Supply.

B. SEWER:

The existing sewer system at the project site and vicinity is shown on Figures 6 and 8. The system mainly consists of 6-inch, 8-inch, 10-inch and 18-inch gravity sewer pipes and 12-inch force mains. This system generally serve the existing developments within the Wailea Resort area.

The proposed project will not generate wastewater flows; hence, there will be no impact on the existing sewer system except possibly the adjustment of frames and covers of existing sewer manholes to finished grade.

Modification to the existing traffic signal system and street lighting facilities is not expected to increase the present power consumption. However, should there be an addition of pedestrian traffic control system, the power consumption increase will be minimal.

**VII. DRAINAGE:**

Storm waters generated by the project and surrounding areas are collected and disposed of by the existing roadway drainage facilities which are shown on Figure 7. Runoff from the north portion of the intersection (Area 1, Fig. 10) flows northward to an existing catch basin (CB 1, Fig. 7) about 300 feet away; while the runoff from the south portion of the intersection (Area 2, Fig. 10) flows southward to a catch basin (CB 4, Fig. 7) about 400 feet away.

Roadway runoff above (East) of the intersection are collected by the existing catch basins (CB 2 and CB 3, Fig. 10) and conveyed to the channel by underground culverts.

The existing CRM-lined channel and 5 - 65" x 40" CMP culverts across Wailea Alanui (Figure 7), convey offsite runoff from tributary areas above the intersection. The tributary areas extend to lands east (mauka) of Piilani Highway.

Based on the preliminary Hydrologic Calculations (Exhibit A), below is a summary of storm runoff discharges that are anticipated to be generated by the project area at existing and future (developed) conditions:



North Portion:

10-year storm: 0.9 cfs (Existing, Area 1, Fig. 10)

1.0 cfs (Future, Area A, Fig. 11)

Increase: 0.1 cfs

50-year storm: 1.2 cfs (Existing, Area 1)

1.4 cfs (Future, Area A)

Increase: 0.2 cfs

South Portion:

10-year storm: 1.0 cfs (Existing, Area 2, Fig. 10)

1.2 cfs (Future, Area B, Fig. 11)

Increase: 0.2 cfs

50-year storm: 1.3 cfs (Existing, Area 2)

1.6 cfs (Future, Area B)

Increase: 0.3 cfs

The anticipated runoff increases due to the proposed project are minimal; hence, there are no drainage improvements proposed for this project and completion of the proposed project will not have adverse drainage effects on the existing drainage facilities and downstream properties. Existing drainage flow pattern will not be significantly altered.

**VIII. GRADING AND SOIL EROSION CONTROL:**

**A. GRADING REQUIREMENTS:**

Grading for the proposed development area will be performed in compliance with the applicable requirements of the Maui County Grading

Ordinance No. 2884 or Chapter 20.08 of the Maui County Code. Grading will be done only for the proper reception of the proposed roadway widening which will consist mainly of excavation and embankment.

Prior to commencing land disturbance activities, a grubbing and grading permit must be obtained from the Development Services Administration (DSA) of the Maui County Department of Public Works. Associated submittals for the permit application are grading plan; soil erosion control plan or Best Management Practices Plan; drainage plan; and drainage report.

B. BEST MANAGEMENT PRACTICES (BMPs):

Requirements for the temporary control of soil erosion and dust during construction will be outlined and shown on the construction plans during the design development of the project. The BMPs will include but not limited to the following:

1. Control dust by means of water trucks or by installing temporary sprinkler systems or both if necessary.
2. Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
3. All exposed areas shall be paved, grassed, or permanently landscaped as soon as finished grading is completed.
4. Storm runoff will be diverted away from graded areas to natural drainageways during construction by means of gravel bag berms or lined temporary swales.

5. Time of construction will be minimized.
6. Only areas that are needed for new improvements will be cleared.
7. Installation of dust control fence surrounding the project site.
8. Installation of silt fence, gravel bag berms or other approved sediment trapping devices at the downstream side of the grading area.
9. Temporary control measures shall be in place and functional prior to construction and shall remain operational throughout the construction period or until permanent controls are in place.

The Contractor will also be required to submit a satisfactory soil erosion control plan to minimize soil erosion prior to an issuance of a grubbing and grading permit. Best Management Practices shall be in compliance with Section 20.08.035 of the Maui County Code (Ord. No. 2684) and "Construction Best Management Practices (BMPs) for the County of Maui" of the Department of Public Works & Waste Management, May 2001.

**IX. CONSTRUCTION PLAN APPROVALS:**

Approval of the civil construction plans for the proposed project will be obtained from the Department of Public Works; Department of Environmental Management; and Department of Water Supply. The various improvements will be designed in compliance with the applicable requirements of these governmental agencies.

X. **REFERENCES:**

1. Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Department of Public Works and Waste Management, County of Maui, Chapter 4.
2. Construction Best Management Practices (BMPs) for the County of Maui, Department of Public Works and Waste Management, May 2001.
3. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, August 1972.
4. Erosion and Sediment Control Guide for Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, March 1981.
5. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U. S. Department of Commerce, Weather Bureau, 1962.
6. Flood Insurance Rate Maps for the County of Maui, June 1981.

**EXHIBIT A**

**PRELIMINARY HYDROLOGIC CALCULATIONS**

## EXHIBIT A

### PRELIMINARY HYDROLOGIC CALCULATIONS

- I. Reference: Rules for the Design of Storm Drainage Facilities in the County of Maui, 1995 referred to as "Maui County Drainage Standards".
- II. Purpose: To determine existing and future (developed) storm runoff discharges.
- III. Hydrologic Criteria:
  - A. 10-Year, 1-Hour: for surface flow runoff rate  
1-Hr. Rainfall Value = 1.8" (Plate 3)
  - B. 50-Year, 1-Hour: for design of culverts  
1-Hr. Rainfall Value = 2.4" (Plate 4)

- IV. Runoff Quantity:

- A. Runoff Discharge Rate & Volume:

1. Methodology:

Rational Method,  $Q = CIA$

Where  $Q$  = Flow rate in cubic feet per second (cfs)

$C$  = Runoff Coefficient

$I$  = Rainfall intensity in inches per hour for a duration equal to the time of concentration

$A$  = Drainage Area in Acres

Figure 10 - Existing Conditions

Figure 11 - Future Conditions

Calculations employing this method were performed on computer using hydrologic software "Hydraflow Hydrographs 2004" by Intelisolve.

2. Runoff Coefficient, C:

C = 0.22 (Lawn) (Table 2)

= 0.95 (Development) (Table 3)

Weighted C:

$$\text{Weighted C} = \frac{A_1 \times C_1 + A_2 \times C_2 + \dots}{A_1 + A_2 + \dots}$$

TABLE A: DRAINAGE AREAS & WEIGHTED C

Area Designation	Area (Ac.)			Weighted C
	Pavement	Lawn	Total	
Area 1	0.18	0.11	0.29	0.67
Area 2	0.22	0.05	0.27	0.81
Area A	0.21	0.09	0.30	0.73
Area B	0.26	0.03	0.29	0.88

3. Time of Concentration, Tc:  
(Plate 1)

Use Tc = 5 min.

4. Runoff Discharge Rate:  
(Refer to Attached Hydrograph Reports)

TABLE B: RUNOFF DISCHARGE RATES

Drainage Area Designation	10-Yr. (cfs)	50-Yr. (cfs)
Area 1 (Existing)	0.9	1.2
Area A (Future)	1.0	1.4
Increase	0.1	0.2
Area 2 (Existing)	1.0	1.3
Area B (Future)	1.2	1.6
Increase	0.2	0.3

# Hydraflow IDF Report

Return Period (Yrs)	Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	-----
2	0.0000	0.0000	0.0000	-----
3	0.0000	0.0000	0.0000	-----
5	0.0000	0.0000	0.0000	-----
10	21.2457	8.5000	0.5840	-----
25	0.0000	0.0000	0.0000	-----
50	32.7922	10.0000	0.6184	-----
100	0.0000	0.0000	0.0000	-----

C:\Program Files\Hydraflow\Hydrographs\2004\Water SF 11 0007.IDF

**Intensity = B / (Tc + D)^E**

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	4.65	3.87	3.36	3.00	2.73	2.52	2.35	2.20	2.08	1.97	1.88	1.80
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	6.14	5.14	4.48	4.00	3.64	3.35	3.11	2.92	2.75	2.61	2.48	2.37
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

$I_{10} = 1.8''$

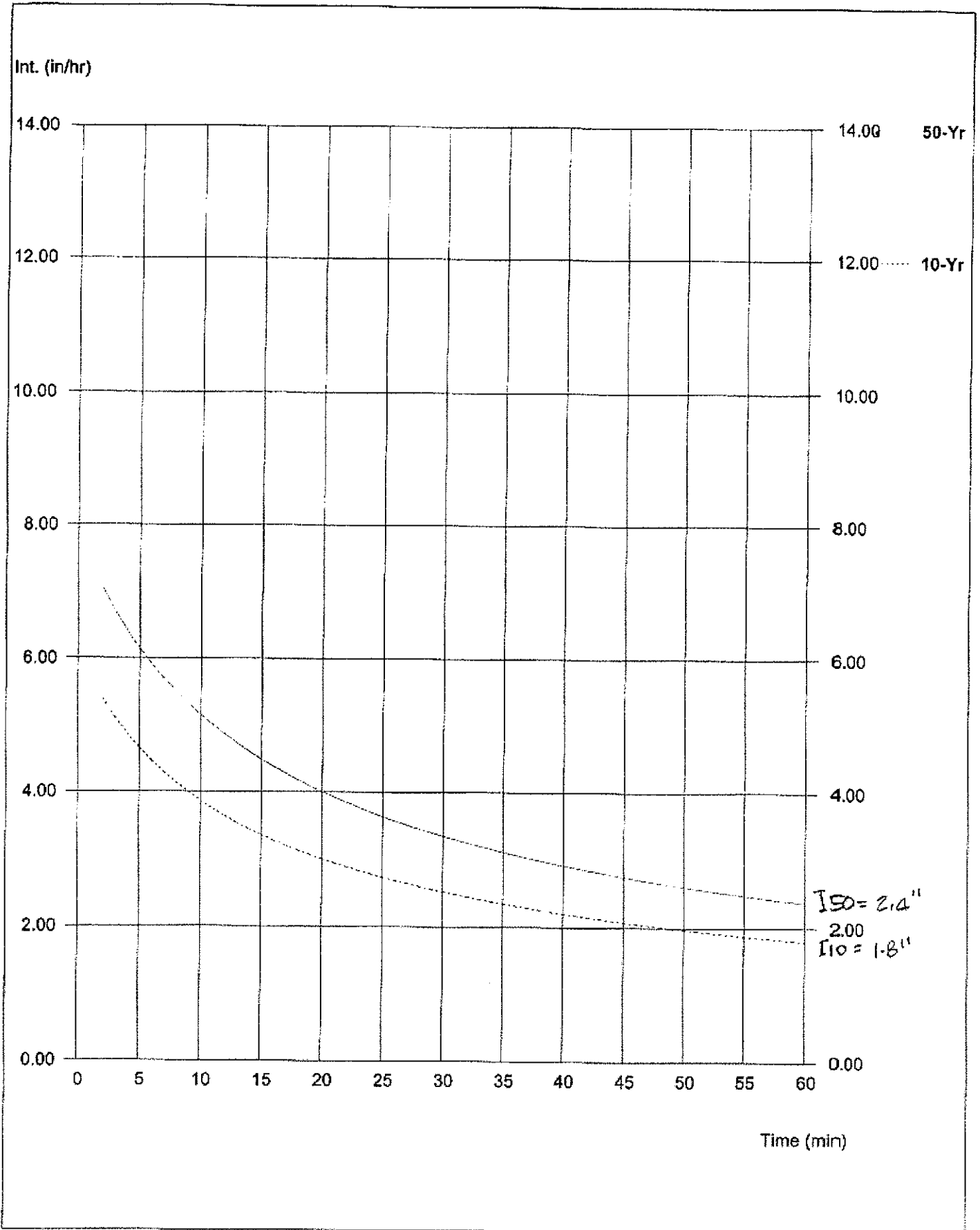
$I_{50} = 2.4''$

Tc = time in minutes



# Hydrograph IDF Curves

IDF file: Wailea SF 11 06057.IDF



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Mar 25 2009, 10:13 AM

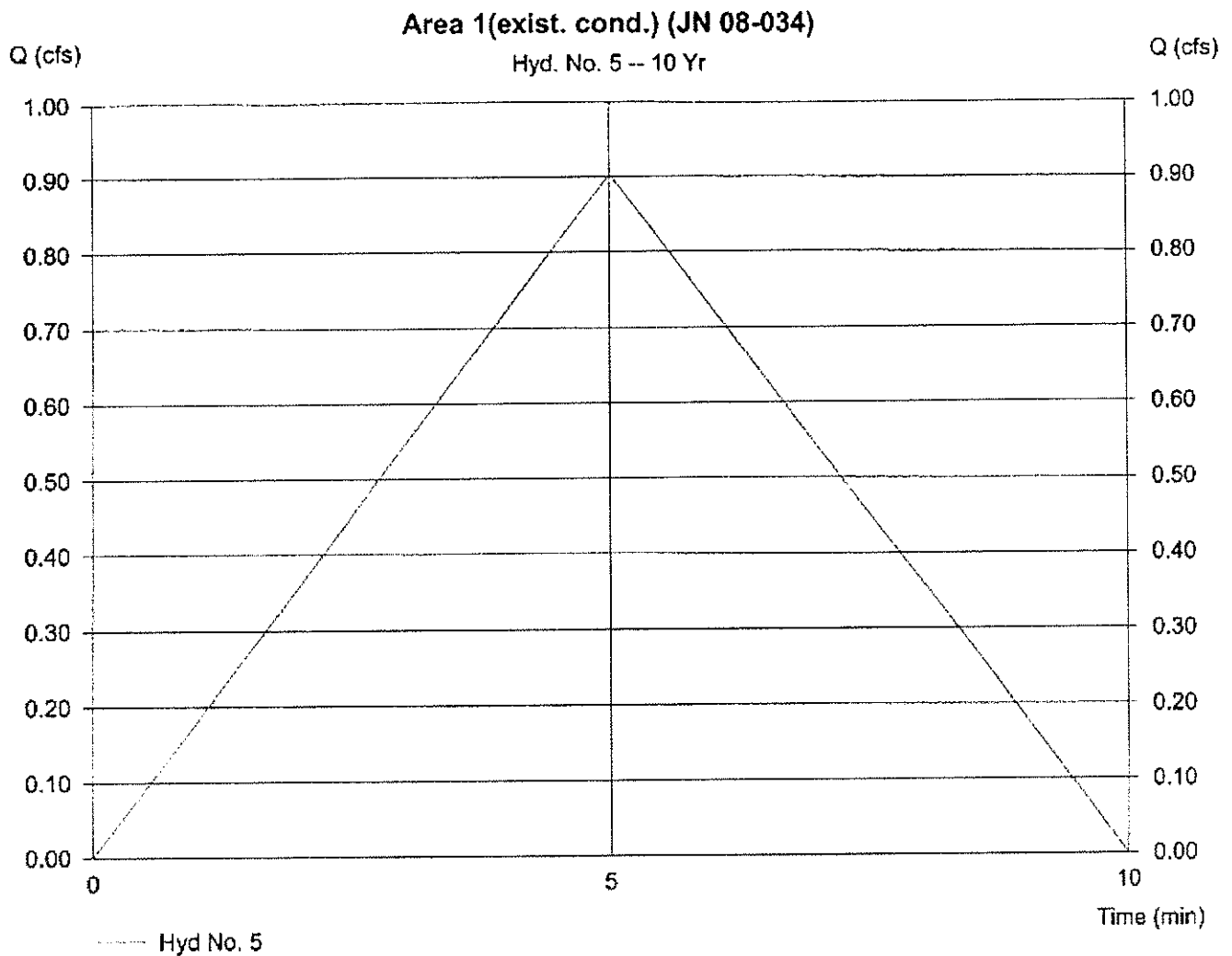
## Hyd. No. 5

Area 1(exist. cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.290 ac  
Intensity = 4.647 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 0.90 cfs  
Time interval = 1 min  
Runoff coeff. = 0.67  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 271 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelsolve

Wednesday, Mar 25 2009, 10:13 AM

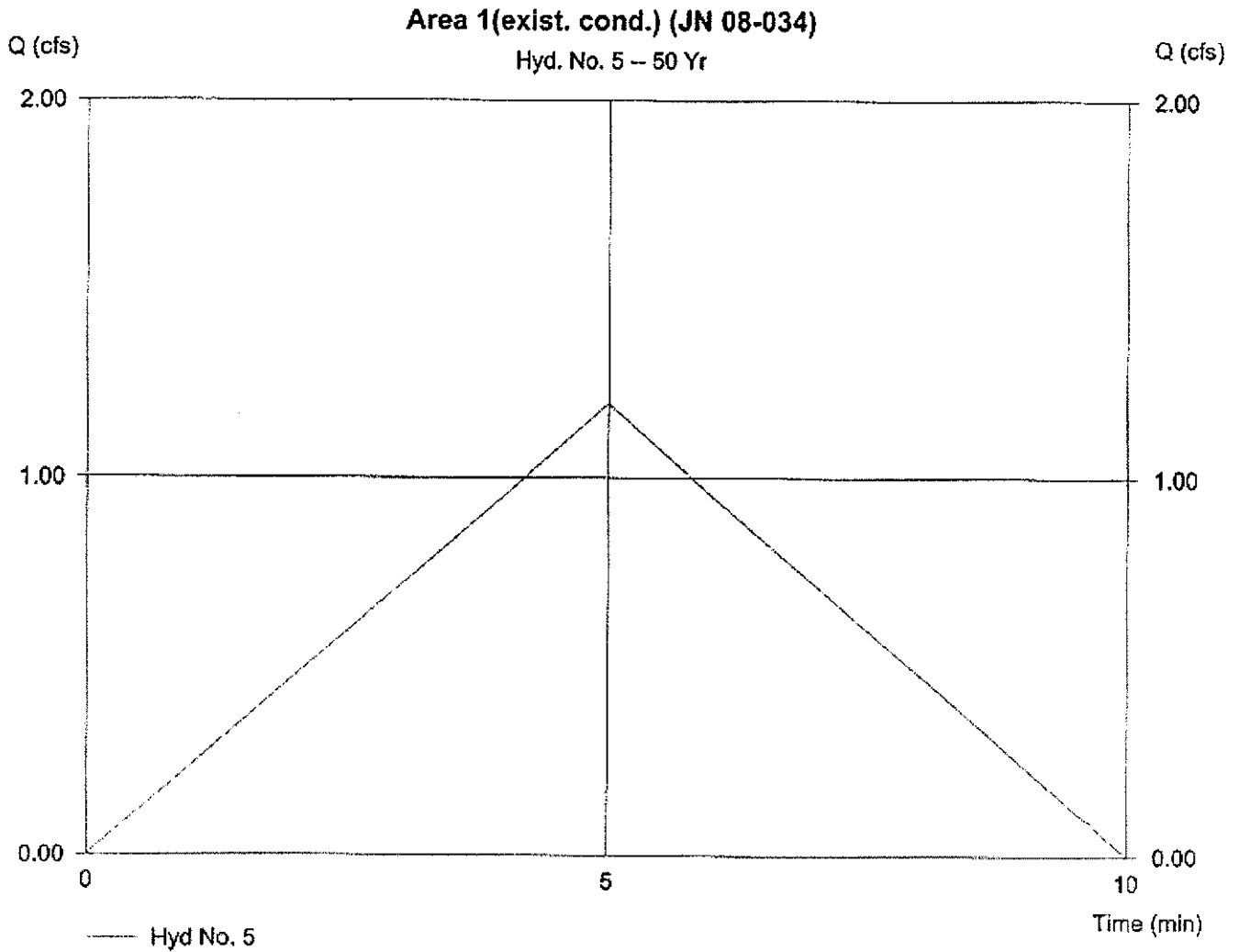
## Hyd. No. 5

Area 1(exist. cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 50 yrs  
Drainage area = 0.290 ac  
Intensity = 6.144 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.19 cfs  
Time interval = 1 min  
Runoff coeff. = 0.67  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 358 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intellsolve

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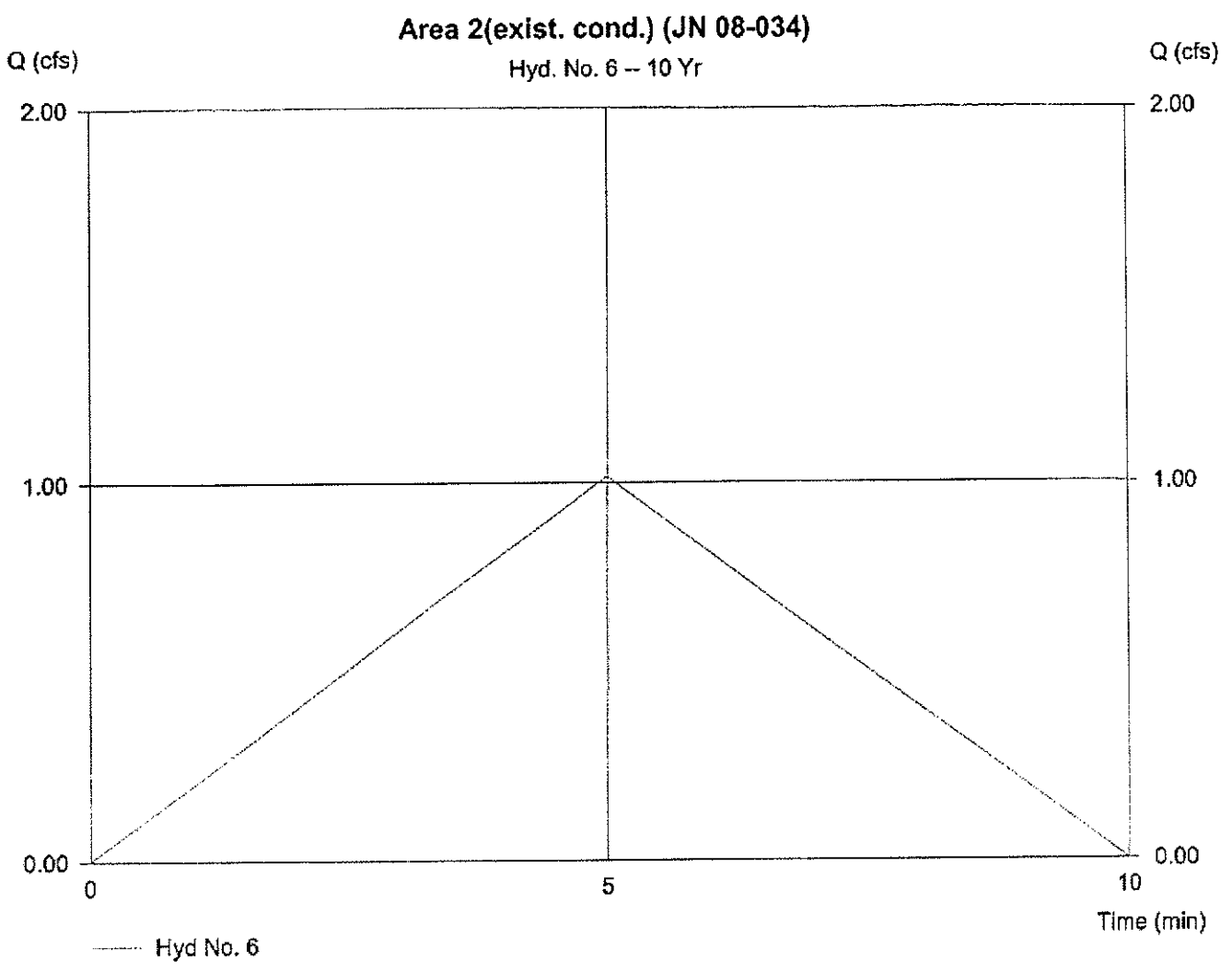
## Hyd. No. 6

Area 2(exist. cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.270 ac  
Intensity = 4.647 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.02 cfs  
Time interval = 1 min  
Runoff coeff. = 0.81  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 305 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Wednesday, Mar 25 2009, 10:14 AM

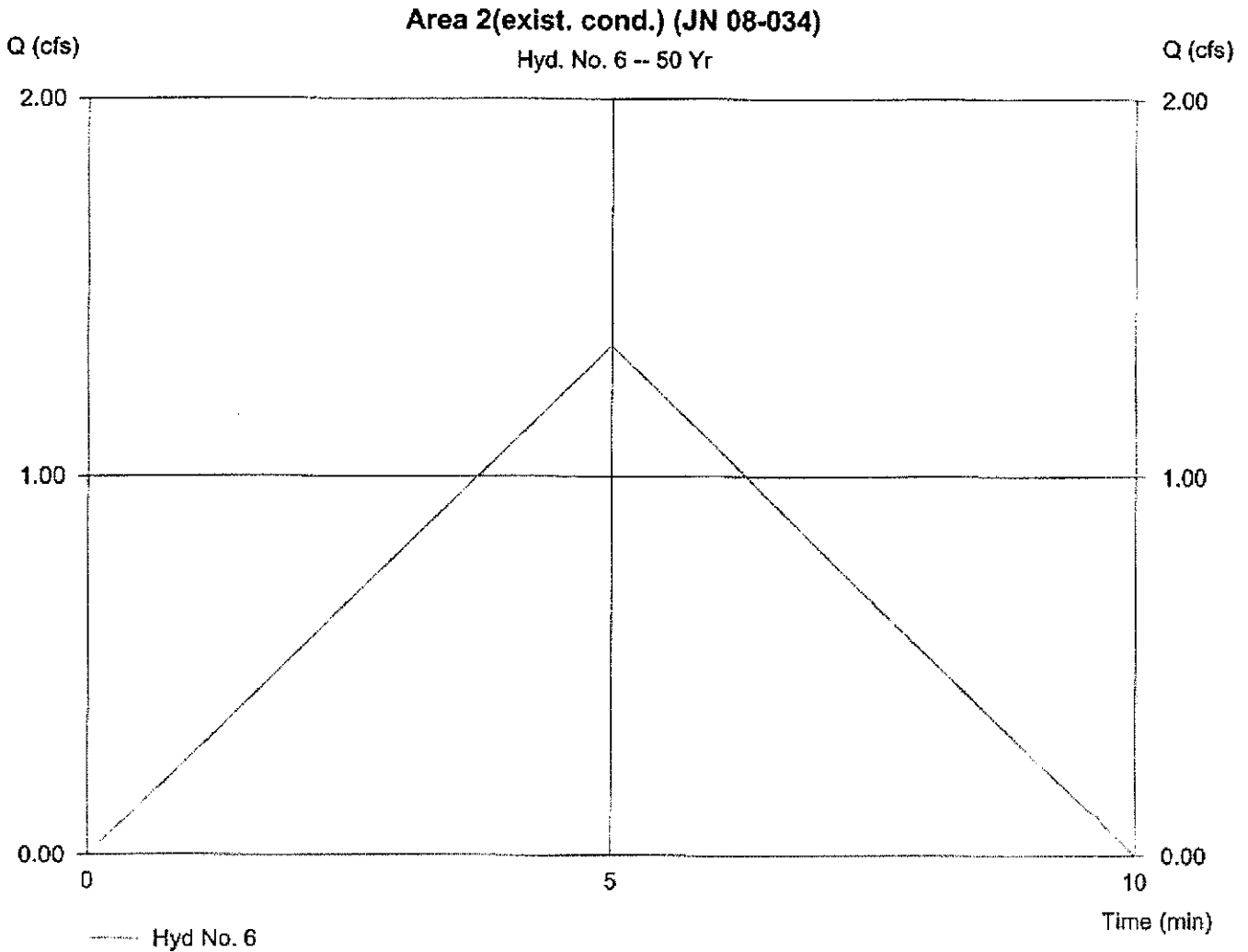
## Hyd. No. 6

Area 2(exist. cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 50 yrs  
Drainage area = 0.270 ac  
Intensity = 6.144 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.34 cfs  
Time interval = 1 min  
Runoff coeff. = 0.81  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 403 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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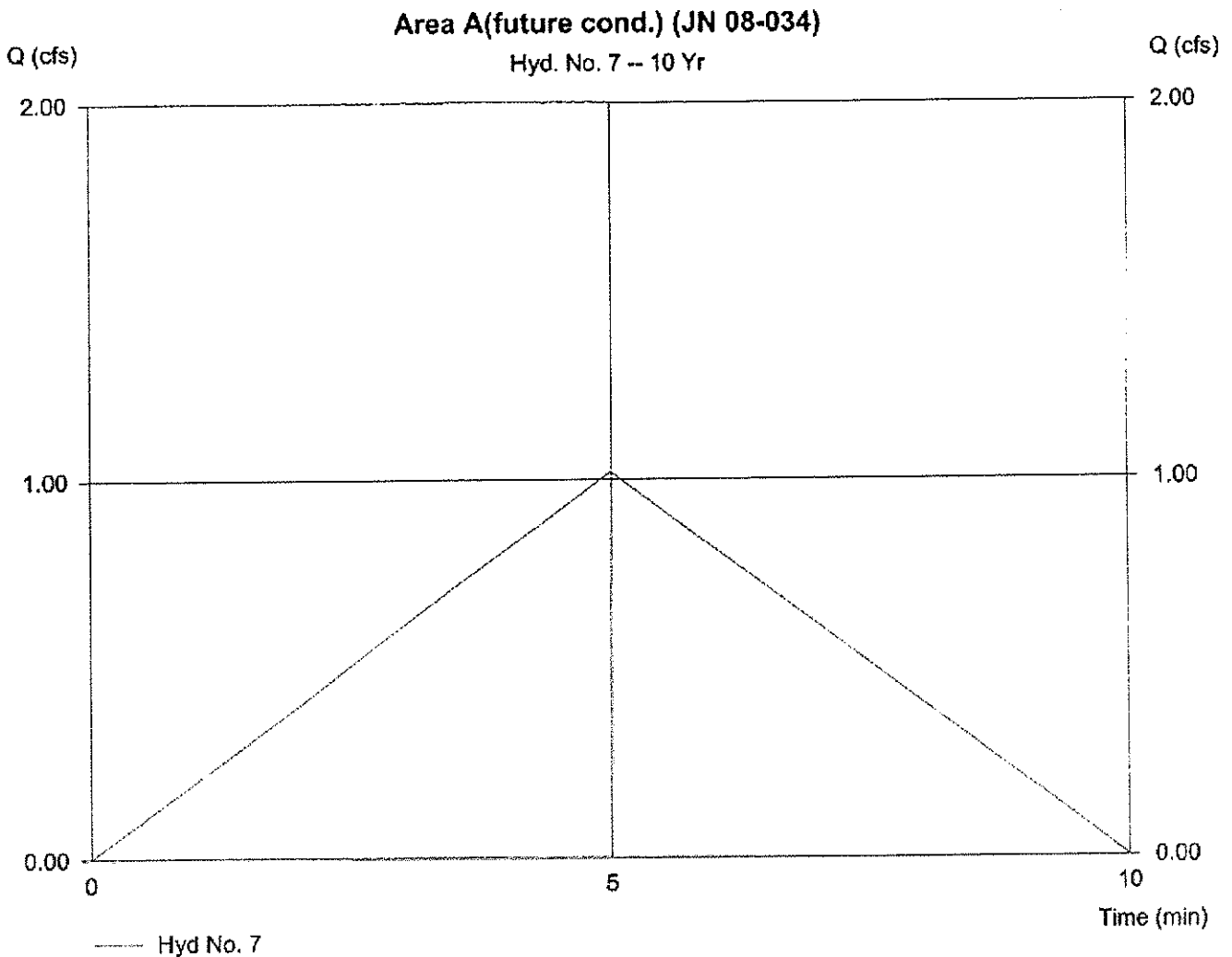
## Hyd. No. 7

Area A(future cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.300 ac  
Intensity = 4.647 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.02 cfs  
Time interval = 1 min  
Runoff coeff. = 0.73  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 305 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intellisolve

Wednesday, Mar 25 2009, 10:14 AM

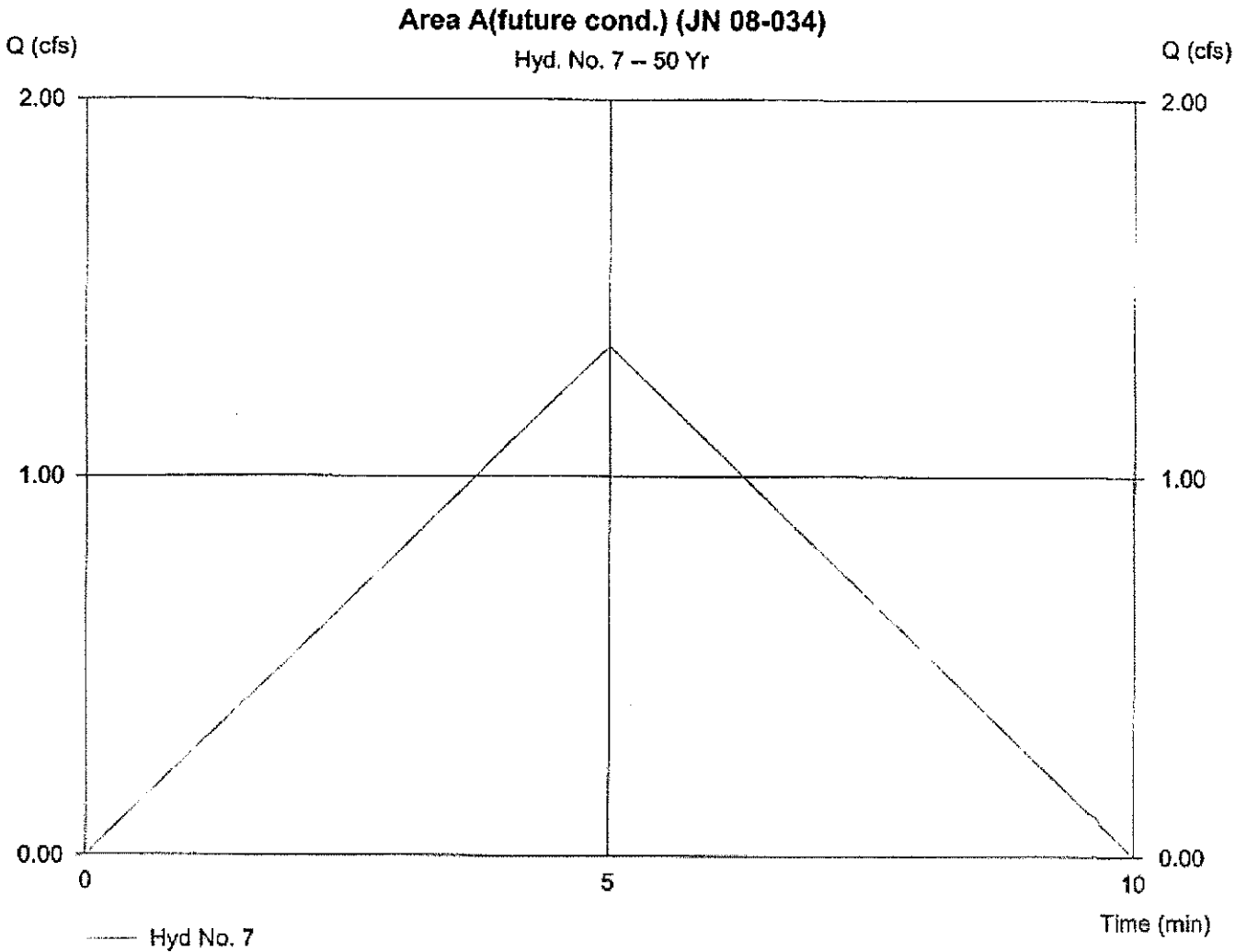
## Hyd. No. 7

Area A(future cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 50 yrs  
Drainage area = 0.300 ac  
Intensity = 6.144 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.35 cfs  
Time interval = 1 min  
Runoff coeff. = 0.73  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 404 cuft



# Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

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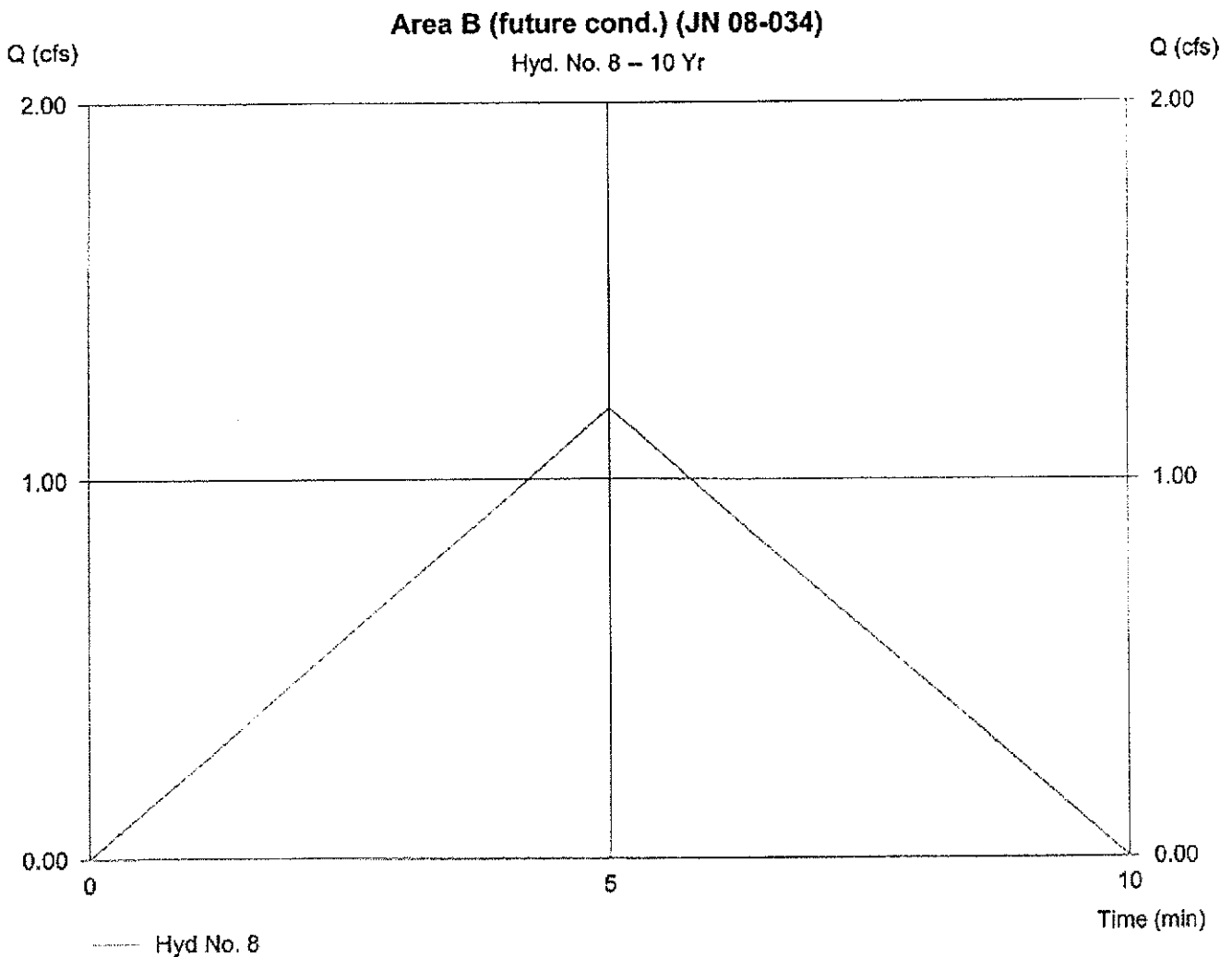
## Hyd. No. 8

Area B (future cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 10 yrs  
Drainage area = 0.290 ac  
Intensity = 4.647 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.19 cfs  
Time interval = 1 min  
Runoff coeff. = 0.88  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 356 cuft





# Hydrograph Plot

Hydraflow Hydrographs by Intolisolve

Wednesday, Mar 25 2009, 10:14 AM

## Hyd. No. 8

Area B (future cond.) (JN 08-034)

Hydrograph type = Rational  
Storm frequency = 50 yrs  
Drainage area = 0.290 ac  
Intensity = 6.144 in/hr  
IDF Curve = Wailea SF 11 06057.IDF

Peak discharge = 1.57 cfs  
Time interval = 1 min  
Runoff coeff. = 0.88  
Tc by User = 5.00 min  
Asc/Rec limb fact = 1/1

Hydrograph Volume = 470 cuft

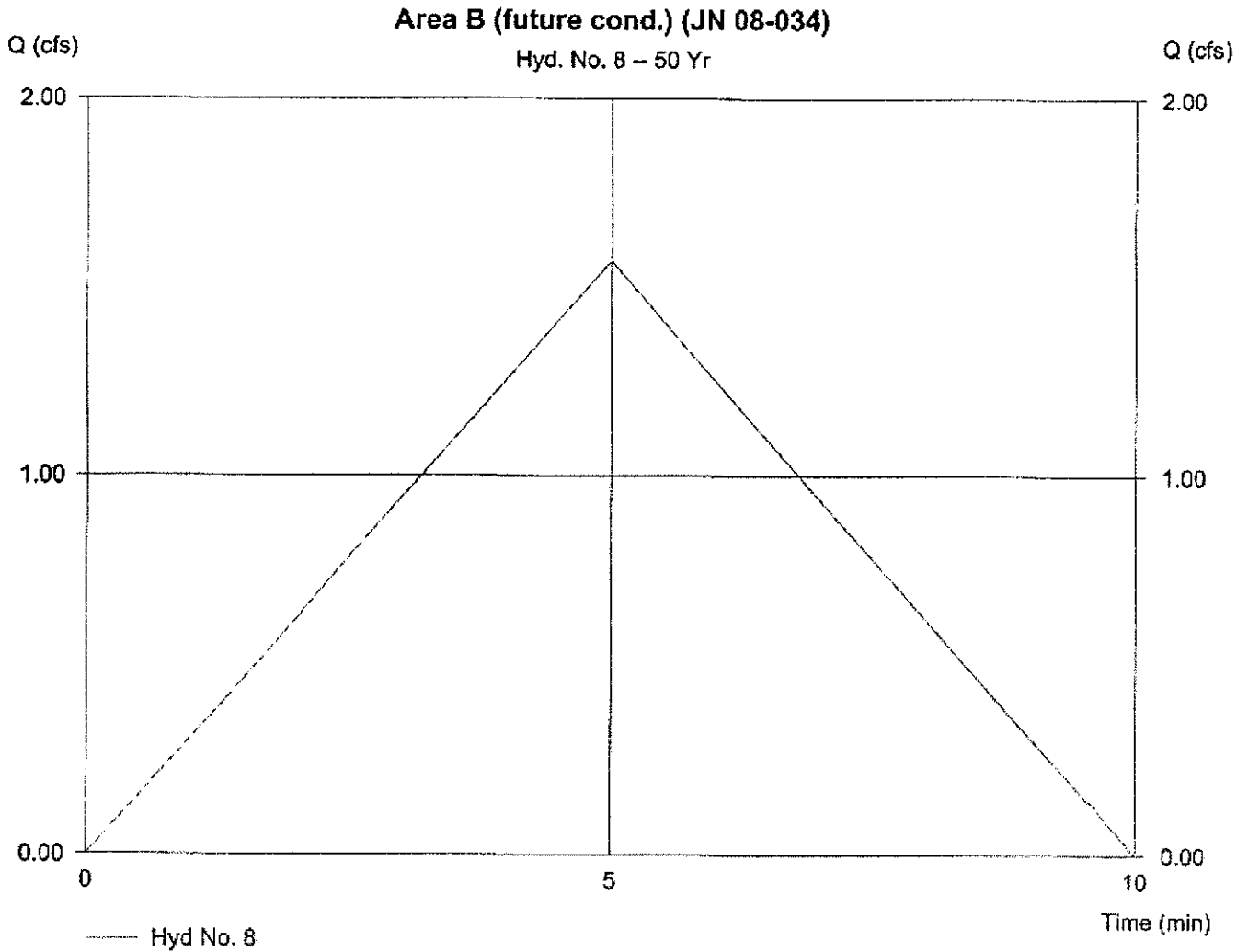


Table 1

GUIDE FOR THE DETERMINATION OF RUNOFF COEFFICIENTS FOR BUILT-UP AREAS\*

WATERSHED CHARACTERISTICS	EXTREME	HIGH	MODERATE	LOW
INFILTRATION	NEGLIGIBLE 0.20	SLOW 0.14	MEDIUM 0.07	HIGH 0.0
RELIEF	STEEP (> 25%) 0.08	HILLY (15 - 25%) 0.06	ROLLING (5 - 15%) 0.03	FLAT (0 - 5%) 0.0
VEGETAL COVER	NONE 0.07	POOR (< 10%) 0.05	GOOD (10 - 50%) 0.03	HIGH (50 - 90%) 0.0
DEVELOPMENT TYPE	INDUSTRIAL & BUSINESS 0.55	HOTEL - APARTMENT 0.45	RESIDENTIAL 0.40	AGRICULTURAL 0.15

\*NOTE: The design coefficient "c" must result from a total of the values for all four watershed characteristics of the site.

Table 2

RUNOFF COEFFICIENTS

Type of Drainage Area	Runoff Coefficient C
Parks, cemeteries	0.25
Playgrounds	0.35
Railroad yard areas	0.40
Unimproved areas	0.30
Streets:	
Asphaltic	0.95
Concrete	0.95
Brick	0.85
Driveway and walks	0.85
Roofs	0.95
Lawns:	
Sandy soil, flat, 2%	0.10
Sandy soil, avg., 2-7%	0.15
Sandy soil, steep, 7%	0.20
Heavy soil, flat, 2%	0.17
Heavy soil, avg., 2-7%	0.22
Heavy soil, steep, 7%	0.35

Table 3

MINIMUM RUNOFF COEFFICIENTS FOR BUILT-UP AREAS

Residential areas	C=0.55
Hotel, apartment areas	C=0.70
Business areas	C=0.80
Industrial areas	C=0.80

The type of soil, the type of open space and ground cover and the slope of the ground shall be considered in arriving at reasonable and acceptable runoff coefficients.

Table 4

APPROXIMATE AVERAGE VELOCITIES OF RUNOFF FOR CALCULATING TIME OF CONCENTRATION

TYPE OF FLOW	VELOCITY IN FPS FOR SLOPES (in percent) INDICATED			
	0-3%	4-7%	8-11%	12-15%
<b>OVERLAND FLOW:</b>				
Woodlands	1.0	2.0	3.0	3.5
Pastures	1.5	3.0	4.0	4.5
Cultivated	2.0	4.0	5.0	6.0
Pavements	5.0	12.0	15.0	18.0
<b>OPEN CHANNEL FLOW:</b>				
Improved Channels	Determine Velocity by Manning's Formula			
Natural Channel* (not well defined)	1.0	3.0	5.0	8.0

\*These values vary with the channel size and other conditions so that the ones given are the averages of a wide range. Wherever possible, more accurate determinations should be made for particular conditions by Manning's formula.

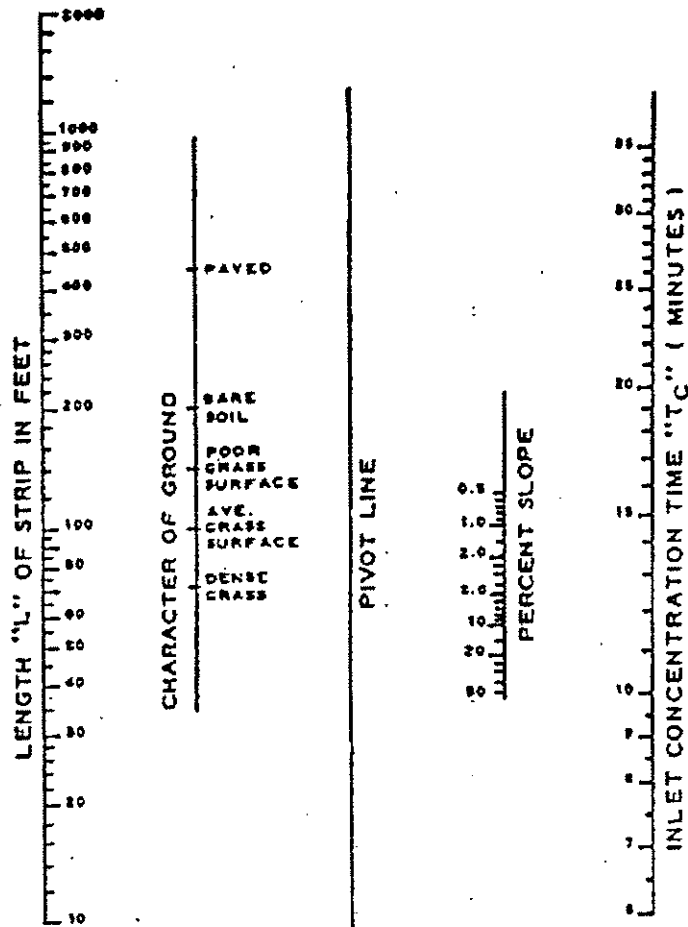
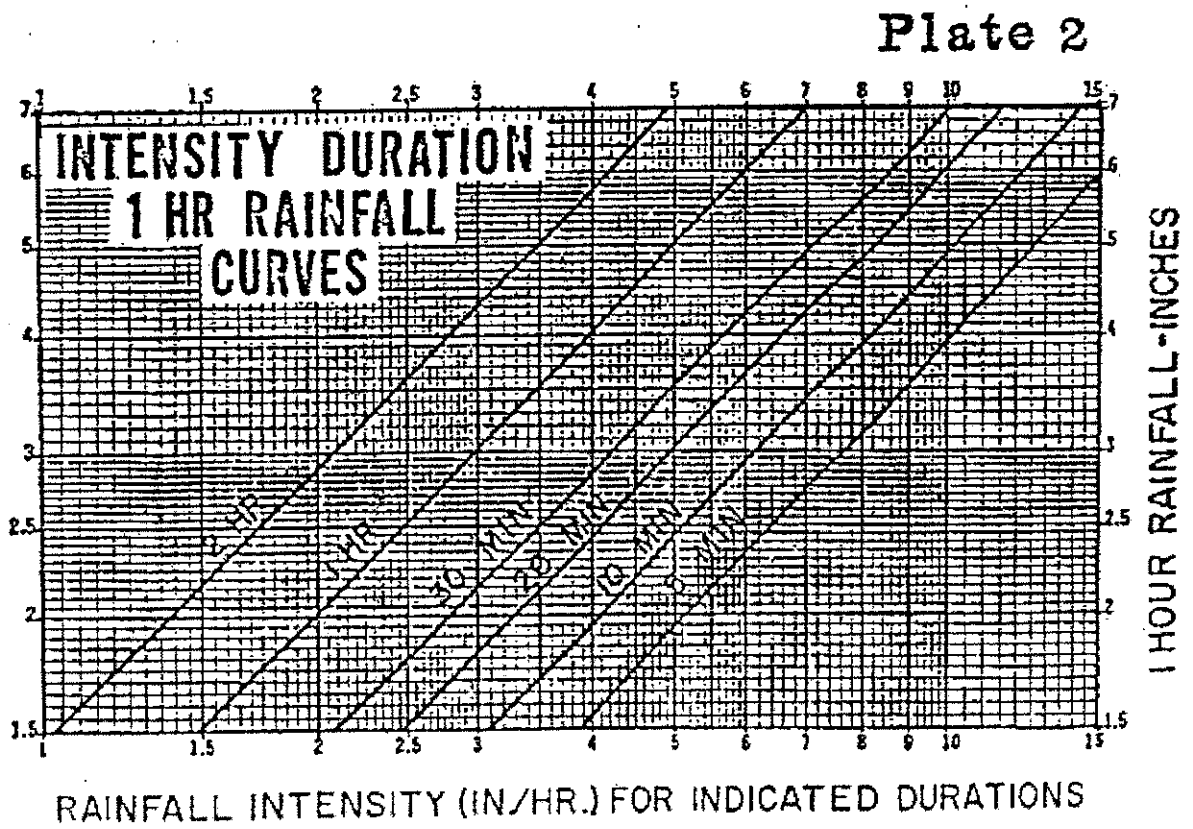
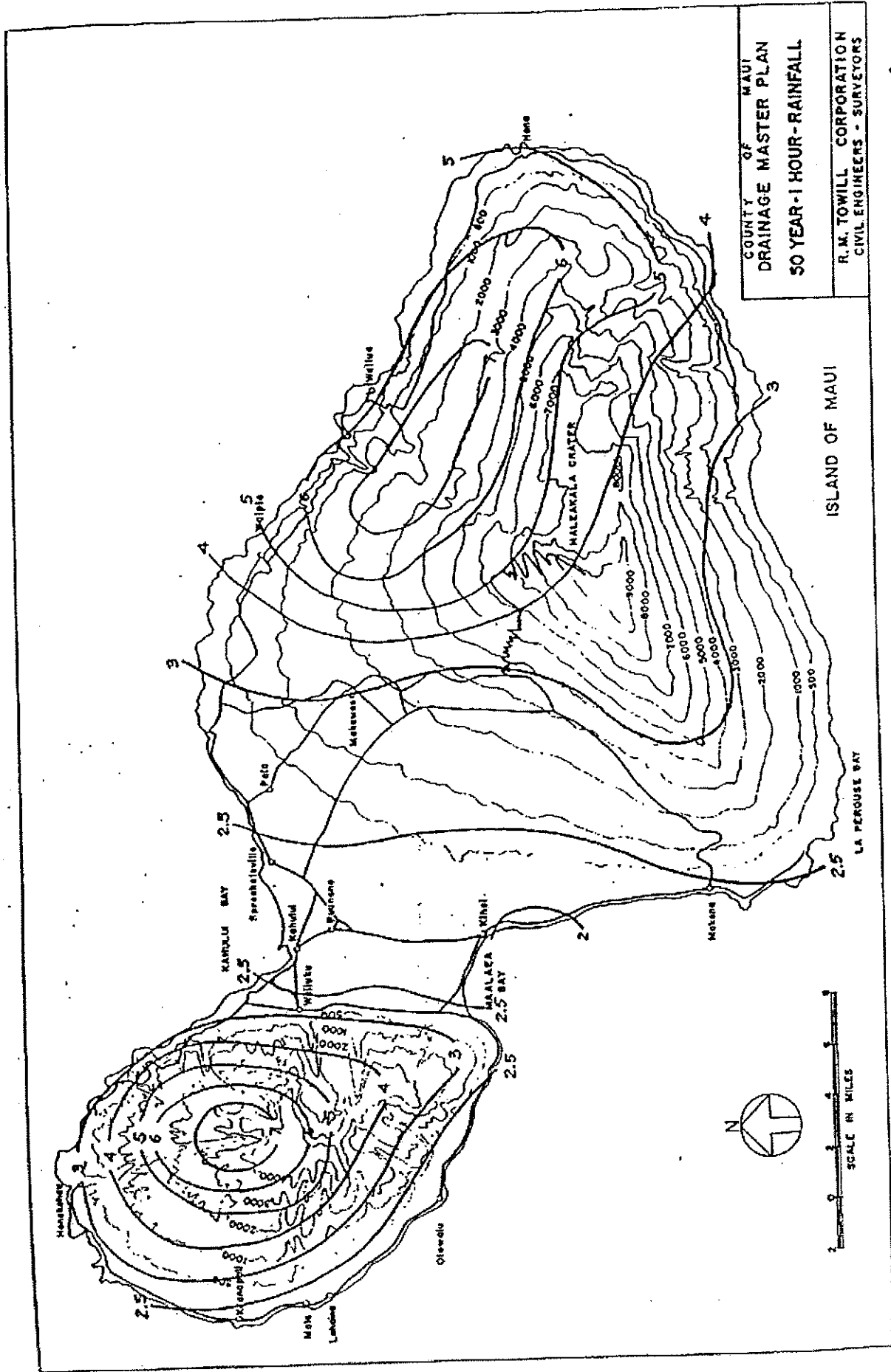


Plate 1  
Overland  
Flow  
Chart





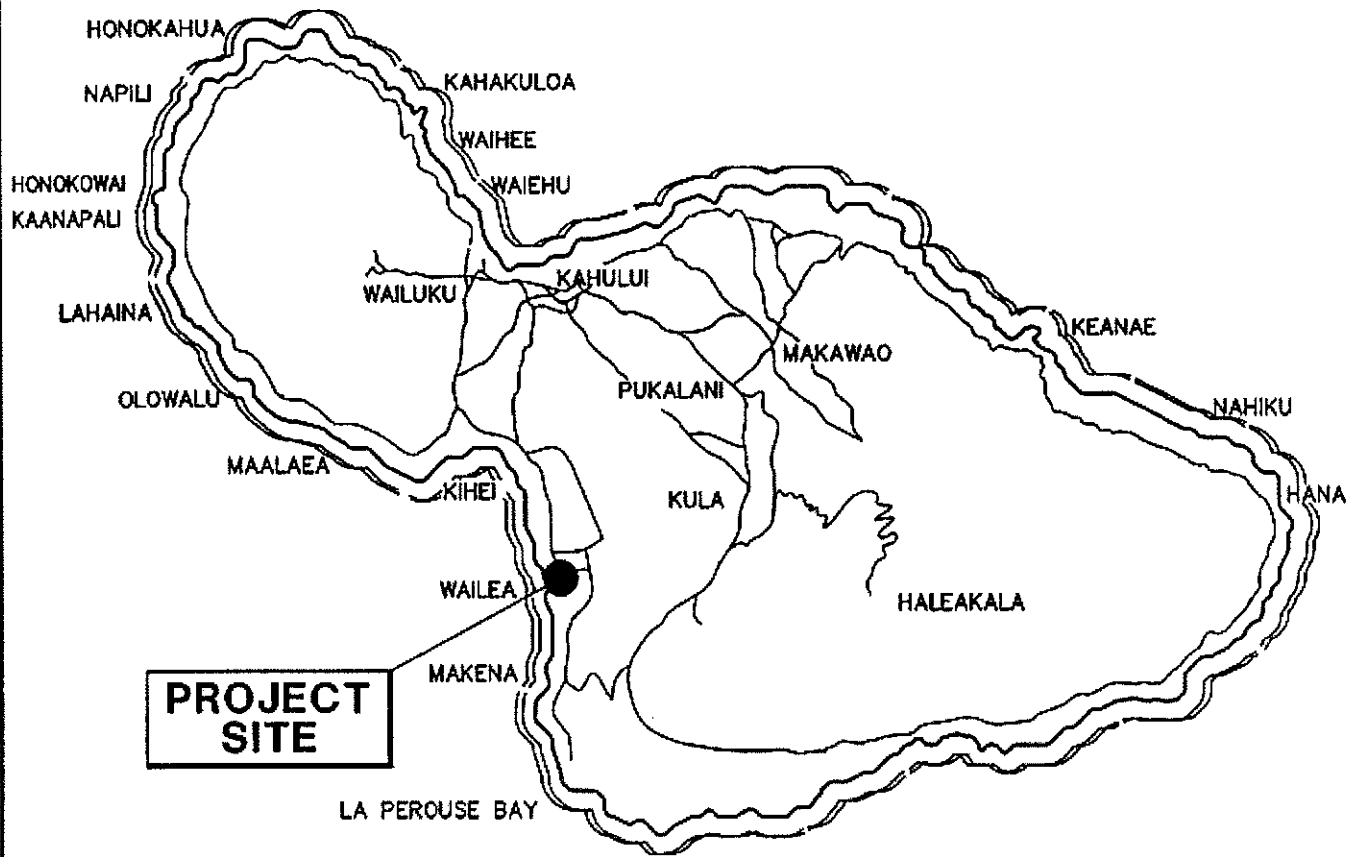
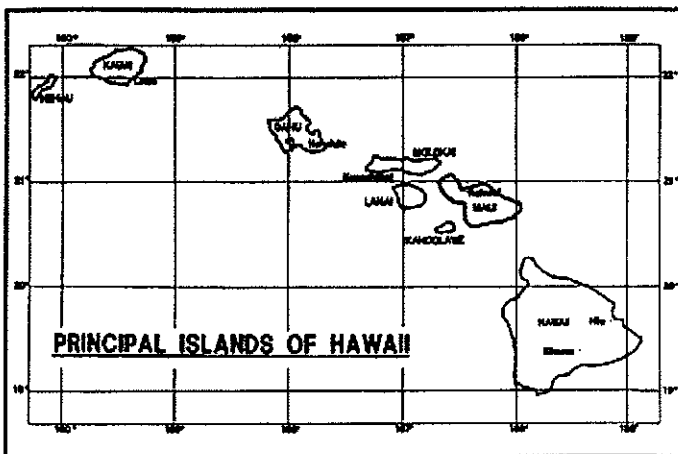


COUNTY OF MAUI  
 DRAINAGE MASTER PLAN  
 50 YEAR - 1 HOUR - RAINFALL

R.M. TOWILL CORPORATION  
 CIVIL ENGINEERS - SURVEYORS

ISLAND OF MAUI

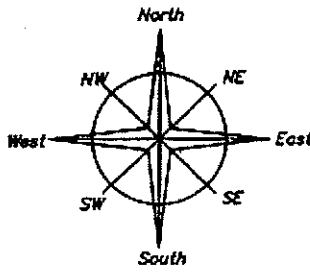
# Plate 4



**LOCATION MAP  
ISLAND OF MAUI**

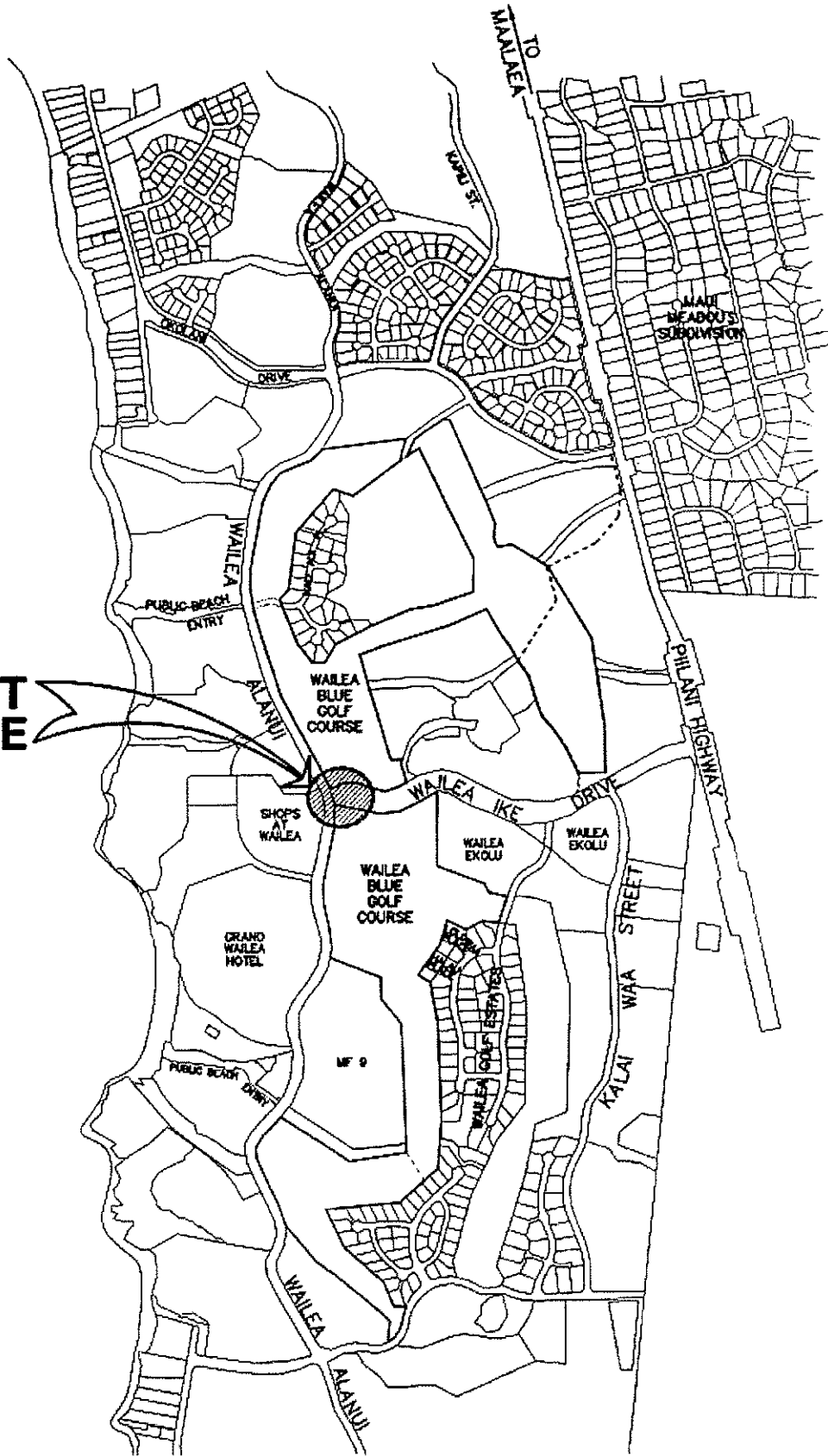
FIGURE 1

(Layout2)  
 Z:\DRAW\2008\08-034\22x34\_WAILEANUI-TOPOSURVEY.dwg 23-MAR-2009 : Revised BY:Nancy



**PROJECT SITE**

N  
A  
E  
O  
C  
E



**VICINITY MAP**

NOT TO SCALE

**FIGURE 2**

(c:\p001)  
Z:\2006\08-034\22x34\_WAILEANUI-TOPOSURVEY.dwg : 25-MAR-2009 : Revised BY: JOY E



APPROXIMATE SCALE  
1000 0 1000 FEET

**NATIONAL FLOOD INSURANCE PROGRAM**

**FIRM**  
**FLOOD INSURANCE RATE MAP**

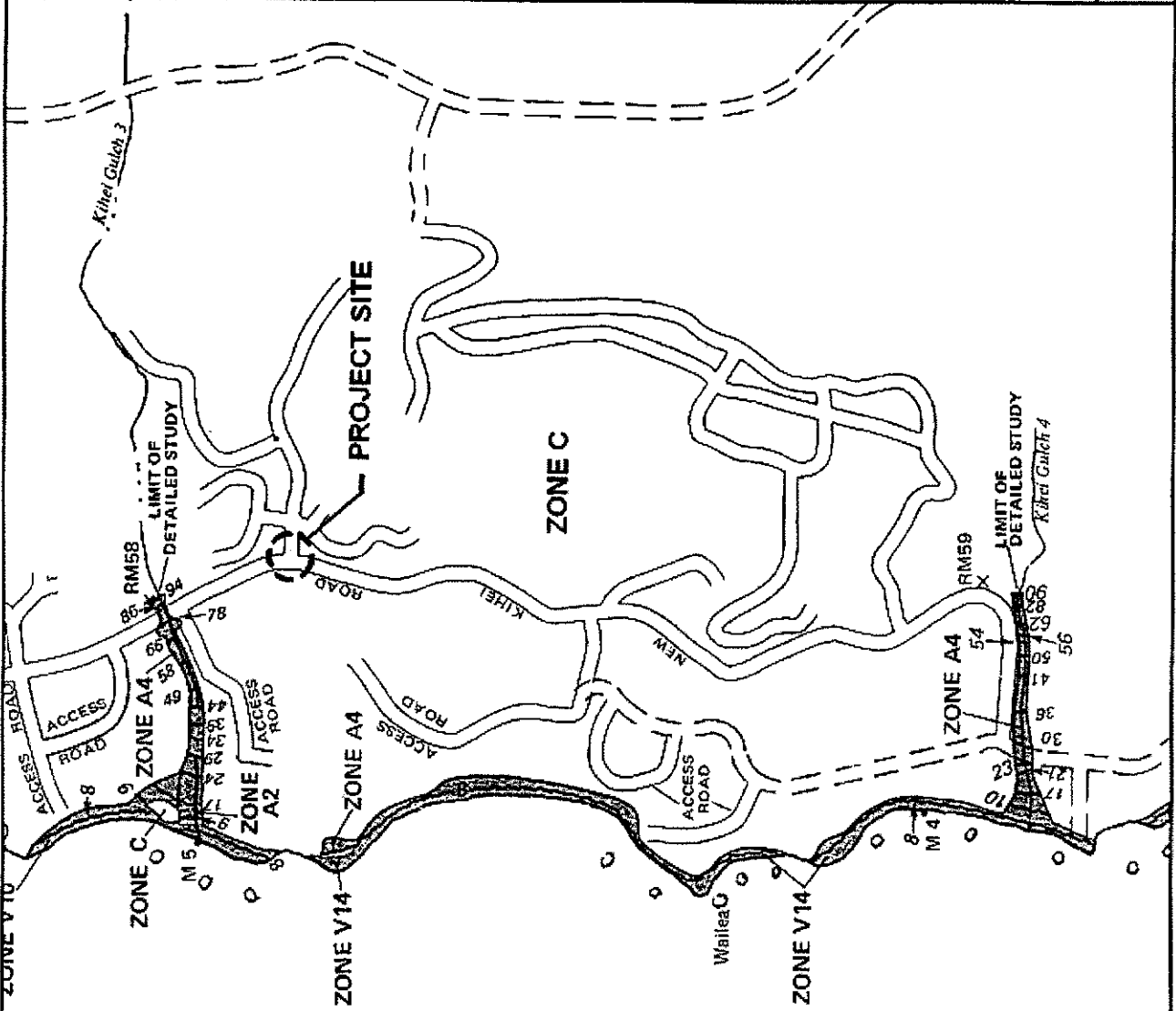
**MAUI COUNTY, HAWAII**

PANEL 330 OF 400  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER  
150003 0330 B

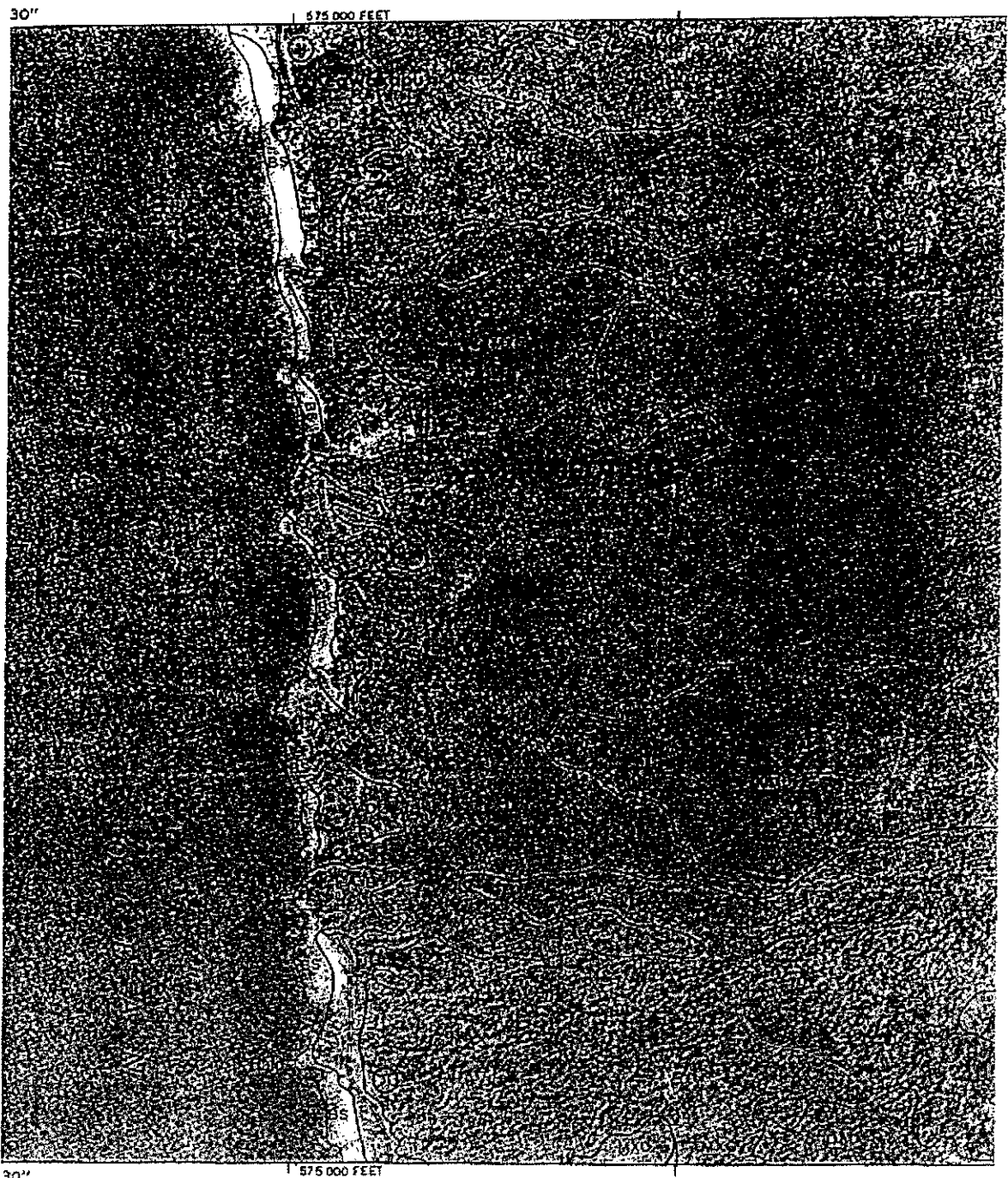
EFFECTIVE DATE:  
JUNE 1, 1981

federal emergency management agency  
federal insurance administration



This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at [www.fema.gov](http://www.fema.gov).

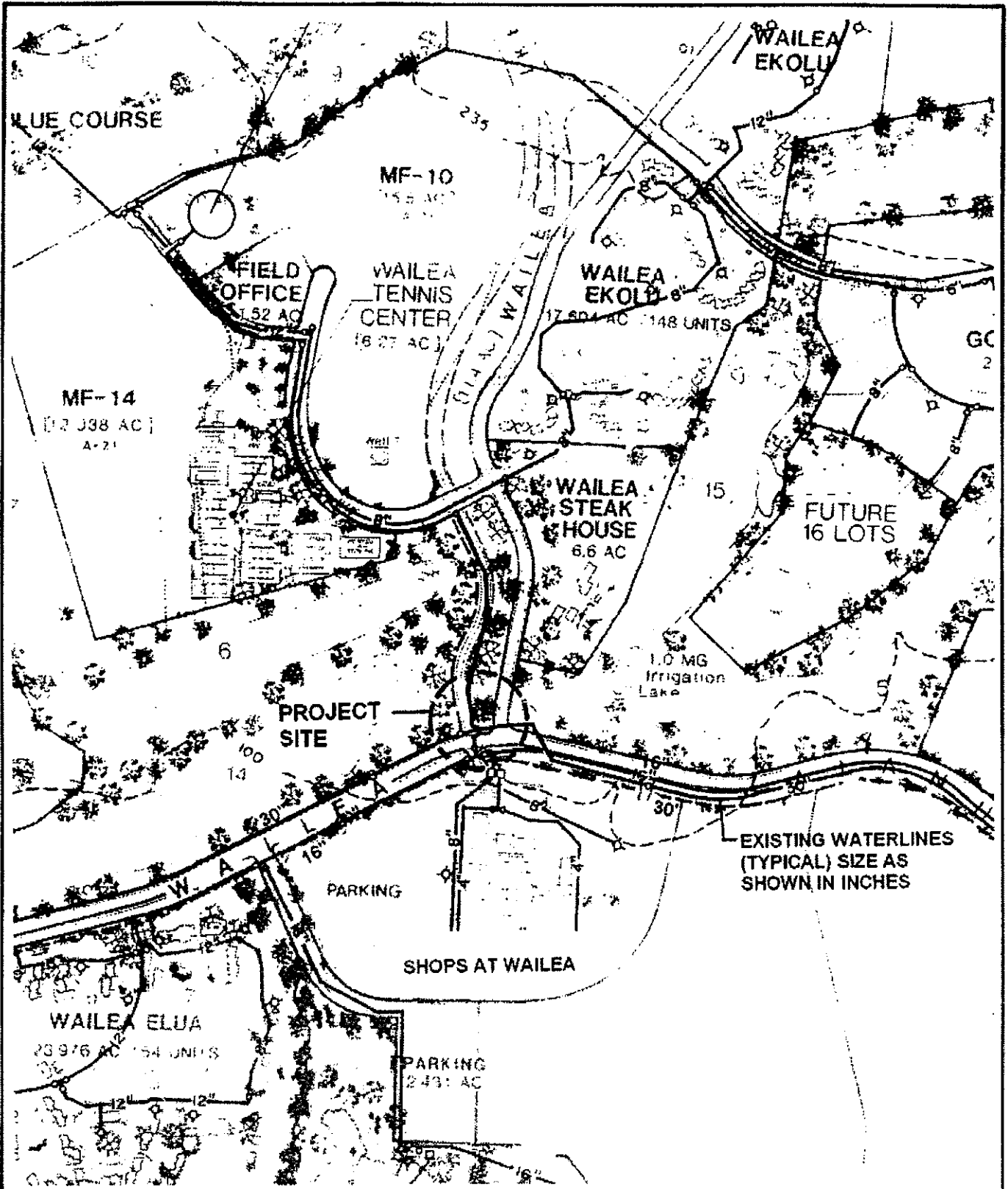
**FIGURE 3**



**SOILS MAP**  
Scale: 1" = 2,000'

Photobase from 1965 aerial photographs, 5,000-foot grid ticks based on Hawaiian plane coordinate system, zone 2 Old Hawaiian datum.

FIGURE 4

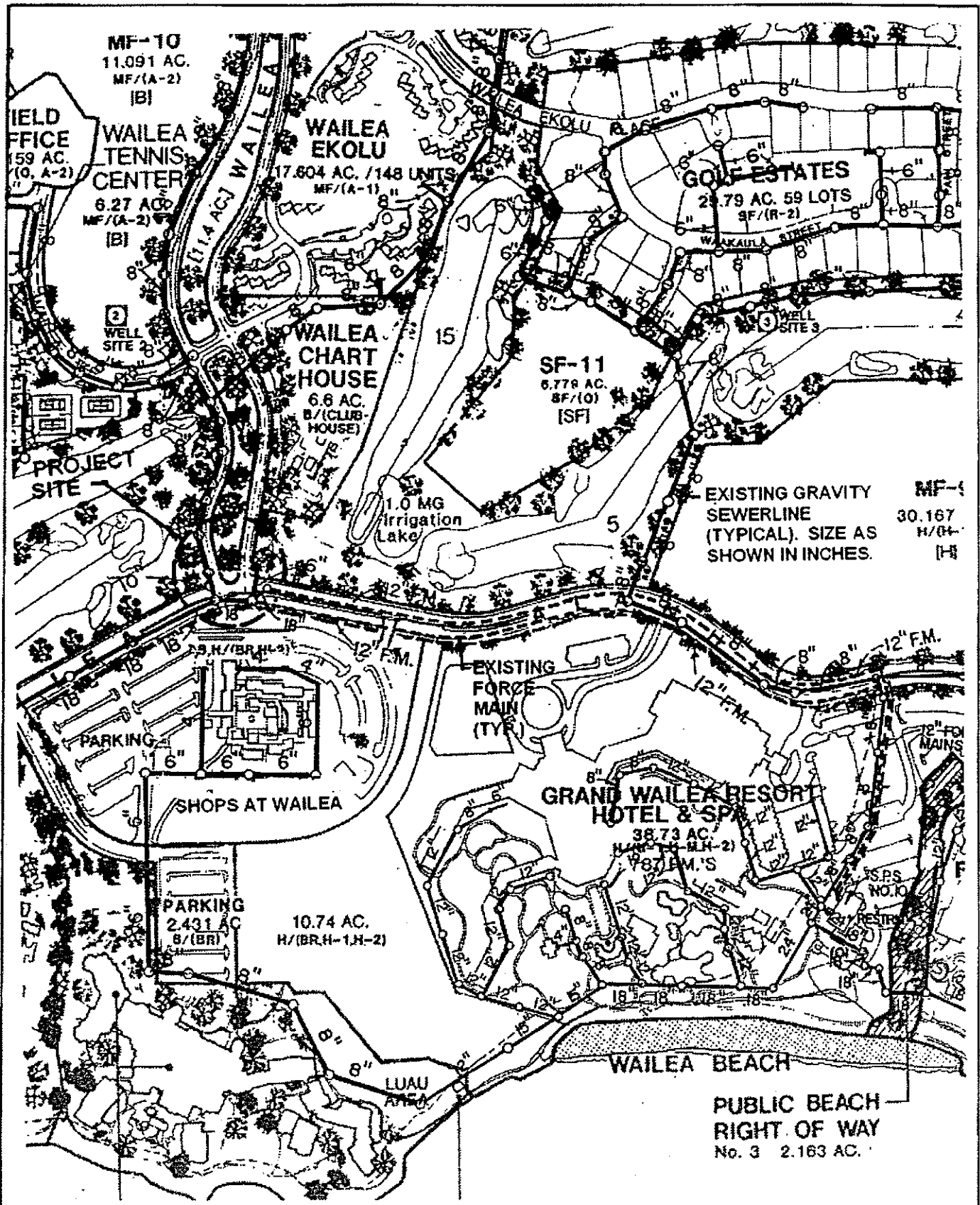


**EXISTING WATER SYSTEM**

Scale: 1" = 400'

Source: Wailea Utilities

FIGURE 5

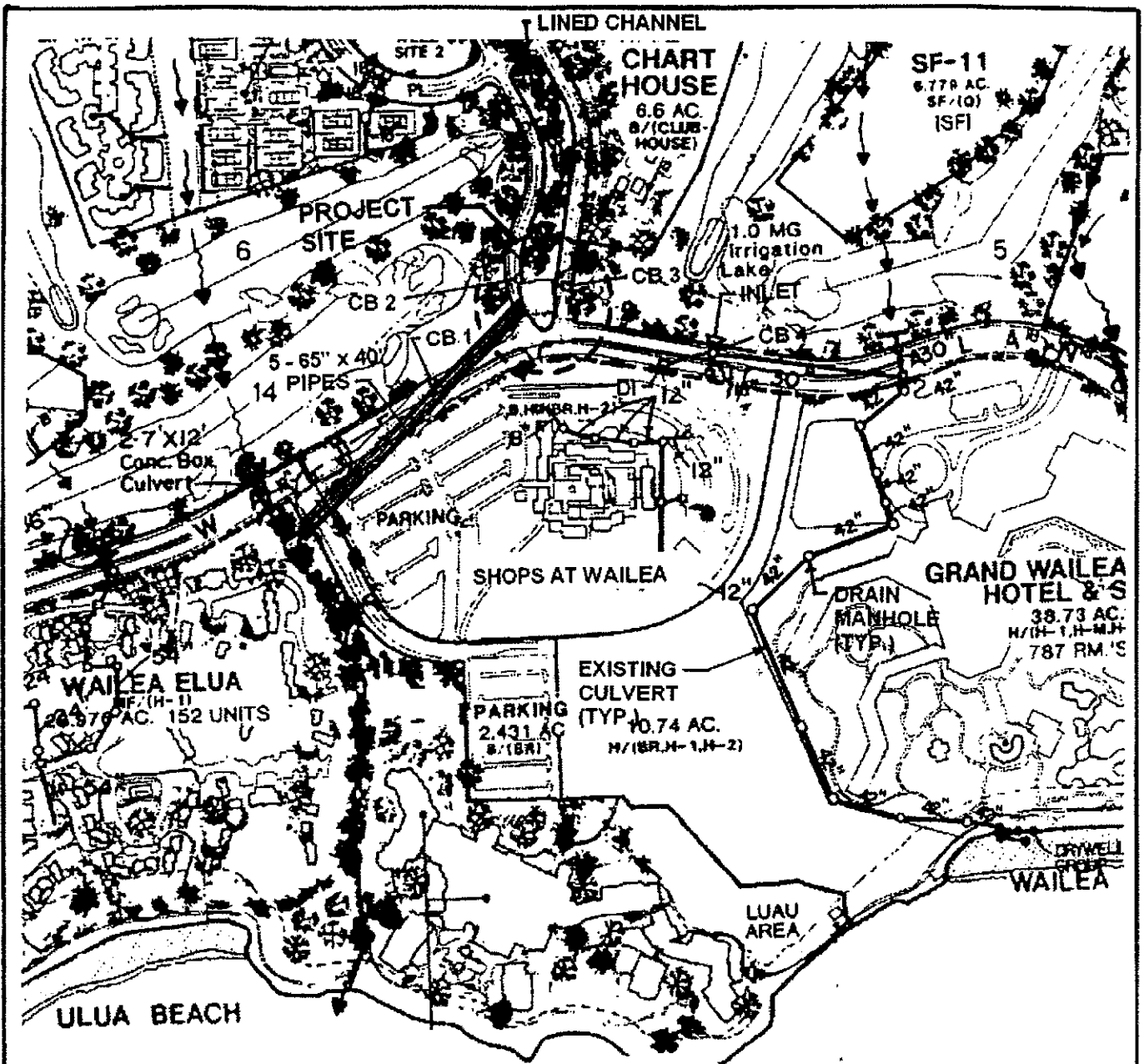


**EXISTING SEWER SYSTEM**

Scale: 1" = 400'

Source: Wailea Utilities

FIGURE 6



CB: CATCH BASIN  
 DI: DRAIN INLET (GRADED)

**EXISTING DRAINAGE SYSTEM**

Scale: 1" = 400'

# **APPENDIX E.**

**April 16, 2009 Community  
Meeting**



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

March 20, 2009

Bud Pikrone  
**Wailea Community Association**  
555 Kaukahi Street, Suite 214  
Wailea, Hawai'i 96753-8333

**SUBJECT: Pi'ilani Highway Road Widening Project Between Kilohana Drive and Wailea Ike Drive and Wailea Ike/Wailea Alanui Intersection Improvements, Kihei, Maui, Hawai'i**

Dear Mr. Pikrone:

During the County of Maui's review of the re-zoning application for Kihei-Makena Project District 9 (Honua`ula), it included a condition in which Honua`ula Partners, LLC (applicant) was made responsible for the widening improvements to Pi'ilani Highway to four (4) lanes from Kilohana Drive to Wailea Ike Drive, including intersection improvements along the project corridor. See **Figure 1**, location map.

The applicant was also required to improve the signalized intersection of Wailea Ike Drive and Wailea Alanui Drive. See **Figure 2**, location map. The condition states

*"Modify the Wailea Alanui/Wailea Ike Drive intersection to add a signalized double right-turn movement from northbound to eastbound turning traffic and provide two left-turn lanes for southbound traffic from Wailea Ike Drive prior to occupancy of the first unit in Kihei-Makena Project District 9."*

The Pi'ilani Highway widening improvements will be located within the highway right-of-way and involves the use of lands owned by the State of Hawai'i. Pursuant to Chapter 343, Hawai'i Revised Statutes (HRS), an environmental assessment (EA) is required. Also, the improvements to the Wailea Alanui/Wailea Ike Drive intersection involves the use of County of Maui lands which will also require an EA. As part of the EA early consultation process, on behalf of the applicant, we are seeking early community input. In this regard, we have scheduled a community meeting on

**Date:** April 16, 2009  
**Time:** 6:00 p.m.  
**Place:** Kihei Community Center  
303 East Lipoa Street  
Kihei Hawai'i 96793

Bud Pikrone  
March 20, 2009  
Page 2

We invite your community association and members to attend this community meeting to become informed of the project and to voice your concerns that should be addressed in the EA document.

We look forward to your participation in the scheduled community meeting. If additional clarification is required, please contact me at 244-2015.

Very truly yours,

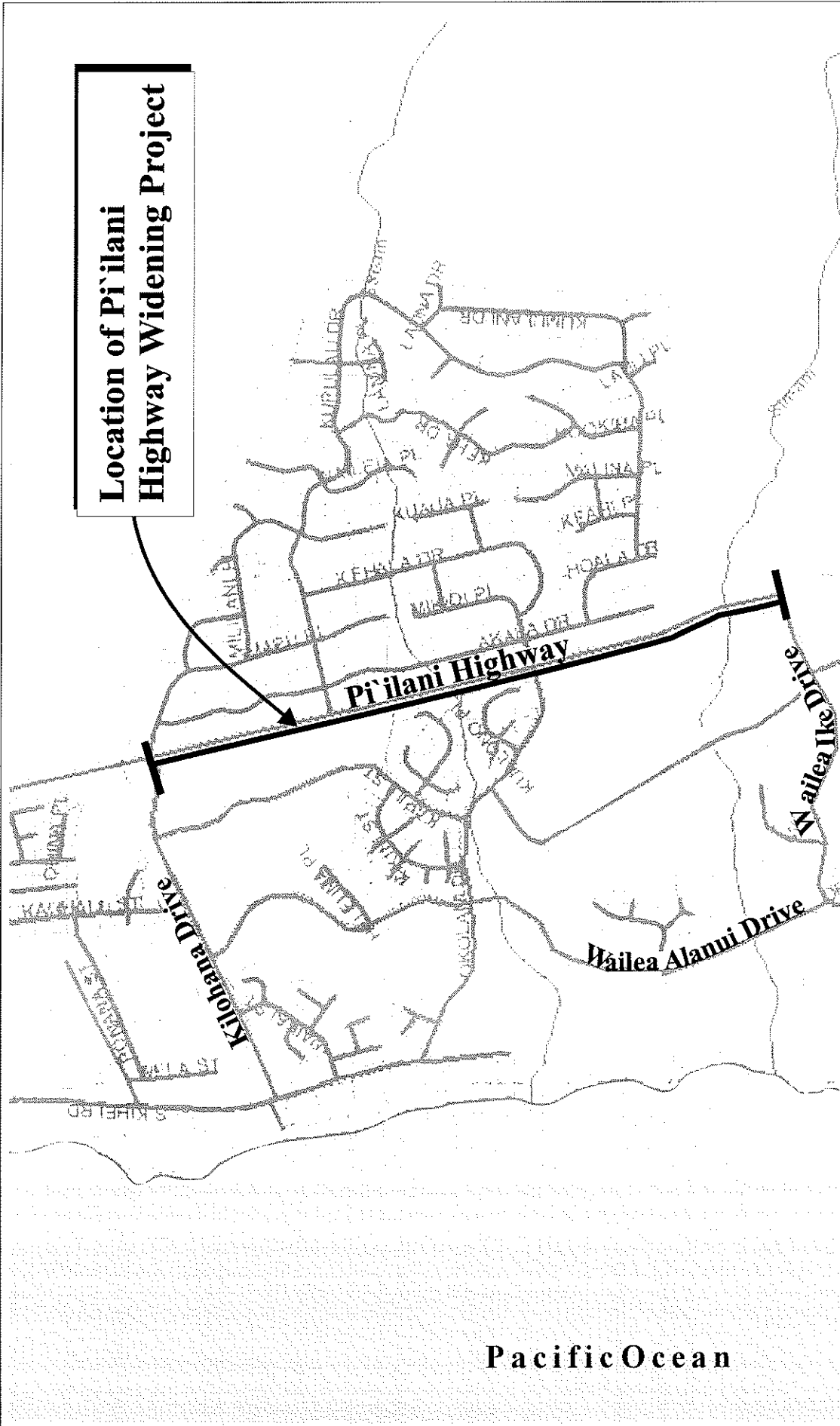
  
Gwen Ohashi Hiraga, Principal

GOH:yp  
Enclosures

cc: Charles Jencks, Honua`uia Partners, LLC (w/out enclosures)  
Keith Niiya, Austin Tsutsumi & Associates (w/out enclosures)  
Stan Watanabe, Austin Tsutsumi & Associates (w/out enclosures)

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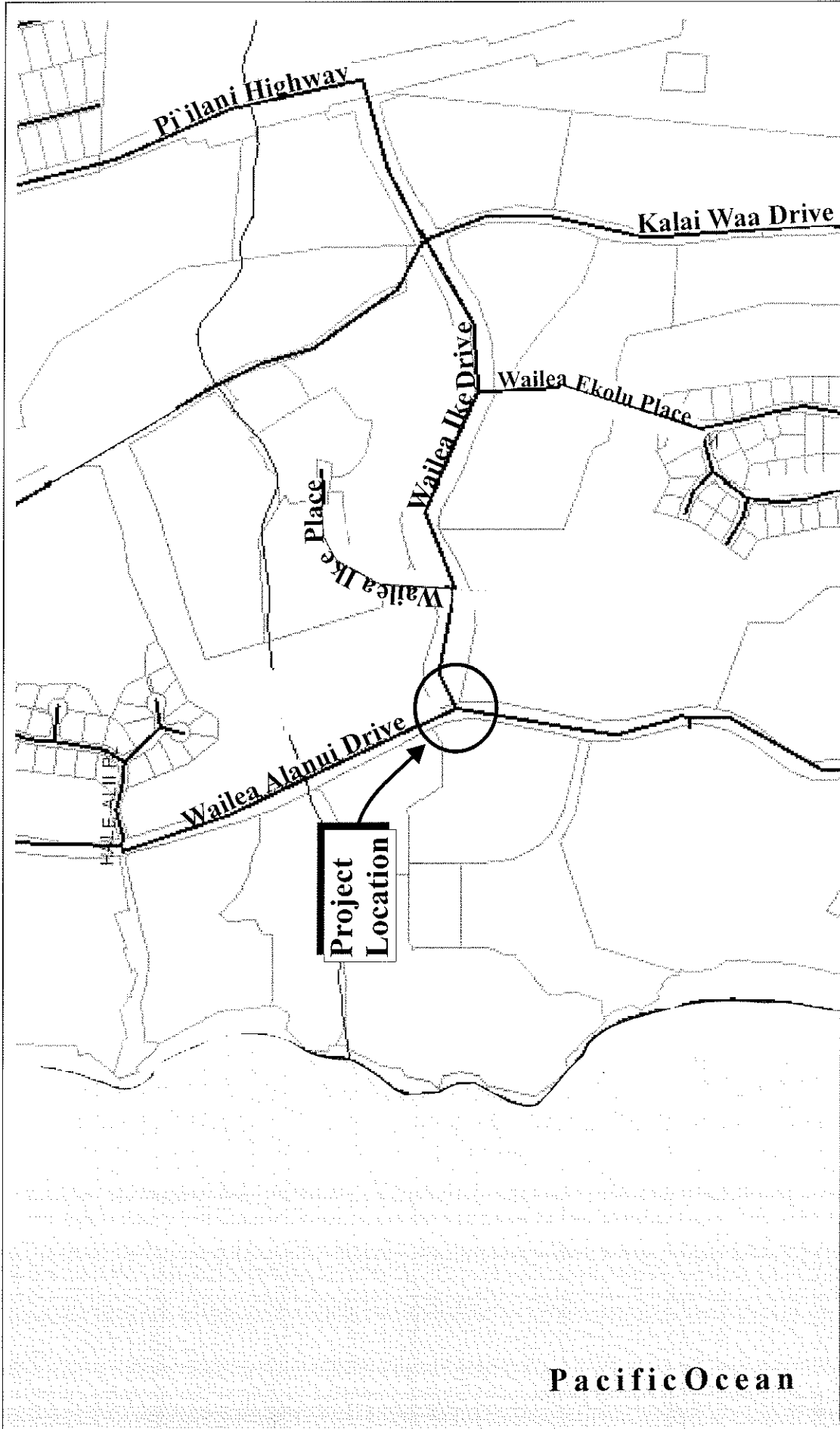
Source: County of Maui

**Figure 1** Pi'ilani Highway Widening to Four (4) Lanes  
Between Kilohana Drive and Wailea Ike Drive



Location Map

NOT TO SCALE



Source: County of Maui

Figure 2

Wailea Ike Drive and Wailea Alanui Drive

Intersection Improvements

Location Map



NOT TO SCALE



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRAGA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUDA

MARK ALEXANDER ROY

March 20, 2009

Madge Schaefer, President  
**Maui Meadows Neighborhood Association**  
P. O. Box 160  
Kihei, Hawai'i 96753

**SUBJECT: Pi'ilani Highway Road Widening Project Between Kilohana Drive and Wailea Ike Drive and Wailea Ike/Wailea Alanui Intersection Improvements, Kihei, Maui, Hawai'i**

Dear Ms. Schaefer:

During the County of Maui's review of the re-zoning application for Kihei-Makena Project District 9 (Honua'ula), it included a condition in which Honua'ula Partners, LLC (applicant) was made responsible for the widening improvements to Pi'ilani Highway to four (4) lanes from Kilohana Drive to Wailea Ike Drive, including intersection improvements along the project corridor. See **Figure 1**, location map.

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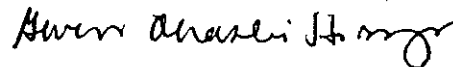
**Date:** April 16, 2009  
**Time:** 6:00 p.m.  
**Place:** Kihei Community Center  
303 East Lipoa Street  
Kihei Hawai'i, 96793

Madge Schaefer, President  
March 20, 2009  
Page 2

We invite your community association and members to attend this community meeting to become informed of the project and to voice your concerns that should be addressed in the EA document.

We look forward to your participation in the scheduled community meeting. If additional clarification is required, please contact me at 244-2015.

Very truly yours,



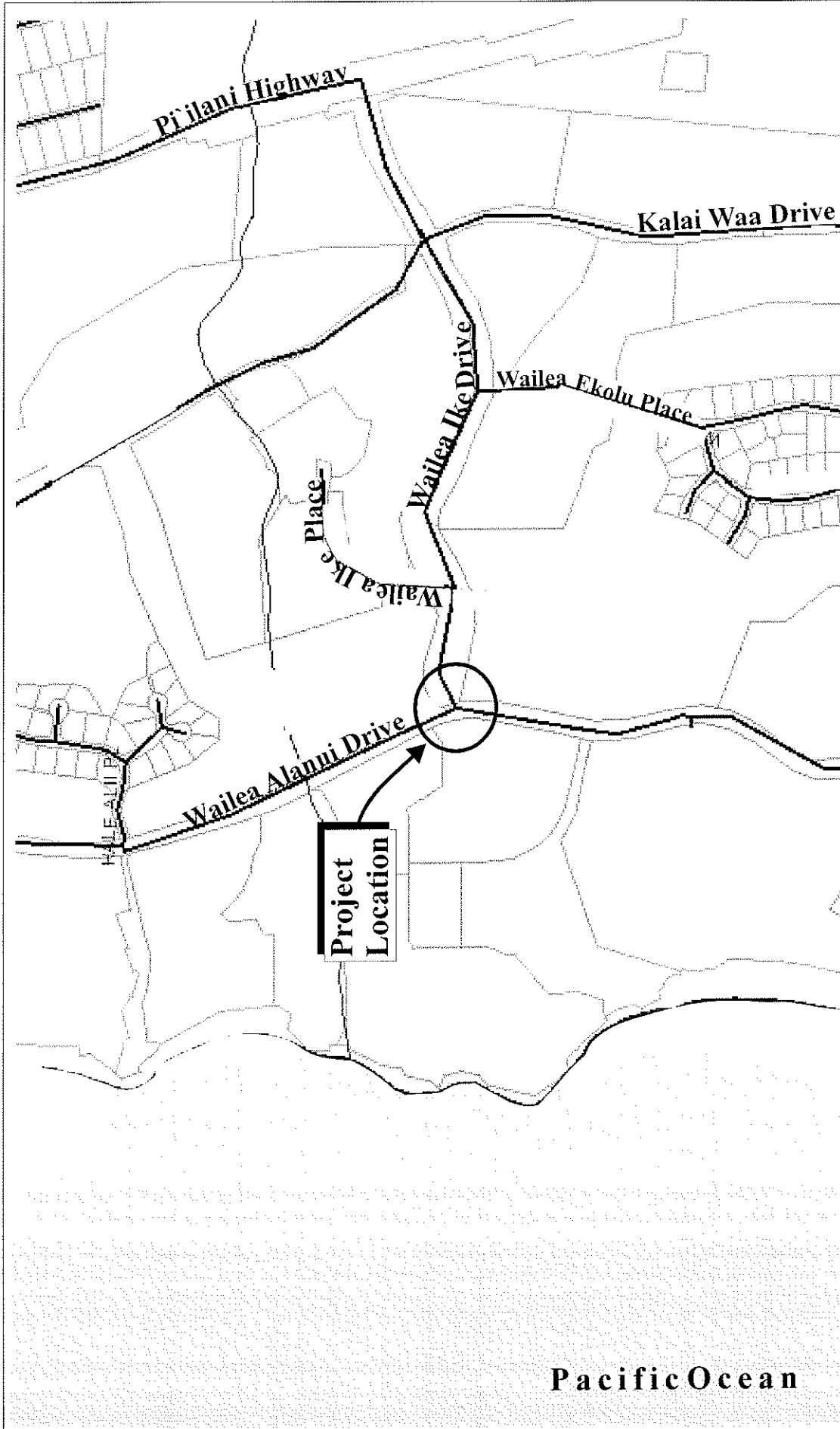
Gwen Ohashi Hiraga, Principal

GOH:yp  
Enclosures

cc: Charles Jencks, Honua`ula Partners, LLC (w/out enclosures)  
Keith Niiya, Austin Tsutsumi & Associates (w/out enclosures)  
Stan Watanabe, Austin Tsutsumi & Associates (w/out enclosures)

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Source: County of Maui

Figure 2

Wailea Ike Drive and Wailea Alanui Drive  
 Intersection Improvements  
 Location Map



NOT TO SCALE



MICHAEL T. MUNEKIYO  
GWEN OHASHI HIRABA  
MITSURU "MICH" HIRANO  
KARLYNN FUKUOA

MARK ALEXANDER ROY

March 20, 2009

**Kihei Community Association**

P. O. Box 662  
Kihei, Hawa'i'i 96753

**SUBJECT:** Pi'ilani Highway Road Widening Project Between Kilohana Drive and Wailea Ike Drive and Wailea Ike/Wailea Alanui Intersection Improvements, Kihei, Maui, Hawai'i

Dear Sir or Madam:

During the County of Maui's review of the re-zoning application for Kihei-Makena Project District 9 (Honua'ula), it included a condition in which Honua'ula Partners, LLC (applicant) was made responsible for the widening improvements to Pi'ilani Highway to four (4) lanes from Kilohana Drive to Wailea Ike Drive, including intersection improvements along the project corridor. See **Figure 1**, location map.

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**Date:** April 16, 2009  
**Time:** 6:00 p.m.  
**Place:** Kihei Community Center  
303 East Lipoa Street  
Kihei Hawai'i 96793

**Kihel Community Association**

March 20, 2009

Page 2

We invite your community association and members to attend this community meeting to become informed of the project and to voice your concerns that should be addressed in the EA document.

We look forward to your participation in the scheduled community meeting. If additional clarification is required, please contact me at 244-2015.

Very truly yours,



Gwen Ohashi Hiraga, Principal

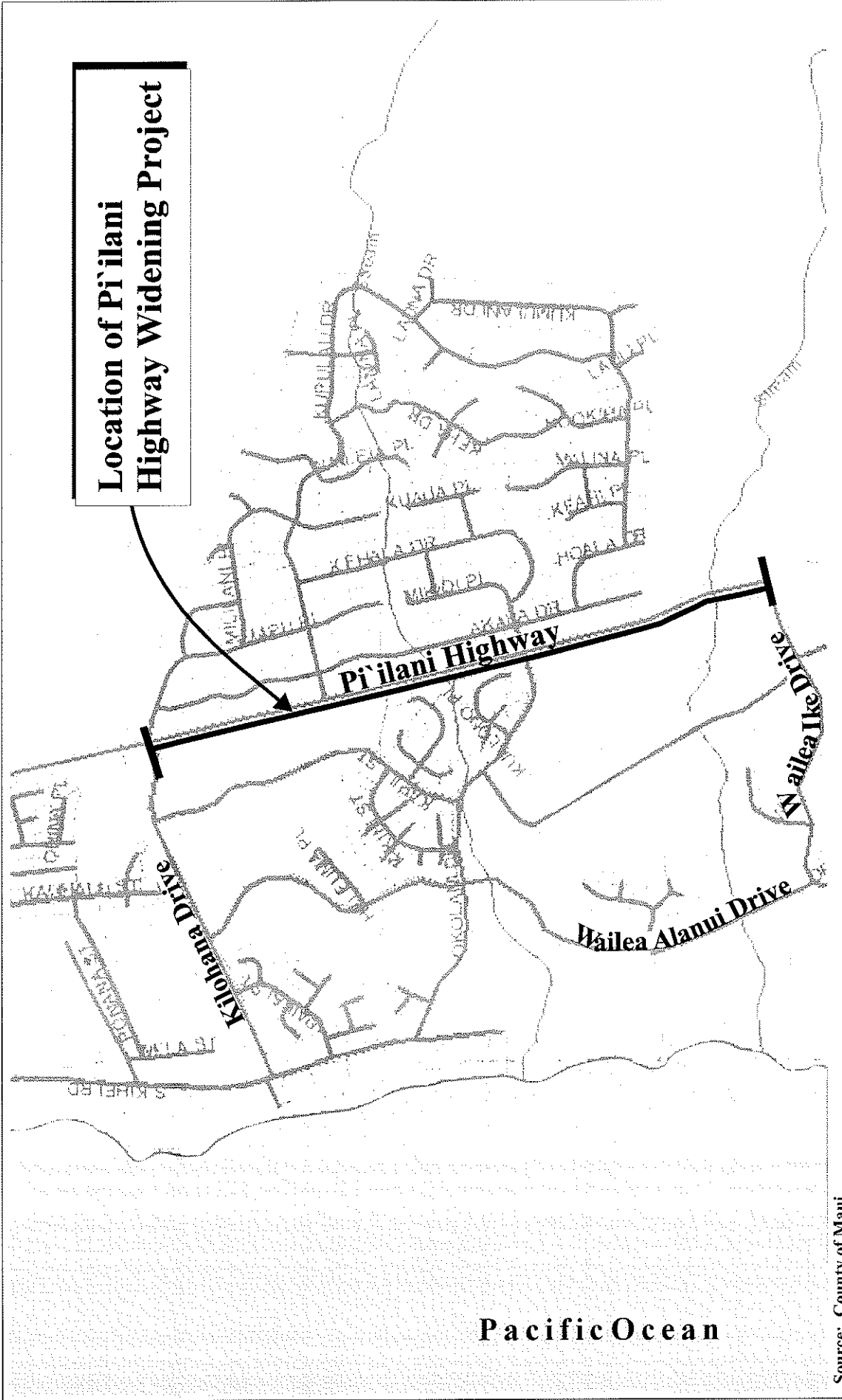
GOH:yp

Enclosures

cc: Charles Jencks, Honua`ula Partners, LLC (w/out enclosures)  
Keith Niiya, Austin Tsutsumi & Associates (w/out enclosures)  
Stan Watanabe, Austin Tsutsumi & Associates (w/out enclosures)

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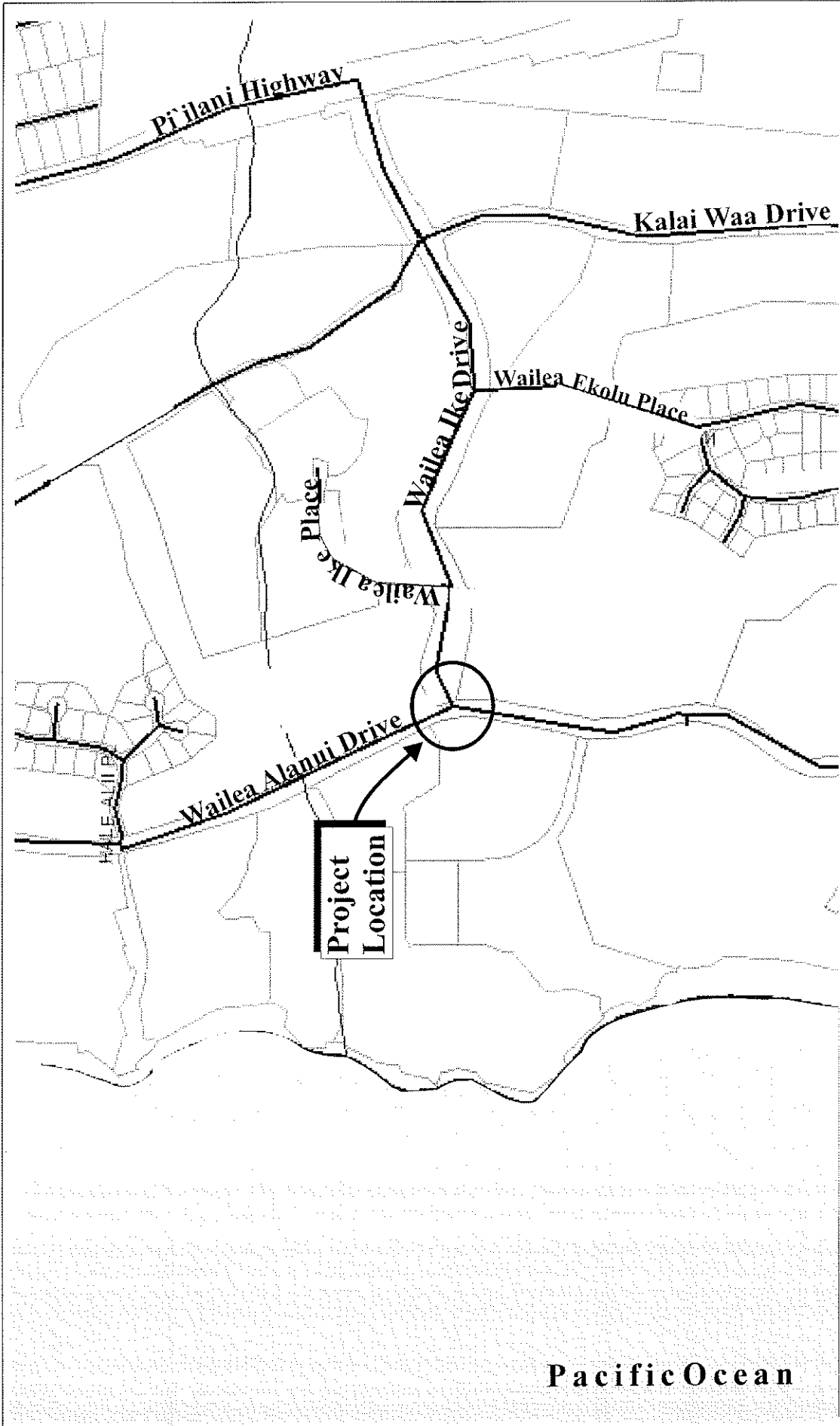




**Figure 1** Pi'ilani Highway Widening to Four (4) Lanes  
 Between Kilohana Drive and Wailea Ike Drive  
 Location Map



NOT TO SCALE



Source: County of Maui

**Figure 2**

**Wailea Ike Drive and Wailea Alanui Drive**

**Intersection Improvements**

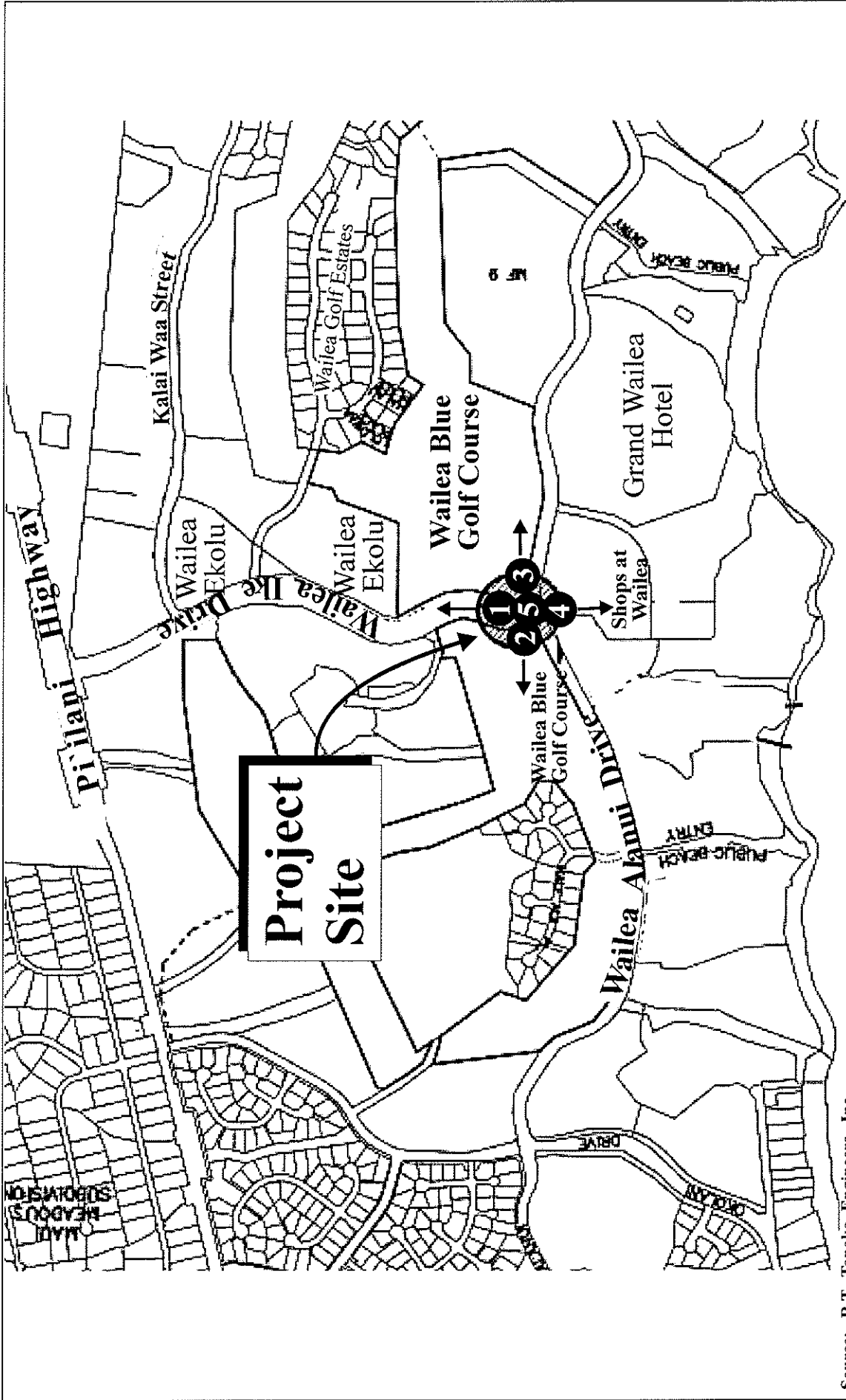
**Location Map**



NOT TO SCALE

# **APPENDIX F.**

## **Site Photographs**



Source: R.T. Tanaka Engineers, Inc.

# Wailea Ike Drive and Wailea Alanui Drive Intersection Improvements Photographic Reference Map

NOT TO SCALE



Prepared for: Honua'ula Partners, LLC



WCPT:Intersection/photoreference



**PHOTO NO. 1 - Intersection - View East**



**PHOTO NO. 2 - Intersection - View North  
(Wailea Blue Golf Course)**



**PHOTO NO. 3 - Intersection - View South  
(Wailea Blue Golf Course)**



**PHOTO NO. 4 - Intersection - View West  
(Shops at Wailea)**



**PHOTO NO. 5 - Drainage in Wailea Ike Drive Median**

# **APPENDIX G.**

**Department of Land and  
Natural Resources, State  
Historic Preservation Division  
Letter Dated July 16, 2009**



LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BOULEVARD, ROOM 555  
KAPOLEI, HAWAII 96707

LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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

July 16, 2009

Ms. Gwen Ohashi Hiraga, Principal  
Munekiyo & Hiraga, Inc.  
305 High Street, Suite 104  
Wailuku, Hawai'i 96793  
[planning@mhplanning.com](mailto:planning@mhplanning.com)

LOG NO: 2009.1118  
DOC NO: 0907PC31  
Archaeology

**SUBJECT: Chapter 6E-42 Historic Preservation Review – Early Consultation on the Wailea Resort Intersection Improvements to Wailea Alanui Drive and Wailea Ike Drive Paeahu Ahupua'a, Makawao District, Island of Maui**  
**TMK: (2) 2-1-008:999**

---

Thank you for the opportunity to comment on the aforementioned project, correspondence for which we received on March 20 of 2009. Please accept our apologies for the lengthy delay in responding.

Based on the submitted document, the project involves intersection improvements to Wailea Alanui Drive and Wailea Iki Drive, as requested by the County of Maui in association with the rezoning application made by Honua'ula Partners, LLC. More specifically, the County requested that the applicant "*modify the Wailea Alanui/Wailea Ike Drive intersection to add signalized double right-turn movement from northbound to eastbound turning traffic and to provide two left-turn lanes for southbound traffic from Wailea Ike Drive...*" The proposed area of effect is within an existing County roadway/road right-of-way. The proposed project is also located in an area where numerous isolated and clustered pre-Contact period human burials and other culturally significant deposits have been found. Given the above information, the most reasonable form of mitigation appears to be precautionary archaeological monitoring during all project related ground altering disturbance.

Therefore, upon review of any permit application associated with the proposed project forwarded to us by the County of Maui, we will likely recommend the following:

A qualified archaeological monitor shall be present during *those portions of the project which involve ground altering disturbance* in order to document any historic properties which may be encountered and to provide mitigation measures as necessary. *Please note that ground altering disturbance includes previously disturbed stratigraphy, as culturally significant subsurface deposits are often found in these contexts.*

As per Hawai'i Administrative Rules (HAR) §13-279, this means that prior to the commencement of ground altering disturbance associated with the proposed project, the project developer or developer's agent must submit an appropriately prepared *monitoring plan* to this office for review and acceptance. The plan must contain the following provisions:

- 1) Specify the kinds of historically or culturally significant sites or remains of sites anticipated and where in the construction area they are likely to be found;
- 2) Specify how such sites or remains of sites will be documented;
- 3) Specify how such sites or remains of sites will be treated;
- 4) Specify that the archaeologist (s) conducting the monitoring has (have) the authority to halt construction in the immediate area of the find in order to carry out the plan;
- 5) Specify that coordination between the archaeologist and construction crew has been scheduled so that all involved parties are aware of the plan and what it means;
- 6) Specify what laboratory work will be performed on any cultural sites or remains of sites that might be found in the project area;
- 7) Specify details concerning the archiving of any collections that are made;
- 8) Specify a schedule of report preparation and that the report will be submitted within the required 180 days after completion of the proposed undertaking.

A list of those meeting the requirements to perform such work can be obtained on the SHPD's website at <http://hawaii.gov/dlnr/hpd/pdfs/2009-Permittee.pdf> or by contacting our main office at (808) 692-8015.

If you have any questions or comments regarding this letter, please contact the SHPD's Lead Maui Archaeologist, Ms. Patty Conte ([Patty.J.Conte@hawaii.gov](mailto:Patty.J.Conte@hawaii.gov)).

Aloha,



Nancy McMahon, Deputy SHPO/State Archaeologist  
State Historic Preservation Division

c: Sinoto Consulting, LLC: [akihikosinoto@aol.com](mailto:akihikosinoto@aol.com)  
Jeff Hunt, Director, Dept. of Planning, FAX (808) 270-7634