



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
 COUNTY OF MAUI

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ALAN M. ARAKAWA
 Mayor
 JO-ANN T. RIDAO
 Director
 JAN SHISHIDO
 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

September 6, 2011

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

RECEIVED
 '11 SEP 13 P 1:07
 OFC. OF ENVIRONMENTAL
 QUALITY CONTROL

Dear Mr. Hooser:

**SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT (EA) FOR THE
 PROPOSED KAHOMA RESIDENTIAL SUBDIVISION AT TMK
 (2)4-5-010:005, LAHAINA, MAUI, HAWAII**

The County of Maui, Department of Housing and Human Concerns, the Approving Agency for the Final Environmental Assessment (EA) for the subject project, has reviewed the Final EA and has issued a Finding of No Significant Impact (FONSI) determination. Please publish the Final EA in the next available publication of the Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication form and Project Summary, a CD (PDF.file) and one (1) hard copy of the Final EA.

Should you have any questions, please feel free to contact our planning consultant, Erin Mukai of Munekiyo & Hiraga, Inc. at (808) 244-2015.

Sincerely,

JO-ANN T. RIDAO
 Director of Housing and Human Concerns

Enclosures

cc: Heidi Bigelow, West Maui Land Company, Inc.
 Gwen Ohashi Hiraga, Munekiyo & Hiraga, Inc.

**Publication Form
The Environmental Notice
Office of Environmental Quality Control**

Instructions: Please submit one hardcopy of the document along with a determination letter from the agency. On a compact disk, put an electronic copy of this publication form in MS Word and a PDF of the EA or EIS. Please make sure that your PDF documents are ADA compliant. Mahalo.

Project Name: Proposed Kahoma Residential Subdivision
Applicable Law: Chapter 343, Hawaii Revised Statutes (HRS)
Type of Document: Final Environmental Assessment
Island: Maui
District: Lahaina
TMK: (2)4-5-010:005
Permits Required: Section 201H-38, HRS County Approval; Section 201H-38, HRS, District Boundary Amendment Approval; National Pollutant Discharge Elimination System (NPDES) Permit, as applicable; Subdivision Approval; Construction Permits; Section 404 Department of Army Permit, as applicable; Section 401 Water Quality Certification, as applicable; Coastal Zone Management Consistency Approval, as applicable.

Applicant or Proposing Agency: West Maui Land Company, Inc.
Address: 33 Lono Avenue, Suite 450
Kahului, Hawaii, 96732
Contact & Phone: Peter Martin, (808) 877-4202

Approving Agency/ Accepting Authority: County of Maui, Department of Housing and Human Concerns
Address: 2200 Main Street
One Main Plaza Building, Suite 546
Wailuku, Hawaii, 96793
Contact & Phone: Jo-Ann T. Ridao, Director, (808) 270-7805

Consultant: Munekiyo & Hiraga, Inc.
Address: 305 High Street, Suite 104
Wailuku, Hawaii, 96793
Contact & Phone: Gwen Ohashi Hiraga, Principal, (808) 244-2015

OFC. OF ENVIRONMENTAL QUALITY CONTROL
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Project Summary: Summary of the direct, indirect, secondary, and cumulative impacts of the proposed action (less than 200 words). Please keep the summary brief and on this one page.

West Maui Land Company, Inc. proposes the development of a 68-lot Kahoma Residential Subdivision and related improvements on an approximate 16.7-acre parcel identified as TMK (2) 4-5-010:005 in Lahaina, Maui, Hawaii. The project includes 68 single-family residential lots ranging in size from approximately 5,000 square feet to 12,000 square feet and a neighborhood park. The project will satisfy the requirements of the Maui Residential Workforce Housing Policy (MRWHP) and will be developed in conjunction with Habitat for Humanity. Of the 68 single-family residential lots, ten (10) lots will be under the direction of Habitat for Humanity. All 68 lots will be in the affordable price range as defined by the MRWHP.

The County of Maui, Department of Housing and Human Concerns (DHHC) has determined that the proposed project is not anticipated to create any significant adverse impacts on the environment and that there are no significant cumulative or secondary impacts associated with the proposed action. Further, the DHHC has issued a Finding of No Significant Impact (FONSI) determination for the project.

Final Environmental Assessment

PROPOSED KAHOMA RESIDENTIAL SUBDIVISION (TMK (2) 4-5-010:005)

Prepared for:

West Maui Land Company, Inc.

September 2011

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by Munekiyo & Hiraga, Inc.**

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Executive Summary

Project Name: Proposed Kahoma Residential Subdivision

Type of Document: Final Environmental Assessment

Legal Authority: Chapter 343, Hawaii Revised Statutes

Agency Determination: Finding of No Significant Impact (FONSI)

Applicable Environmental Assessment Review "Trigger": Use of County Lands

Location: TMK: (2) 4-5-010:005
Lahaina
Maui Island

Landowner: Kahoma Residential, LLC
33 Lono Avenue, Suite 450
Kahului, Hawaii 96732
Contact: Peter Martin
Phone: (808) 877-4202

Applicant: West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, Hawaii 96732
Contact: Peter Martin
Phone: (808) 877-4202

Approving Agency: County of Maui
Department of Housing and Human Concerns
2200 Main Street
One Main Plaza, Suite 546
Wailuku, Hawaii 96793
Contact: Jo-Ann T. Ridao, Director
Phone: (808) 270-7805

Consultant: Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793
Contact: Gwen Ohashi Hiraga
Phone: (808) 244-2015

Project Summary: The applicant, West Maui Land Company, Inc., proposes the development of a 68-lot Kahoma Residential Subdivision and

related improvements on an approximate 16.7-acre parcel identified as TMK (2) 4-5-010:005 in Lahaina, Maui, Hawaii. The project includes 68 single-family residential lots ranging in size from approximately 5,000 sq. ft. to 12,000 sq. ft., and a neighborhood park.

Of the 68 single-family residential lots, ten (10) lots will be under the direction of Habitat for Humanity. All 68 lots will be in the affordable price range as defined by the Maui Residential Workforce Housing Policy (MRWHP).

The proposed project will connect to a nearby County of Maui roadway, Lui Street. The use of County lands is a trigger for Chapter 343, Hawaii Revised Statutes (HRS). As such, an Environmental Assessment (EA) has been prepared pursuant to Chapter 343, HRS, and Chapter 200 of Title 11, Hawaii Administrative Rules, Environmental Impact Statement Rules. In addition, this EA is intended to cover any use of State and County lands and funds for purposes including, but not limited to, any roadway, infrastructure, utility system or other improvements relating to the development of the project. This would include, but not be limited to, roadway, infrastructure, utility systems and improvements to Lui Street and Kalena Street, as well as at offsite locations. It is also noted that currently funding for the development of the Habitat for Humanity lots is not defined as efforts to establish funding sources are ongoing. Therefore, this EA is also intended to cover any use of State or County funds for purposes of the development of the lots under the direction of Habitat for Humanity to include, but not be limited to, the County of Maui Affordable Housing Program, United States Housing and Urban Development (HUD) Home Funds, and Office of Hawaiian Affairs. If HUD Home Funds are utilized, a HUD EA will also be prepared. This EA documents the project's technical characteristics and environmental impacts, and advances findings and conclusions relative to the significance of the project.

Towards facilitating project implementation, the County of Maui, Department of Housing and Human Concerns is in support of the project as a Section 201H-38, HRS project. Thus, a Section 201H-38, HRS application will be filed with the County of Maui. Additionally, the Land Use Commission petition for State Land Use District Boundary Amendment will be filed pursuant to Chapter 15-15, Subchapter 13,

Section 15-15-97 of the Land Use Commission Rules relating to procedures for processing applications under Section 201H-38, HRS.

List of Acronyms

ALISH	Agricultural Lands of Importance to the State of Hawaii
AMSL	Above Mean Sea Level
BMP	Best Management Practices
CATV	Cable Television
cf	Cubic Feet
cfs	Cubic Feet Per Second
CIZ	Change in Zoning
CPA	Community Plan Amendment
CWRM	Commission on Water Resource Management
DBA	District Boundary Amendment
DEM	Department of Environmental Management
DHHC	Department of Housing and Human Concerns
DLNR	Department of Land and Natural Resources
DOE	Department of Education
DOH	Department of Health
DOT	Department of Transportation
DPW	Department of Public Works
DWS	Department of Water Supply
EA	Environmental Assessment
EaA	Ewa Silty Clay Loam
EPA	United States Environmental Protection Agency
FIRM	Flood Insurance Rate Map
gpd	Gallons Per Day
gpm	Gallons Per Minute
HAR	Hawaii Administrative Rules
HCZMP	Hawaii Coastal Zone Management Program
HEER	Hazard Evaluation and Emergency Response
HRS	Hawaii Revised Statutes
HUD	United States Housing and Urban Development
ITE	Institute of Transportation Engineers
LSB	Land Study Bureau
LWRF	Lahaina Wastewater Reclamation Facility
MCC	Maui County Code
MECO	Maui Electric Company
MG	Million Gallons
MGD	Million Gallons Per Day
MRWHP	Maui Residential Workforce Housing Policy
NPDES	National Pollutant Discharge Elimination System
OHA	Office of Hawaiian Affairs
rRK	Rock Land
SHPD	State Historic Preservation Division
SLUC	State Land Use Commission
SMA	Special Management Area

TIAR	Traffic Impact Analysis Report
TMK	Tax Map Key
UHMC	University of Hawaii Maui College
WdB	Wahikuli Very Stony Silty Clay
WWRD	Department of Environmental Management, Wastewater Reclamation Division

I. PROJECT OVERVIEW

I. PROJECT OVERVIEW

A. PROJECT LOCATION, EXISTING USE, AND OWNERSHIP

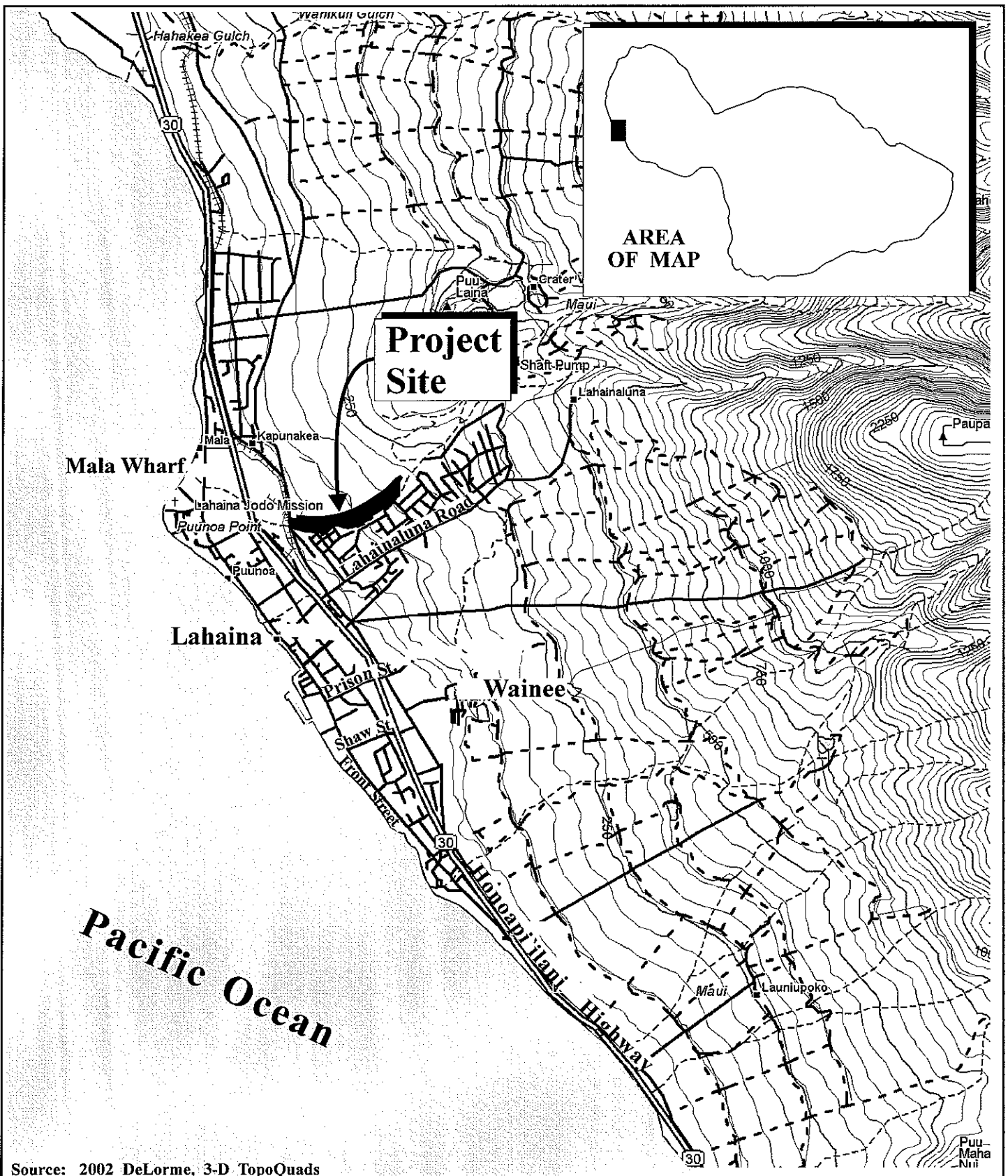
The project site is comprised of approximately 16.7 acres and is identified by Tax Map Key (TMK) (2) 4-5-010:005. See **Figure 1** and **Figure 2**.

Located in Lahaina, Maui to the east (mauka) of Honoapiilani Highway and along the southern edge of the Kahoma Stream Flood Control Channel, the site is currently vacant and undeveloped, but was formerly used for sugar cane cultivation. See **Figure 3**. To the north of the project site, beyond the Kahoma Stream Flood Control Channel, lies the Lahaina Business Park and to the northwest, the Lahaina Gateway Plaza. Residential areas lie to the south of the project site.

The subject property is owned by Kahoma Residential LLC. The applicant, West Maui Land Company, Inc., has an agreement to purchase the parcel from Kahoma Residential LLC.

B. PROPOSED ACTION

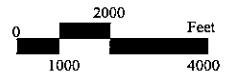
The applicant, West Maui Land Company, Inc., proposes the development of the Kahoma Residential Subdivision in Lahaina, Maui, Hawaii. The project will consist of 68 single-family residential lots ranging in size from approximately 5,000 to 12,000 square feet (sq. ft.) and a grassed neighborhood park of approximately 43,000 sq. ft. See **Figure 4**. Of the 68 single-family lots, ten (10) lots will be under the direction of Habitat for Humanity. The remaining 58 lots will be sold as lot only or house/lot packages to afford prospective owners flexibility in their building design and construction. All 68 lots will be priced in the affordable category as defined by the Maui Residential Workforce Housing Policy (MRWHP). See **Table 1**.



Source: 2002 DeLorme, 3-D TopoQuads

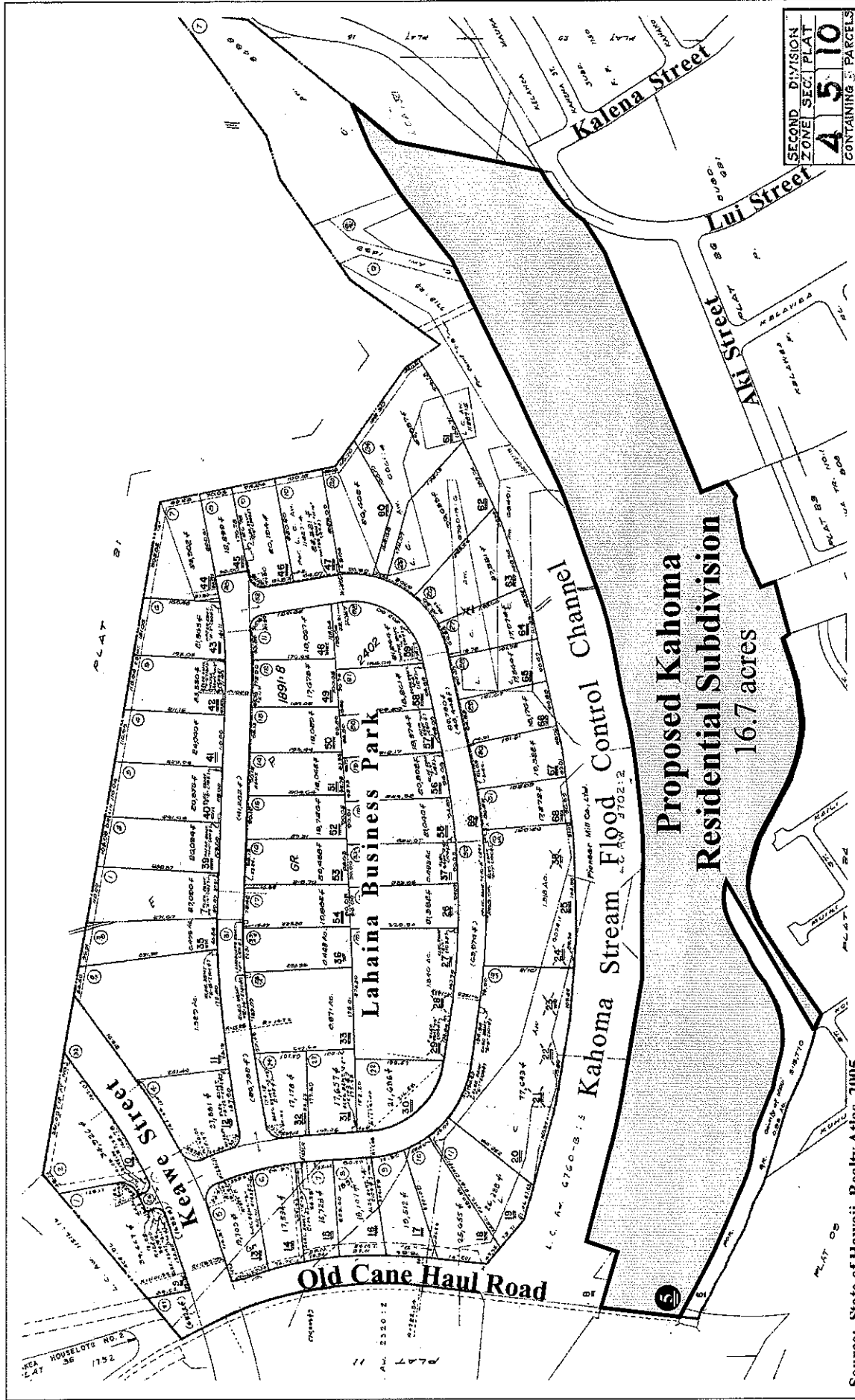
Figure 1

Proposed Kahoma Residential
Subdivision
Regional Location Map



MUNEKIYO HIRAGA, INC.

Prepared for: West Maui Land Company, Inc.



Source: State of Hawaii, Realty Atlas, 2005

Figure 2



Proposed Kahoma Residential Subdivision
 Site Location and Tax Map Key

NOT TO SCALE

Prepared for: West Maui Land Company, Inc.



MUNEKIYO & HIRAGA, INC.

Kahoma\temp\p155\site\location



SOUTHEAST VIEW

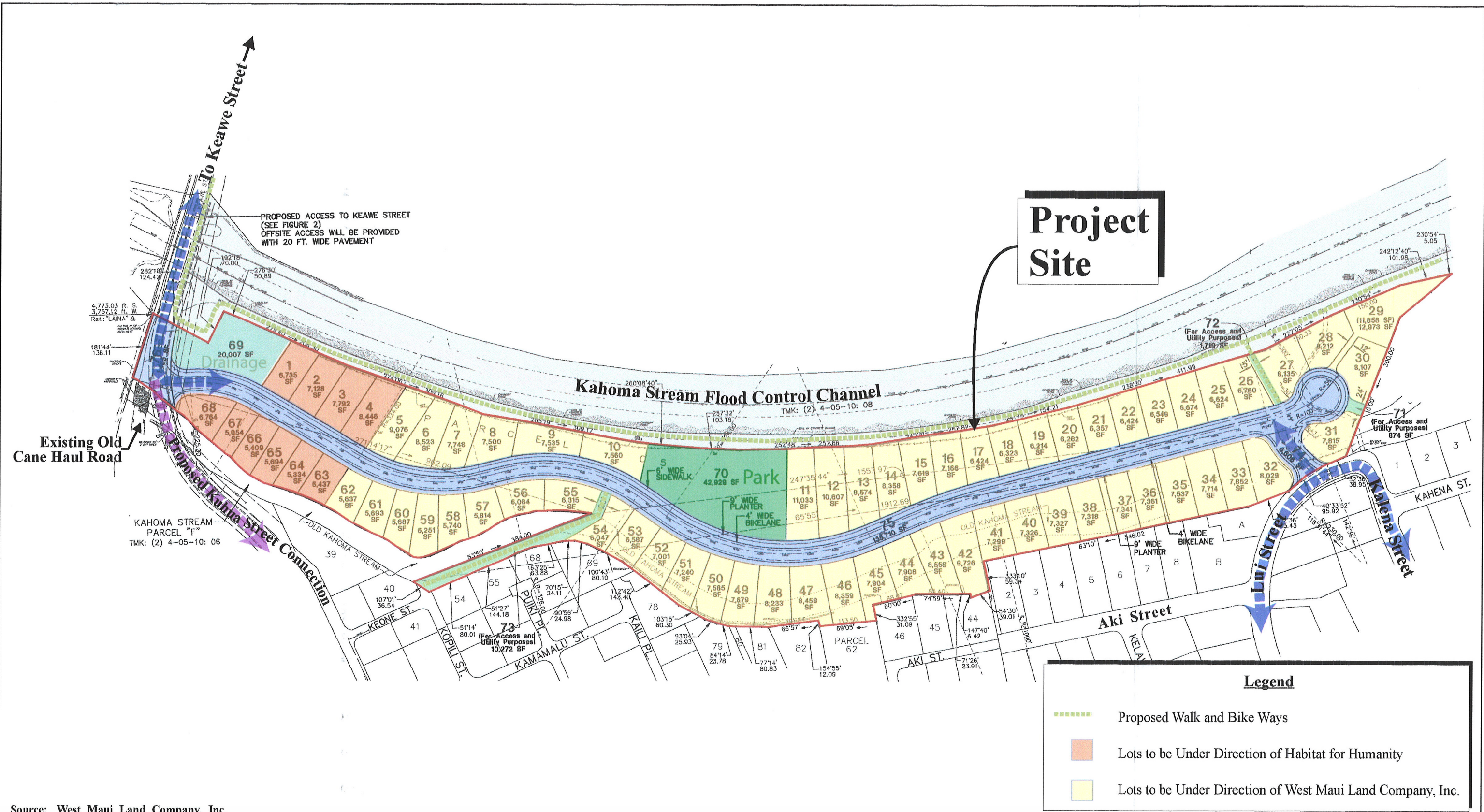


EAST VIEW

Source: West Maui Land Company, Inc.

Figure 3 Proposed Kahoma Residential Subdivision Site Photos

NOT TO SCALE



Source: West Maui Land Company, Inc.

Figure 4

Proposed Kahoma Residential Subdivision
Subdivision Plan

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.



The subdivision will be serviced internally by a 58-foot road right-of-way that is planned to be dedicated to the County in the future. The east portion of the project will connect to Lui Street, while the west portion will connect to an existing old cane haul road (proposed Kuhua Street Extension) that connects to Keawe Street. Refer to **Figure 4**.

Table 1. Housing Lot Breakdown by Developer

Developer	Number of Lots	Unit Type
Habitat for Humanity	10	Single-Family Residential
West Maui Land Company, Inc.	58	Single-Family Residential
Total Lots	68	

1. Habitat for Humanity Lots (10 total)

Ten (10) lots will be developed under the direction of Habitat for Humanity. These ten (10) lots range from approximately 5,000 to 9,000 square feet in area. Habitat for Humanity has a number of single-family home designs, which have already received approval from the County of Maui. The selected homeowner will be able to choose from those designs which may be accommodated based on the site topography and geometry. See **Appendix “A”** for Preliminary Development Plans.

Habitat for Humanity is a non-profit organization whose mission is to eliminate poverty housing and homelessness from the world, and to make decent shelter a matter of conscience and action. Through volunteer labor and donations of money and materials, Habitat for Humanity builds houses with the help of the homeowner (partner) families. Habitat houses are sold to partner families at no profit and are financed with affordable loans. Target families will be those earning less than 80 percent of the household median income.

Families in need of decent shelter apply to local Habitat for Humanity affiliates. The affiliate’s family selection committee chooses homeowners based on their level of need, their willingness to become partners in the program, and their ability to repay the loan. Every affiliate follows a nondiscriminatory policy of family selection. Neither race nor religion is a factor in choosing the families who receive Habitat for Humanity houses.

2. **West Maui Land Company, Inc. Lots (58 total)**

The applicant will retain the 58 affordable lots for eventual sale as either lot only or house-lot packages. The lots range from approximately 5,000 to 12,000 square feet. Based on the project's location proximate to established residential subdivisions, the lots will be priced to be affordable to individuals and families between 80 and 160 percent of the household median income range, assuming affordable lot only prices are 50 percent of the affordable 3-bedroom house and lot prices. As mentioned, these 58 lots will be offered for sale as either lot only or house-lot packages, to allow the prospective homeowner independence in home design. The applicant may also contract with a builder and offer house/lot packages for one (1) or more lot(s), depending on the community needs. Refer to **Appendix "A"**. Owners of lots greater than 7,500 sq. ft. may have the option of constructing an ohana on the property. Ohanas, attached or detached, shall be allowed on lots greater than or equal to 7,500 sq. ft. Two (2) car garages shall be required for each residence with an additional two (2) parking spaces required on-site for each lot within the subdivision. One (1) additional parking space will be required for those lots with an ohana.

In addition to developing lots and housing units, the applicant will develop a neighborhood park to promote recreational pursuits within the project limits. Refer to **Figure 4**. The approximately 43,000 sq. ft. neighborhood park will be grassed and located in the center of the project. The applicant will work with the County to establish a public path along the Kahoma Stream Flood Control Channel.

The applicant is requesting ten (10) affordable housing credits from this project for development activities it may pursue in the future.

Towards facilitating project implementation, the Department of Housing and Human Concerns (DHHC) is in support of the project as a Section 201H-38, Hawaii Revised Statutes (201H-38 HRS) project. Thus, a Section 201H-38, HRS application will be filed with the County of Maui. Additionally, the State Land Use Commission (SLUC) petition for State Land Use District Boundary Amendment (DBA) will be filed pursuant to Chapter 15-15, Subchapter 13, Section 15-15-97 of the SLUC Rules relating to procedures for processing applications under Section 201H-38, HRS. This provision of the rules permits fast-track processing of the petition to include action by the SLUC within 45 days of receipt of the completed petition.

C. PROJECT HISTORY

Prior to the current project proposal, the applicant proposed a previous site plan that was presented in the Draft Environmental Assessment (EA). This included the development of 88 housing units that would have been developed in a combination of single-family homes and apartments (63 single-family homes/lots and 25 multi-family units in a two-story duplex configuration). Of the 63 single-family homes/lots, four (4) would have been self-help lots under the direction of Habitat for Humanity to reduce construction costs and twenty-four (24) homes were to have been developed by Lokahi Pacific. Thirty-five (35) lots were to have been sold lot only to afford prospective owners flexibility in their building design. In addition, all 25 of the multi-family units were to have been in the affordable category and developed by Lokahi Pacific for the purposes of special needs accommodations. However, Lokahi Pacific decided to not proceed with the project as part of an overall change in direction of the agency. The applicant initiated discussions with several other potential developers of the multi-family units, including Hale Mahaolu and EAH Housing, however, the parcel layout and size were not conducive to these agencies' typical project criteria. Subsequently, the plans were amended by eliminating the multi-family units from the project and reducing the total unit count from 88 to 68. In turn, Habitat for Humanity's role in the project was increased from the original four (4) units to ten (10).

D. PROJECT NEED

The proposed action will increase the supply of available housing, including the supply of affordable housing units, at a time when affordable housing is in short supply on West Maui. According to the Realtors Association of Maui, as of May 2011, the median sales price of a single-family house and lot on Maui was \$418,000.00 and in Lahaina was \$1,320,000.00 (Realtors Association of Maui, June 2011). At these prices, many residents are unable to purchase their own homes.

In 2010, the median family income as established by the United States Department of Housing and Urban Development (HUD) was \$76,000.00. Using the HUD median family income of \$76,000.00, the County of Maui, Department of Housing and Human Concerns developed a matrix of affordability guidelines. According to that matrix, a family earning 100 percent of median income would be able to afford a \$372,600.00 3-bedroom home, assuming a five (5) percent interest rate. The median single-family house and lot on Maui at \$418,000.00 represents approximately 112 percent of \$372,600.00 and the median single-

family house and lot in Lahaina at \$1,320,000.00 represents approximately 354 percent of \$372,600.00.

In light of the current and projected housing market conditions and prices, the proposed Kahoma Residential Subdivision is considered to provide a significant community benefit by offering residents new opportunities to secure affordable housing products.

E. AFFORDABLE HOUSING PROGRAM

The Kahoma Residential Subdivision proposes to provide housing for sale in accordance with income allocations set forth in **Table 2**.

Table 2. Kahoma Residential - Unit Count

Developer	No. of Units	Product	Percentage of Project	Affordability Range	Duration of Affordability Restrictions
Habitat for Humanity	10	house/lots	14.7%	Under 80%	30 years
West Maui Land Company, Inc.	8	lots or house/lots	11.8%	Under 100%	5 years
West Maui Land Company, Inc.	10	lots or house/lots	14.7%	Under 120%	5 years
West Maui Land Company, Inc.	10	lots or house/lots	14.7%	Under 140%	3 years
West Maui Land Company, Inc.	30	lots or house/lots	44.1%	Under 160%	3 years
	68	Total	100%	68	

An affordable housing agreement will be executed to set forth the specific terms of pricing, marketing, and sale prioritization.

F. EXISTING LAND USE DESIGNATIONS

The existing land use information for the project is summarized in **Table 3** below.

Table 3. Current Land Use Summary

Land Use Parameter	Existing Designation
State Land Use District	Agricultural
West Maui Community Plan	Open Space
County Zoning	Agricultural

1. State Land Use District

The property is currently within the “Agricultural” state land use district. This use indicates areas assigned for agricultural activity within the State of Hawaii. The applicant will file a Section 201H-38, HRS petition with the SLUC for a DBA to re-designate the entire 16.7-acre project site from the “Agricultural” to the “Urban” District. As indicated previously, the petition filing will be made in accordance with Section 15-15-97 of the SLUC Rules.

2. West Maui Community Plan

The property is currently designated as “Open Space” in the West Maui Community Plan. The applicant will file a Section 201H-38, HRS application with the Maui County Council to allow residential development on these “Open Space” lands.

3. County Zoning

The property is currently within the “Agricultural” county zoning district. The applicant will seek, as part of its Section 201H-38, HRS application mentioned above, allowance of residential uses on the subject property in this zoning district, as well as establish development standards for the project.

G. APPROVALS REQUIRED

The Kahoma Residential Subdivision has been designed and programmed to meet the criteria for a Section 201H-38, HRS project by the County of Maui’s DHHC. Section 201H-38, HRS, promotes the delivery of affordable housing by exempting endorsed projects from “*all statutes, ordinances, charter provisions, and rules of any governmental agency relating to planning, zoning, construction standards for subdivisions, development and improvement of land, and the construction of units thereon.*”

As such, the applicant will file a Section 201H-38, HRS application with the DHHC for transmittal to the Maui County Council to seek exemptions from the Community Plan Amendment (CPA) and Change in Zoning (CIZ) approval processes, as well as County requirements, including public infrastructure and construction fees. The requested exemptions from Maui County Code (MCC) requirements are described below.

The applicant will seek the following exemptions for the entire project.

1. Exemption from Title 2, MCC, Administration and Personnel

An exemption from Chapter 2.80B, MCC, General Plan and Community Plans, shall be granted to permit the project to proceed without obtaining a community plan amendment.

2. Exemption from Title 12, MCC, Streets, Sidewalks, and Public Places

An exemption from Chapter 12.08, MCC, Driveways, shall be granted to exempt the project from payment of driveway permit and inspection fees.

3. Exemption from Title 14, MCC, Public Services

An exemption from Section 14.62.070, MCC, West Maui Traffic Impact Fees, shall be granted to exempt the project from payment of traffic impact fees.

4. Exemptions from Title 16, MCC, Buildings and Construction

Exemptions from MCC Chapters 16.04A, Fire Code, 16.18A, Electrical Code, 16.20A, Plumbing Code, and 16.26, Building Code, shall be granted to exempt the project from payment of fire, electrical, plumbing, and building permit fees, as well as inspection fees.

5. Exemptions from Title 18, MCC, Subdivisions

- a. Exemptions from Section 18.04.030, MCC, Administration, and Section 18.16.020, MCC, Compliance, shall be granted to exempt the project from obtaining a community plan amendment and change in zoning.

- b. Exemptions from Section 18.16.320, MCC, Parks and Playgrounds, shall be granted to exempt the project from payment of park and playground fees and exempt the project from the provision of a comfort station and parking.

6. Exemption from Title 19, MCC, Zoning

An exemption from Chapter 19.30A, MCC, Agricultural District, shall be granted to permit the development and use of the parcel for single-family residential purposes. Further, the exemption shall allow the subdivision of the property in the plat configuration shown in **Figure 4**.

The following zoning standards shall apply to the proposed lots:

Minimum lot size:	5,000 square feet
Height:	No building shall exceed two (2) stories or thirty (30) feet in height
Lot width:	Minimum of 35 feet
<u>SETBACK:</u>	
Front yard	Minimum of 15 feet (Dwelling) Minimum of 20 feet (Garage)
One-story homes side and rear	Minimum of 8 feet
Two-story homes side and rear	Minimum of 10 feet
Rear (Lots 32 through 54)	Minimum of 20 feet

7. Exemption from Title 20, MCC, Environmental Protection

An exemption from Section 20.08.090, MCC, Grubbing and Grading Permit Fees, shall be granted to exempt the project from payment of grading, grubbing, and excavation permit fees, as well as inspection fees.

The U.S. Department of Housing and Urban Development (HUD) Description of Materials form is included in Section 5 of this application document.

H. CHAPTER 343, HAWAII REVISED STATUTES REQUIREMENT

The proposed project will connect to Lui Street, which is a County roadway. The use of County lands is a trigger for an environmental assessment pursuant to Chapter 343, HRS. As such, an Environmental Assessment (EA) has been prepared pursuant to Chapter 200 of Title 11, Department of Health Administrative Rules (HAR), Environmental Impact Statement Rules. Accordingly, this document addresses the project's technical characteristics, environmental impacts and alternatives, and advances findings and conclusions relative to the significance of the proposed project. The County of Maui DHHC is the approving agency for the EA.

This EA is intended to cover any use of State and County lands and funds, for purposes including, but not limited to, any roadway, infrastructure, utility system or other improvements relating to the development of the project. This would include, but not be limited to, roadway, infrastructure, utility systems and improvements to Lui Street and Kalena Street, as well as at offsite locations. It is also noted that currently funding for the development of the Habitat for Humanity lots is not defined, as efforts to establish funding sources are ongoing. Therefore, this EA is also intended to cover any use of State or County funds for purposes of the development of the lots under the direction of Habitat for Humanity. These funds may include, but not be limited to, the County of Maui Affordable Housing Program, HUD Home Funds, and Office of Hawaiian Affairs. If HUD Home Funds are utilized, a HUD EA will also be prepared.

I. IMPLEMENTATION TIME FRAME

The implementation of the proposed Kahoma Residential Subdivision land use plan sought by the applicant will commence upon receipt of land entitlements, regulatory permits, and approvals. Upon completion of the entitlements process, it is estimated that design and approval of subdivision and construction plans will take 18 to 24 months. Site construction is estimated to be initiated in early 2013 with build-out of the project estimated over a two (2) year period.

**II. DESCRIPTION OF THE
EXISTING
ENVIRONMENT,
POTENTIAL IMPACTS,
AND PROPOSED
MITIGATION MEASURES**

II. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND PROPOSED MITIGATION MEASURES

A. PHYSICAL SETTING

1. Surrounding Land Uses

a. Existing Conditions

The project area is located near the southern gateway of Lahaina town, between Lahainaluna Road and the Kahoma Stream Flood Control Channel. The project area is located east (mauka) of Honoapiilani Highway. The Lahaina Business Park is located along the north boundary of the Kahoma Stream Flood Control Channel, across the project site. The Lahaina Small Boat Harbor is located approximately 0.8 mile to the southwest of the project site. The entire project site is located outside of the Lahaina National Historic Landmark district.

The coastal area of Lahaina, to the west of the project site, includes visitor-oriented commercial areas along Front Street, including the Lahaina Cannery Mall, Lahaina Center, and the Wharf Cinema Center. Lahaina Gateway Shopping Center is also located to the northwest of the project site. In addition, within one (1) mile to the east of the project site are Princess Nahienaena Elementary School, Lahaina Intermediate School, and Lahainaluna High School. Adjacent to the project site to the east and south are existing residential subdivisions.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is intended to provide single-family residential lots compatible with the surrounding residential neighborhoods to address the need for increased housing inventory for West Maui residents. The property is located adjacent to existing urban areas and has ready access to supporting infrastructure systems. The project will continue the residential character of proximate land uses in Lahaina town.

2. Climate

a. Existing Conditions

Like most areas of Hawaii, West Maui's climate is relatively uniform year-round. The region's tropical latitude and its position relative to storm tracts, the Pacific anticyclone, and the surrounding ocean combine to produce a stable climate. Variations in climate among the different regions on Maui are largely dependent on local terrain.

August is historically the warmest month in Lahaina, with an average high temperature of 88 degrees Fahrenheit and an average low temperature of 70 degrees. On the other hand, February is normally the coolest month of the year, with an average high temperature of 81 degrees Fahrenheit and an average low temperature of 63 degrees Fahrenheit (Maui County Data Book, 2010).

Rainfall in Lahaina is highly seasonal. Most of the precipitation occurs from November to April when winter storms hit the area. Precipitation data for Lahaina shows that January is the wettest month, with 3.15 inches on average, while only 0.08 inch of precipitation occurs in June, the driest month. The annual average precipitation in Lahaina is 14.62 inches (Maui County Data Book, 2010).

The winds in the region are also quite seasonal. The northeasterly tradewind occurs 90 percent of the time during the summer and just 50 percent of the time in the winter with average wind speeds of approximately 10 miles per hour. However, wind patterns vary on a daily basis, with tradewinds generally being stronger in the afternoon. During the day, winds blow onshore toward the warmer land mass. In the evening, the reverse occurs, as breezes blow toward the relatively warm ocean.

b. Potential Impacts and Proposed Mitigation Measures

The proposed action is not anticipated to alter local micro-climates. The proposed development will have a low profile and is not anticipated to alter wind patterns in the area.

3. Topography and Soils

a. Existing Conditions

The proposed Kahoma Residential Subdivision project site is characterized by a gently sloping topography and generally slopes in a westerly direction toward the ocean. The site elevation is approximately 32 feet above mean sea level (amsl) near the bottom (makai end) of the site to roughly 145 feet amsl near the top of the site.

Underlying the subject property are soils from the Pulehu-Ewa-Jaucas association. See **Figure 5**. The Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii characterizes the soils of the Pulehu-Ewa-Jaucas association as consisting of a mixture of well-drained and excessively drained, medium-textured, moderately fine-textured, and coarse-textured soils on alluvial fans and in basins on the island of Maui. These soils are nearly level to moderately sloping. This association makes up approximately four (4) percent of the island.

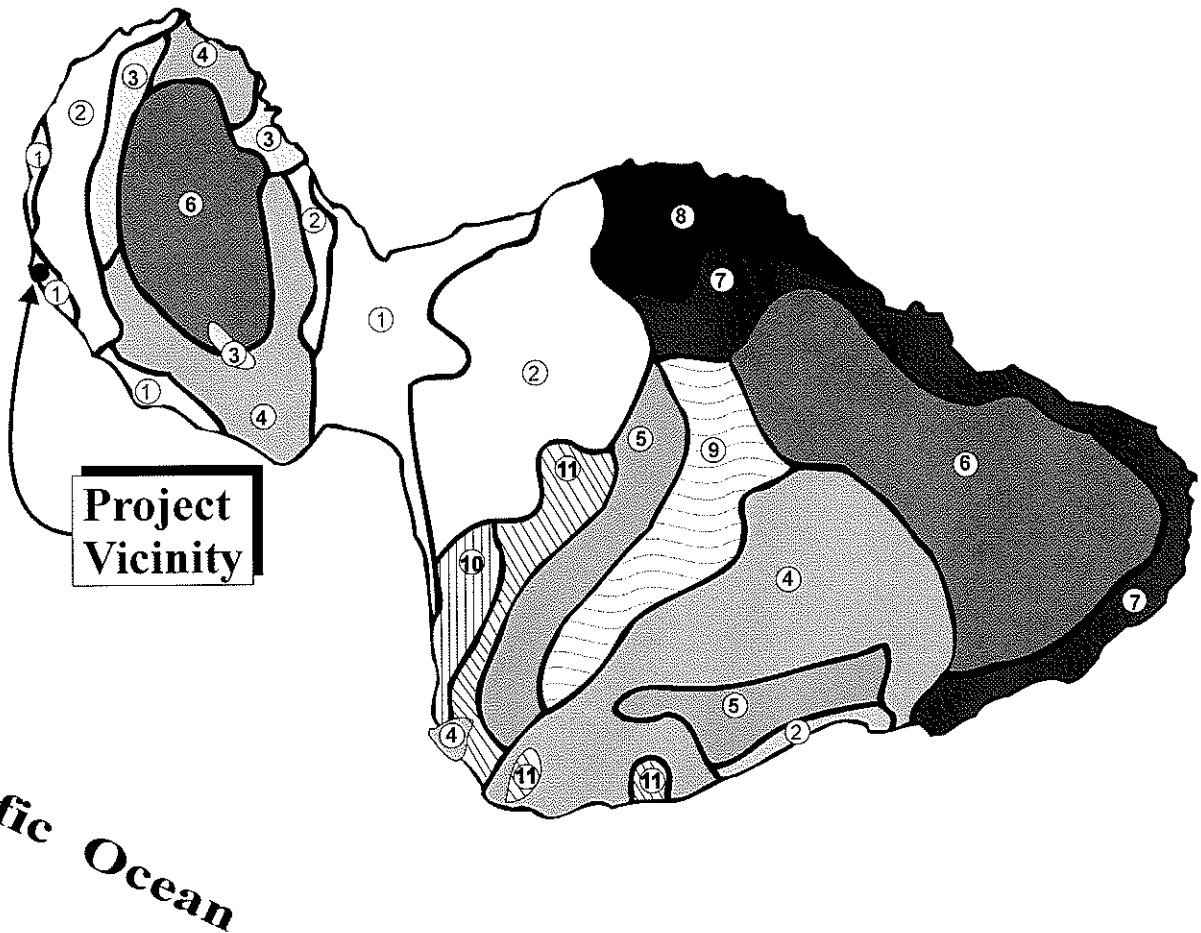
The specific soil type underlying the project site is Wahikuli very stony silty clay (WdB), 3 to 7 percent slopes and Ewa silty clay loam (EaA), 0 to 3 percent slopes and Rock land (rRk). See **Figure 6**. On the Wahikuli series type of soil, as much as three (3) percent of the surface is covered with stones. Accordingly, this soil is primarily used for sugar cane cultivation with smaller acreages used for home sites or pasture. Elevations range from nearly sea level to 600 feet. The Ewa series consist of well-drained soils in basins and on alluvial fans, where elevations range from near sea level to 150 feet. The Rock land series is made up of areas where exposed rock covers 25 to 90 percent of the surface. Elevations range from near sea level to over 6,000 feet.

b. Potential Impacts and Proposed Mitigation Measures

A Soils Investigation Report was prepared for the project by Island Geotechnical Engineering, Inc. See **Appendix "B"**. The subsurface conditions at the site were tested through the excavation of nineteen (19) test pits to depths of two (2) to eight (8) feet below the existing grade at the site. Three (3) test borings were then drilled to the depths of 13.75 to 17.75 feet

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 | |



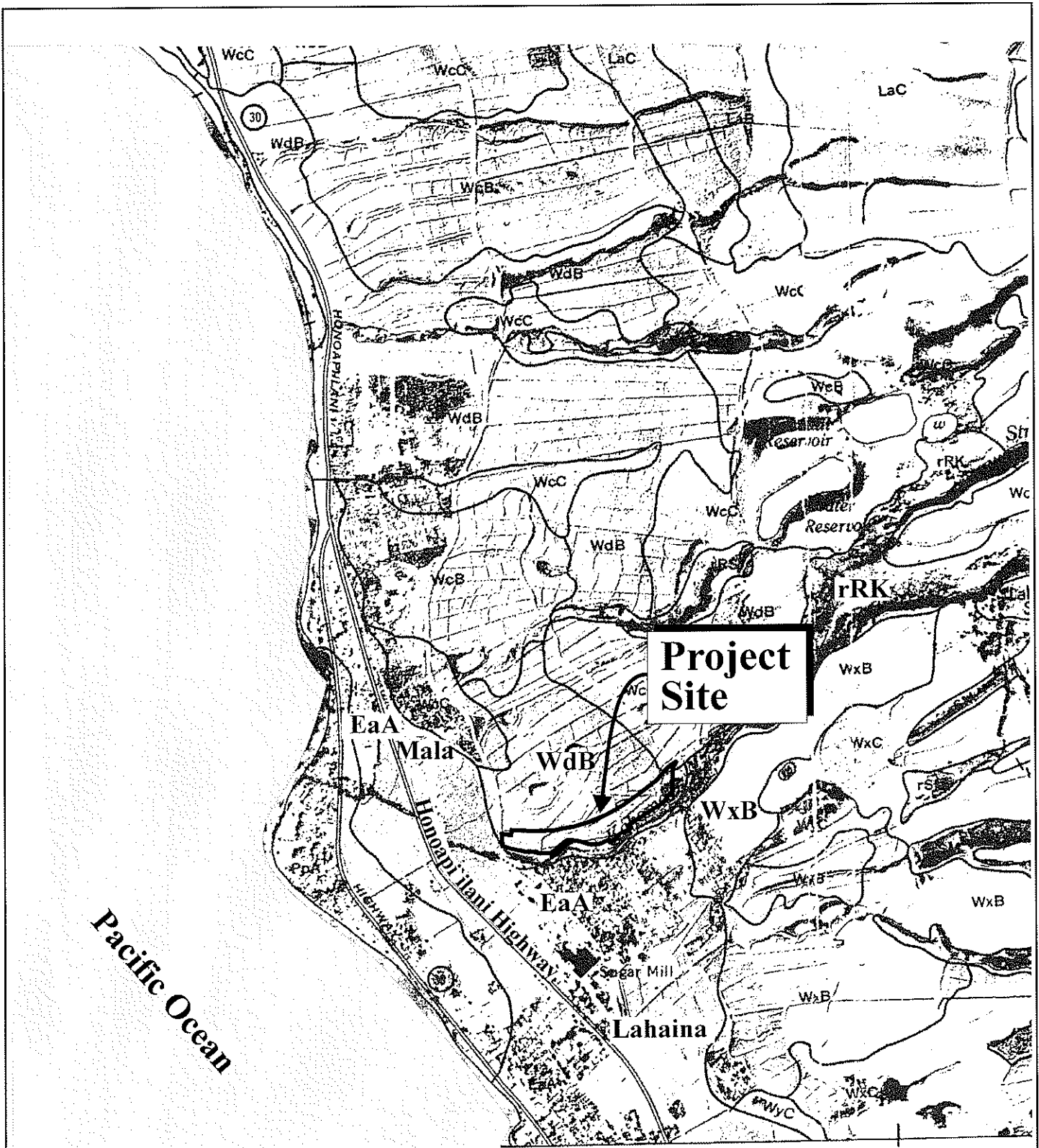
Source: USDA Soil Conservation Service

Figure 5 Proposed Kahoma Residential Subdivision Soil Association Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.



Source: USDA Soil Conservation Service

Figure 6

Proposed Kahoma Residential
Subdivision
Soil Classification Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

MUNEKIYO & HIRAGA, INC.

below the existing grade. Generally, the study disclosed the site to be overlain with moderately dense to very dense granular soils, consisting of gravels, sands, cobbles and boulders, resting atop of moderately hard to hard basalt rock. The report notes that no groundwater was encountered during the investigation. The report further concludes that based on the findings and observations, the site may be developed for the proposed use. As such, there are no geologic or soil hazard limitations associated with the subject property. As such, the residential neighborhood proposed for the subject property is compatible with its underlying soil characteristics.

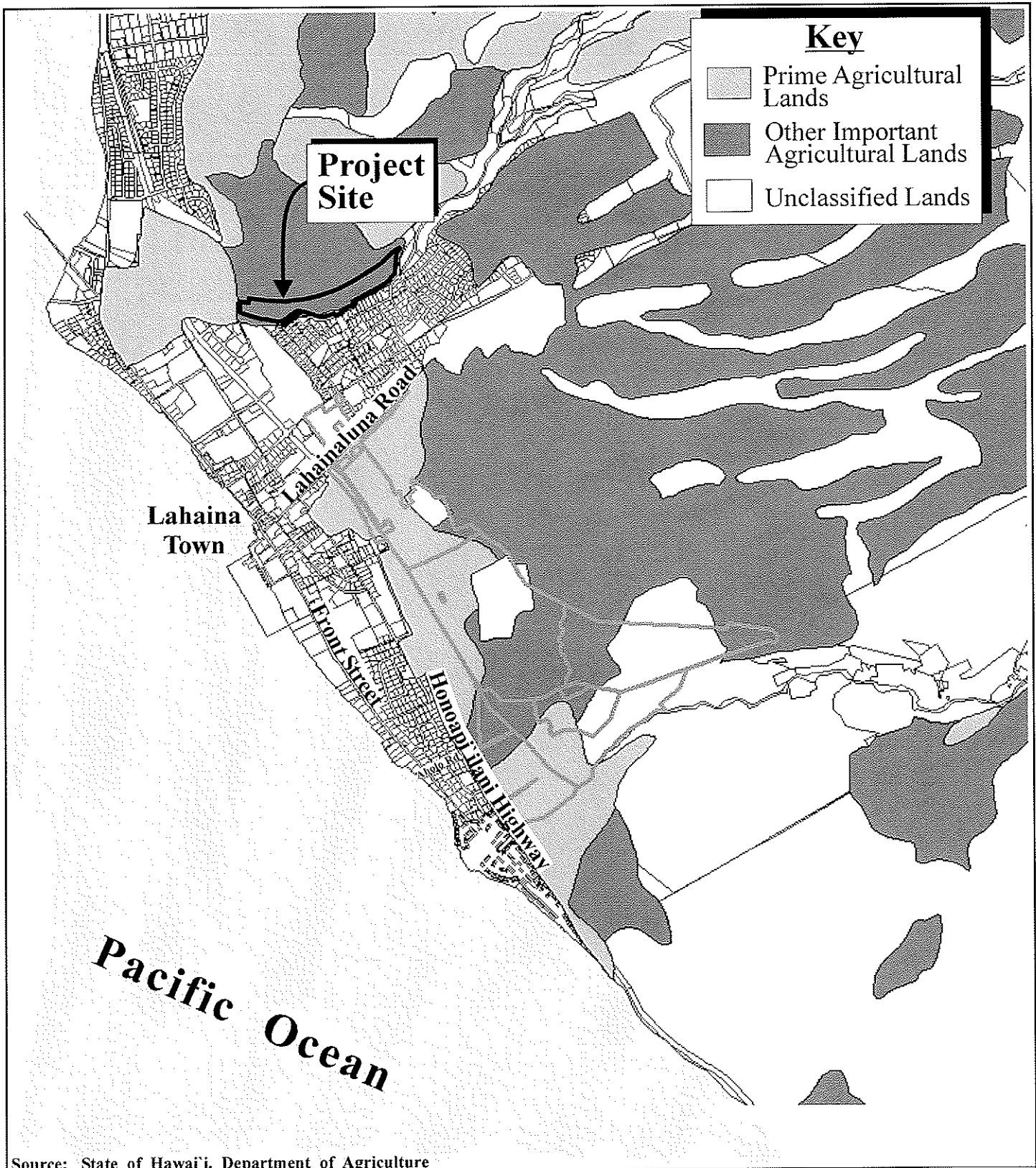
4. Agriculture

a. Existing Conditions

In 1977, the State Department of Agriculture developed a classification system to identify Agricultural Lands of Importance to the State of Hawaii (ALISH), based primarily, though not exclusively, on their soil characteristics. The three (3) classes of ALISH lands are: “prime”, “unique”, and “other important” agricultural lands, with the remaining non-classified lands categorized as “unclassified”. When utilized with modern farming methods, “prime” agricultural lands have a soil quality, growing season, and moisture supply to produce sustained crop yields economically; while “unique” agricultural lands possess a combination of soil quality, growing season, and moisture supply to produce sustained high yields of a specific crop. “Other important” agricultural lands include those that have not been designated “prime” or “unique”. As reflected by the ALISH map for the Lahaina area, the project site includes lands which have been defined as “other important” agricultural lands. See **Figure 7**.

In addition, the University of Hawaii, Land Study Bureau (LSB) classifies productivity characteristics on a scale of “A” through “E”, with lands designated as “A” reflecting the highest productivity and “E” representing lands with the lowest productivity. These letters are followed by numbers which further classify the soil types and convey information such as texture, drainage, and stoniness (Land Study Bureau, 1967).

Lands underlying the project site have been classified by the LSB as B72i. These lands generally have moderately suited machine tillability and are



Source: State of Hawai'i, Department of Agriculture

Figure 7

Proposed Kahoma Residential
Subdivision
ALISH Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.

primarily used for sugar cane cultivation and grazing. The soil is moderately fine and well-drained (Land Study Bureau, 1967).

b. Potential Impacts and Proposed Mitigation Measures

The subject property lies within the State Agricultural district, however, the location of these lands is such that many agricultural uses may not necessarily be compatible with the adjacent residential uses, which lie along the southern and eastern borders of the subject parcel.

The geometry of the subject area itself is somewhat non-conducive to agriculture. As the project site is bounded by the Kahoma Stream Flood Control Channel to the north, residential subdivisions to the south and east, the former Pioneer Mill facility further south and Opukea Condominiums to the west, the narrow geometry of the project land and the lack of agriculture infrastructure do not lend themselves to agricultural cultivation. The narrowness of the site and close proximity to surrounding residential uses will create adverse impacts from cultivation activities. This is in large part, is the reason why the parcels have remained out of active agriculture for years.

However, the agricultural impact of this project is near negligible when taken in the context of the recent trends occurring on Maui. In the last 30 years, the closures of Wailuku Sugar, Pioneer Mill and Maui Land & Pineapple Company on Maui have taken significant acreages out of active sugar cane and pineapple cultivation. These actions have greatly increased the supply of agricultural lands. In fact, much of the lands of these former plantations remain fallow. The proposed project will ultimately involve the use of approximately 16.7 acres of land, which represents approximately 0.007 percent of the roughly 245,000 acres of State Agricultural district lands on the island of Maui.

When taken in the context of the need for affordable housing on Maui, along with the scarcity of properly entitled, undeveloped residential lands in West Maui, the conversion of agriculture lands into residential development presents a beneficial opportunity.

5. Flood and Tsunami Hazards

a. Existing Conditions

As indicated by the Flood Insurance Rate Map (FIRM) for the Lahaina area, the project site is located wholly within Zone X, denoting areas of minimal flood hazard or areas determined to be outside the 0.2 percent annual chance flood plain. See **Figure 8**. As noted in **Figure 8**, Zone A, denoting areas affected by 100-year and 500-year floods, is contained within the Kahoma Stream Flood Control Channel. In addition, the project site is situated in a location which is outside the tsunami inundation area.

b. Potential Impacts and Proposed Mitigation Measures

The project site is not located within a flood hazard district and there are no restrictions on development in Zone X. Moreover, because the project site is located outside of the tsunami inundation area, there are no threats to the surrounding areas from coastal wave action. No adverse impact from flood and tsunami hazards are anticipated as a result of the proposed project.

6. Flora and Fauna

a. Existing Conditions

A Biological Resources Survey of the project site was conducted by Robert Hobdy, Environmental Consultant, in August 2005. See **Appendix "C"**. The study noted that the area had been intensively cultivated for agricultural crops during the Hawaiian Government period, but has since been repeatedly plowed, planted, burned, and harvested by Pioneer Mill Company until its sugar operations ceased in the project area in the 1980's. The parcel was further disturbed during the construction of the Kahoma Stream Flood Control Channel in the late 1980's. Since that time, dryland grass and shrub species have grown in this arid area.

Buffelgrass was the only species of vegetation listed as abundant on the project site and best defined the botanical landscape of the property. Spiny amaranth and koa haole were also common on-site. Only two (2) native plants, uhaloa (*Waltheria indica*) and ilima (*Sida fallax*), were found on the property, but both are common indigenous plants and widespread on Maui.

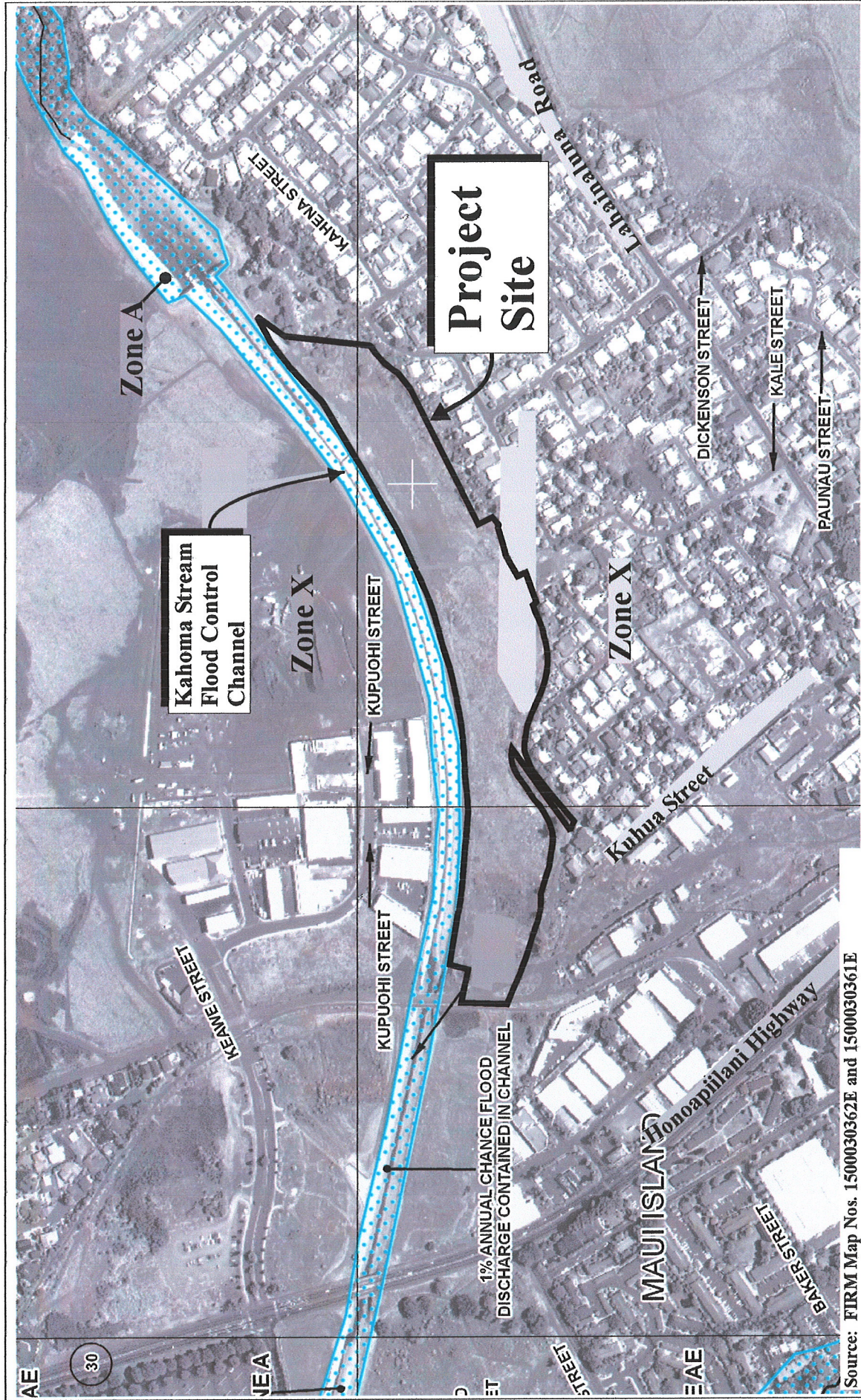


Figure 8 Proposed Kahoma Residential Subdivision
Flood Insurance Rate Map



Prepared for: West Maui Land Company, Inc.



Kahoma Enterprises/FIRM

No federally endangered or threatened plant species were identified on the property.

The Biological Resources Survey reported the observation of a single small tree tobacco, a host plant of the Blackburn's sphinx moth on the property. While the Blackburn's sphinx moth is not known to occur in this part of Maui, the tree was carefully examined and no sphinx moth or their larvae were seen.

Avifauna and mammals expected to be common to the project site and surrounding areas are typical of species found near other developed areas in Lahaina. Although only a single cat was observed during two visits to the project site, it is likely that rats, mice, mongoose, and dogs frequent the area given its proximity to domestic habitation. There is no evidence of the native Hawaiian hoary bat at the subject property.

b. Potential Impacts and Proposed Mitigation Measures

Given that the flora and fauna at the project site are generally limited to non-native, abundant species, the proposed project is not anticipated to have significant negative impact on the biological resources in the region.

The U.S. Fish and Wildlife Service noted that Newell's shearwater seabirds and the Hawaiian petrel are known to fly in the area. These seabirds are prone to collisions with objects in artificially lighted areas. As such, lights mounted in the project footprint, throughout the construction period, and within the completed residences, will be appropriately down-shielded to reduce seabird mortality.

7. Streams, Wetlands, and Reservoirs

a. Existing Conditions

As mentioned, the Kahoma Stream Flood Control Channel forms the northern boundary of the project site. Aside from during moderate to heavy rains, there is no active flow in the Kahoma Stream Flood Control Channel. According to the Department of the Army, "*navigable waters and other*

special aquatic sites such as anchialine ponds, springs, and wetlands are known to be absent in the proposed project area”.

b. Potential Impacts and Proposed Mitigation Measures

The project site is situated outside of the flood area attributable to the Kahoma Stream Flood Control Channel. The drainage characteristics within the Kahoma Stream Flood Control Channel will not be altered. Mitigation measures, such as Best Management Practices (BMPs) for erosion and sediment control, will be implemented to ensure that the functional integrity of the Kahoma Stream Flood Control Channel is not affected. See Section II.D.5. Drainage in this document.

8. Archaeological Resources

a. Existing Conditions

An archaeological inventory survey was completed for the project site in 2005 by Scientific Consultant Services, Inc. See **Appendix “D”**. The survey included a combination of fieldwork, laboratory work, and document review. The fieldwork involved the execution of an intensive pedestrian survey of the entire project area for the purpose of site inventory and representative subsurface testing through backhoe trench testing (15 total test trenches) to evaluate the significance of any subsurface deposits. Laboratory work consisted of digital drafting of stratigraphic trench profiles, trench locations, and project area maps. Lastly, document review involved a review of all previous archaeological work conducted in the vicinity of the project.

The survey noted that the area had been previously grubbed, graded, cut, and/or filled. In addition, there was evidence of extensive machine (bulldozer) alterations throughout the area with bulldozer push-piles and large boulder-piles comprising the modified landscape. Not only had the area been modified by the commercial agricultural activities related to the historical agricultural use, but the site has been further disturbed during the activities related to the construction of the Kahoma Stream Flood Control Channel.

b. Potential Impacts and Proposed Mitigation Measures

The inventory survey showed the absence of notable archaeological deposits within the surface and subsurface contexts, which can largely be attributed to the significant agricultural activities that had occurred over the past century, as well as disturbance associated with the construction of the Kahoma Stream Flood Control Channel. Since there were no archaeological finds during the inventory survey, the survey has been classified as an archaeological assessment for reporting purposes. There are no anticipated impacts to archaeological resources in the region associated with development of the property. The archaeological assessment report has been reviewed and approved with a “no effect” letter dated February 9, 2006 by the State Historic Preservation Division (SHPD). See **Appendix “D-1”**.

In accordance with Section 6E-43.6, HRS and Chapter 13-300, HAR, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the SHPD will be contacted. Pursuant to the Office of Hawaiian Affairs’ (OHA) request, the OHA will also be contacted by the applicant.

9. Cultural Resources

a. Existing Conditions

Cultural Landscape

The Lahaina District is described as a rich agricultural oasis watered from nearby valleys (Handy and Handy, 1972). This oasis “extended about three leagues in length (about nine miles along the coast) and one (three miles) in breadth”. The name Lahaina (“cruel sun”) likely refers to the droughts that affected the surrounding area from time to time (Pukui et al., 1974). In pre-contact times, Lahaina itself was apparently a garden-like area with taro loi, ditches (auwai), and separating embankments creating a verdant landscape. Brackish water and fresh water ponds (loko) were also present. At lower elevations, dry land cultivation took place in areas around alluvial fans, while at higher elevations, loi and auwai systems were constructed within valleys for taro production. In coastal settlement areas, marine resources were utilized for subsistence. In Lahaina, several fishponds existed, of which two

(2) were most prominent, Loko o Mokuhinia and the smaller Loko Puako, around which intensive taro and breadfruit cultivation occurred. In addition, the presence of a possible fishpond named Alamihi, which extended south from the south bank of Kahoma Stream in proximity to Mala Wharf, approximately one-half mile from the project site, has also been reported. Scattered around the fishponds and taro loi, and situated on higher ground, were the homes of the laborers who worked the land. As suggested by Handy (1940, 1972), by late pre-contact times, the fairly sizable population dwelling in the region utilized coastal fishing areas and inland garden plots for subsistence and cultivated sweet potatoes near shore or taro in terraced loi in the wetter valleys inland.

By the time of contact, the Lahaina region had become an important socio-political center and the residence of several powerful chiefs, most notably Kahekili, one of the highest ranking on Maui. Lahaina was considered by high chiefs to be a favorable place due to the abundance of natural resources and its close proximity to the islands of Lanai and Molokai (Handy and Handy, 1972).

In 1789, Kamehameha I invaded Maui and defeated Kahekili at the Battle of Kepaniwai O Iao (Speakman, 1978). In post-contact times, Lahaina became the center of the Hawaiian monarchy. Kamehameha I spent time there between his battles of conquest, while his son, Kamehameha III, resided in Lahaina in preference to Honolulu. Many high status individuals connected with the monarchy lived in Lahaina, even after the official capital of the kingdom was moved to Honolulu in 1845.

In 1820, about 40 years after Captain James Cook's discovery of the Hawaiian Islands, the islands transitioned from the traditional Hawaiian social system to one influenced by New England whaling ships and missionaries. The population of West Maui continued to decline in the second half of the 19th century as a result of the collapse of the Pacific whaling industry in the 1860's. The Pacific whaling industry collapse was prompted by the discovery of oil in Pennsylvania a decade or so earlier. In the Lahaina area, sugar production developed in the mid-1800s, while further north, different crops were tried, including coffee and pineapple.

With the introduction of sugar cane cultivation and the importation of foreign labor to work on the plantation, the character of Lahaina changed. Combined with the industrialization of the local sugar industry, Lahaina emerged as a plantation town with residential camps surrounding the downtown commercial area. Although now reliant on the visitor industry, Lahaina town's present character reflects a blend of its whaling and plantation era past.

Informant Documentation

To obtain a perspective about cultural resources relative to the project corridor, informant interviews were conducted with Joseph Lai, Keola Sequeira, and Earl Ray Kukahiko. These interviews, as well as other source material, are found in the Cultural Impact Assessment prepared by Hanapono in 2006. See **Appendix "E"**. Summaries of their interviews follow.

Joseph Lai

Joseph Lai was born in 1932 in Haiku, Maui. He is of Portuguese/Chinese descent and was adopted by the Lai family. He moved to Lahaina when he was about two and a half years old. Mr. Lai graduated from Lahainaluna High School and worked at the Sheraton Maui for 31 and a half years as a cook. His parents had a store called Lai Tong Store by the cannery. Mr. Lai also worked part-time for Baldwin Packers in 1955 emptying cans, stacking, and warehousing.

Mr. Lai's recollection of the Kahoma Stream area was the existence of cattle, pigs, chickens, and vegetables (corn and string beans) raised nearby. He used to play there and pick up pepeiao, koa, and milkweed for his rabbits near the river, as well as swim in the river.

In terms of avifauna, he recalled mejiro (Japanese white-eye), mynah, dove, sparrow, cardinals, and rice birds in the area. In addition, there were koa, kiawe, monkey pod, tamarine, plum, date, and mango trees in the vicinity.

Mr. Lai mentioned the flash floods which occasionally occurred, where large flows broke branches and the debris caused blockages, resulting in the

flooding of the cannery. These flooding conditions occurred before the Kahoma Stream Flood Control Channel was constructed.

Keola Sequeira

Keola Sequeira was born in 1945 and has lived in Lahaina most of his life, outside of secondary schooling and service in the Air Force. He worked for the police department in Lahaina after returning from the military and retired from the police department. He still lives in his family's home near the Lahaina Hongwanji Mission in Lahaina town.

After seeing the Kahoma Residential project location, Mr. Sequeira recalled that the area contained plantation camps, particularly Mill Camp. He mentioned that there were 10 to 12 houses in Mill Camp by Kahoma and a nearby airstrip for the airplanes that sprayed the agricultural crops. Mill Camp contained a lot of people of Japanese descent. Mr. Sequeira said that the Kahoma area was once alive with common mango trees. There were the same types of birds (no native species) in the past as are present today.

He remembered that the cannery, where Lahaina Cannery Mall exists today, on occasion got flooded. He mentioned that the Kahoma Stream Flood Control Channel eliminated the flooding problem of the area. The flow in Kahoma Stream is not constant. When there is rain in the mountains, there is flow in the stream bed.

Earl Ray Kukahiko

Earl Ray Kukahiko was born in 1930 in Lahaina. His early recollection of the Kahoma area was of picking koa seedlings down by the Kahoma Stream to feed the cattle, which provided milk every morning for the residents. Mr. Kukahiko recalled needing to pick koa seedlings totaling 100 pounds in weight everyday. They would have to return to the area if they did not get the full 100 pounds the first time around.

Mr. Kukahiko recalled that there was a plantation camp in the area as well, located below Lahainaluna High School. There were two (2) streams in the area, Kanaha and Kahoma. People lived near the stream beds and planted

gardens. A lot of children walked to school since there were no buses at the time. Some children had to traverse both streams to get to school. These children were unable to go to school when the flows in the stream were high since they could not get across.

Additionally, there were areas in Kahoma where taro was cultivated. Students were assigned to go down to Kahoma to plant the taro for consumption. The Lahainaluna High School principal at the time wanted the students to help with the taro. He felt that the plantation later took those lands.

b. Potential Impacts and Proposed Mitigation Measures

Archaeological review and historic recollections of the project site and surrounding vicinity do not indicate adverse cultural impacts arising from the proposed action.

The proposed project will employ appropriate management and coordination practices to ensure that impacts to cultural values and practices are appropriately mitigated. These practices include work stoppage in the immediate vicinity of the find if significant cultural deposits or human skeletal remains are encountered, and appropriate mitigation protocols implemented in coordination with the SHPD.

10. Air and Noise Quality

a. Existing Conditions

The air quality of the Lahaina area is considered good with existing airborne pollutants attributed primarily to automobile exhaust from the region's roadways. There are no point sources of airborne emissions in the immediate vicinity of the project site. Other sources of airborne emissions may include construction activities around Lahaina. These sources are intermittent, however, and prevailing tradewinds quickly disperse any particulates which are generated.

There are no significant noise generators in the vicinity of the project site. The predominant background noise source in the area is attributed to vehicle traffic along Honoapiilani Highway and surrounding roadways.

b. Potential Impacts and Proposed Mitigation Measures

The primary potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. Site work, such as clearing, grubbing and grading, roadwork, and construction, will generate airborne particulates. In addition to regular watering and sprinkling, the following measures will be implemented by the applicant's contractor during construction activities to minimize the proliferation of fugitive dust, in accordance with HAR, Chapter 11-60.1, Air Pollution Control.

The use of wind screens and/or limiting the area that is disturbed at any given time will help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed may be controlled by mulching. Trucks hauling soil material would be covered to mitigate dust. A routine road cleaning and tire washing program would help reduce fugitive dust emissions from trucks and vehicles tracking dirt onto nearby paved roadways. Installation of landscaping early in the construction schedule will also help to control dust.

During the construction phase, emissions from engine exhaust will occur from onsite construction equipment and other construction related vehicles. Increased vehicular emissions due to traffic disruptions by construction equipment or vehicles entering/exiting the site can be mitigated by moving equipment during off-peak hours. Construction related emissions would be limited to the construction period of the project. After the project is completed, carbon monoxide concentrations at the site are anticipated to remain within acceptable air quality standards.

Graded and grubbed areas will be vegetated to mitigate dust-generated impacts. In the long term, the proposed project is not expected to adversely impact local and regional ambient air quality.

Ambient noise conditions will be temporarily impacted by construction activities. Heavy construction equipment, such as bulldozers, front-end

loaders, and material-transport vehicles, will likely be the dominant sources of noise during the construction period.

The planning, design, and construction of the project will be undertaken in accordance with the maximum allowable sound levels as set forth by HAR, Chapter 11-46. These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules.

It is noted that the subdivision road referenced in **Figure 4** is aligned along the proposed lots within the project itself. Traffic and its associated noise using the subdivision road is not anticipated to affect either of the residential areas due to the relatively low peak hour volumes and expected speed limits imposed for the roadway. As an example, preliminary peak hour volumes at the makai extent of the project show under 100 vehicle trips during the morning and afternoon peak hours. The speed limit for the subdivision road will likely fall between 20 and 30 miles per hour. The overall long-term impact of the proposed project on ambient noise levels is not anticipated to be significant given the predominantly residential character of the proposed project.

11. Scenic Resources

a. Existing Conditions

The subject property is located mauka of Honoapiilani Highway with the West Maui Mountains visible to the east and the island of Lanai visible to the west. The project site is not located within a scenic view corridor.

b. Potential Impacts and Proposed Mitigation Measures

The proposed Kahoma Residential Subdivision will be developed as an architecturally integrated area with low-rise residential structures. Landscaping will be established as part of the development improvements to ensure visual buffering and softening of the built landscape. Adverse impacts to scenic and open space resources resulting from the project are not anticipated.

B. SOCIO-ECONOMIC SETTING

1. Land Use and Community Character

a. Existing Conditions

The vast majority of lands in West Maui are either State designated “Conservation” or “Agricultural”. Generally, “Conservation” lands occupy the higher elevations, while the “Agricultural” district spans the middle ground. Major exceptions to this trend are the Honolua Stream and Pohakupule Gulch areas, where the “Conservation” district extends down to sea level.

“Urban” designated lands, then, are left to occupy the lower elevations along the coast. Kapalua and Kaanapali contain Community Plan designations reflective of their resort nature. The communities of Kahana and Napili contain a mixture of resort, residential, and business uses.

Lahaina, meanwhile, encompasses a diverse mix of land uses, including residential, business, light and heavy industrial, recreational, and agricultural uses. The town of Lahaina is the commercial center of West Maui. The town contains several shopping centers and retail business areas, and serves as a hub for the region’s residential housing. To the east (mauka) of the Pioneer Mill smokestack in Lahaina, there exists a multitude of single-family homes for island residents.

West Maui’s attraction can be attributed to its year-round dry and warm climate, complemented by its many white-sand beaches and scenic landscapes. Visitor accommodations are located in Lahaina and the resort communities of Kaanapali, Kahana, Napili, and Kapalua. The State of Hawaii’s Kapalua-West Maui Airport at Mahinahina links the region to Oahu and other neighbor islands.

Diversified agriculture occupies a portion of the land in the West Maui region. Maui Land & Pineapple Company’s and Pioneer Mill’s vacant agricultural fields span along the slopes of the West Maui Mountains.

b. Potential Impacts and Proposed Mitigation Measures

The proposed Kahoma Residential Subdivision is located adjacent to an existing residential subdivision to the south and east and is, therefore, consistent with land uses present in the region. Moreover, the regional character of the Lahaina area will not be adversely impacted by the extension of residential uses to the Kahoma Stream Flood Control Channel. The project's location, situated in proximity to neighboring residential uses and to commercial centers of Lahaina, represents an appropriate area for urban expansion.

2. Population and Demography

a. Existing Conditions

The population of the County of Maui has exhibited relatively strong growth over the past decade. According to the U.S. Census, the resident population of the County of Maui in 2000 was estimated to be 128,094 and was estimated to be 154,834 in 2010. This represents a 20.9 percent increase over the past decade (U.S. Census Bureau, 2010). By 2020, the population of the County of Maui is projected to reach 174,450 and 199,550 by 2030 (SMS, 2006).

The subject property is located near the western coast of Maui, within the West Maui Community Plan region. Just as the County's population has grown, the resident population of the West Maui region has also increased. The estimated population of Lahaina in 2000 was approximately 18,000, comprising 14 percent of the island's population. The resident population for this region in 2010 was estimated to be approximately 22,200 (U.S. Census Bureau, 2010). By 2020, the population for the region is projected to reach approximately 25,100 and 29,000 by 2030 (SMS, 2006).

b. Potential Impacts and Proposed Mitigation Measures

The Lahaina area currently contains a mix of housing types, both multi- and single-family, as well as a scattering of local commercial areas. The Kahoma Residential Subdivision is, therefore, congruent with existing types of land uses in Lahaina. The proposed project is intended to satisfy a portion of the region's residential demand for housing, which may result in a slight increase

in the population of the region (i.e., buyers/renters may relocate from other areas of Maui). As noted previously, the population for the region is projected to reach approximately 25,100 by 2020 and 29,000 by 2030 (SMS, 2006). However, aside from this potentially slight increase in population, no significant impacts to population and demography are anticipated.

3. **Housing**

a. **Existing Conditions**

The project site is located in Lahaina, the commercial and residential center of West Maui. A range of housing types and conditions exists within the area, from owner-occupied homes to luxury condominiums for part-time residents.

Lahaina is presently experiencing an acute shortage of affordable housing and record high prices, with the median sales price of a single-family home at \$1,320,000.00. Although prices fluctuate by subregion and are dependent on economic conditions, price levels have remained high and beyond the purchasing power of many island residents (Realtors Association of Maui, Inc., June 2011).

Socio-economic forecast data prepared for the County of Maui's General Plan Update process reflects a continuing increase in housing demand. In the West Maui region in 2000 there was a resident housing demand for 6,348 units. The resident housing demand increased by 773 units in 2005 to 7,121 units and by 1,003 units in 2010 to 8,124 units (SMS, 2006).

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

By the year 2020, the demand for resident housing units is projected to increase to 9,687 units and by 2030 to 11,369 units (SMS, 2006). The proposed Kahoma Residential Subdivision project will add 68 residential units, all affordable units, to the supply of housing in West Maui. The proposed project will assist in providing relief to the current overall shortage of affordable housing. Moreover, the subject property's central location suggests that its impact will be beneficial to West Maui's commercial sector. No significant negative impacts on housing conditions are anticipated.

4. Labor Force

a. Existing Conditions

In June 2011, the unemployment rate for Maui County and the island of Maui was 8.1 percent and 8.0 percent, respectively (State Department of Labor and Industrial Relations, July 2011).

In terms of the profile of employed persons, West Maui generally follows the Countywide trends for the labor force characteristics shown in **Table 4**.

Table 4. Labor Force Characteristics

Occupational Category	Maui County	West Maui
Agriculture	3 percent	2 percent
Manufacturing	2 percent	<1 percent
Construction	4 percent	2 percent
Transportation, Communication, and Utility	4 percent	2 percent
Trade	20 percent	22 percent
Banking & Finance	4 percent	4 percent
Service	31 percent	40 percent
Government	10 percent	4 percent
Self-employed	23 percent	23 percent

Source: SMS, June 2006

However, more West Maui workers were employed in the service industry (40 percent) than the Countywide profile (31 percent). Because of the West Maui's emphasis on service jobs, most other job sectors exhibited slightly lower distribution rates.

b. Potential Impacts and Proposed Mitigation Measures

On a short-term basis, the project will support construction and construction-related employment. In the long-term, the project will supply needed workforce and affordable housing for the labor market. No significant negative impacts on labor conditions are anticipated.

5. 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 West Maui, one of the State's major resort destination areas. Major hotels in this region include the Hyatt Regency Maui Resort, Maui Marriott Resort & Ocean Club, Westin Maui Resort & Spa, Sheraton Maui Resort & Spa, the Kapalua Bay Hotel & Villas, and the Ritz-Carlton Kapalua. As such, a community of tourism service sector workers has developed in the area. This group includes former sugar workers and their families, younger mobile workers, and immigrants from Mexico, Asia, and other Pacific Islands.

West Maui's visitor orientation is reflected in the unique character and history of Lahaina Town, which serves as a center for retail outlets, as well as tourism activities. The 137,000 sq. ft. Lahaina Gateway Shopping Center currently represents the largest retail shopping center in Lahaina.

Pioneer Mill Company, Ltd. had in the past handled agriculture, another vital component of the West Maui economy. Until the cessation of sugar cane cultivation in September 1999, Pioneer Mill cultivated most of its approximately 6,700 acres of fee simple and leased lands. In December 2009, Maui Land & Pineapple Company ceased pineapple cultivation. The cessation of these two (2) major plantation crops, sugar cane and pineapple, brought an end to large scale agriculture in West Maui.

Kaanapali Land Management Corp. (successor to Pioneer Mill Company, Ltd.) continues to diversify its agricultural operations and has already utilized a portion of its land for coffee production. Kaanapali Coffee Farms is an approximately 300-acre major agriculture operation in West Maui.

b. Potential Impacts and Proposed Mitigation Measures

In the short-term, the project will have a beneficial impact on the local economy during the period of construction. From a long-term perspective, project residents will require goods and services related to family maintenance which are expected to further support local business owners. Real property taxes generated by project residents will contribute to the County's tax revenue base to support any increase in regional public service demands over time.

C. PUBLIC SERVICES

1. Police and Fire Protection

a. Existing Conditions

The proposed Kahoma Residential Subdivision project area is within the Lahaina Police Station service area, which includes the entire Lahaina district. The Lahaina Station, built in the early 1970's, is located in the Lahaina Civic Center complex at Wahikuli, approximately 1.5 miles to the north of the project site. The Lahaina Patrol includes 54 full-time personnel, including management-level officers and field police officers. Additional personnel consist of public safety aides and administrative support staff.

Fire prevention, suppression, and protection services for the Lahaina District are provided by personnel housed at the Lahaina Fire Station, also located in the Lahaina Civic Center, and the Napili Fire station, located about nine (9) miles to the north of the project area. The Lahaina Fire Station includes an engine and a ladder company and is staffed by approximately 30 full-time personnel. The Napili Fire Station consists of an engine company, including approximately 15 full-time fire-fighting personnel.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project will create a need for additional police and fire protection. It is anticipated that real property tax revenues generated from the project will be considered for allocation to these public services in the form of additional personnel and/or supporting equipment and technologies. The

service area for emergency response for both police and fire will not be significantly increased by the proposed action.

2. Medical Facilities

a. Existing Conditions

The only major medical facility on the island is Maui Memorial Medical Center, located midway between Wailuku and Kahului. This 231-bed facility provides general, acute, and emergency care services.

Private medical offices, however, are found in West Maui. For example, regular hours are offered by the Maui Medical Group, Lahaina Physicians, West Maui Healthcare Center, and Kaiser Permanente Lahaina Clinic.

b. Potential Impacts and Proposed Mitigation Measures

The proposed project is not anticipated to affect the service capabilities of emergency medical or general care operations.

3. Recreational Facilities

a. Existing Conditions

West Maui has numerous recreational facilities offering diverse opportunities for the region's residents. These facilities include several County and State parks and beach parks. Approximately one-third of the County parks are situated along the shoreline and offer excellent swimming, diving, and snorkeling areas. In addition, Kaanapali and Kapalua Resorts operate world-class golf courses available for public use.

Recreational facilities in Lahaina town include the Lahaina Aquatic Center, the West Maui Youth Center, the Lahaina Recreation Center, and the Lahaina Civic Center. The Lahaina Aquatic Center contains an Olympic-size swimming pool, a children's wading pool, a paved parking lot, and office and storage space, as well as shower, restroom, and changing room facilities. The 15-acre Waiee Park includes fields, parking, and washroom facilities. The West Maui Youth Center has a building for youth activities, as well as paved parking, an outdoor playground, and a basketball court. The Lahaina

Recreation Center has baseball fields and other playfields for soccer and football, as well as restrooms and paved parking facilities. The Lahaina Civic Center includes a gymnasium, amphitheater, and tennis courts complex, as well as restrooms and paved parking facilities.

The clear ocean waters and well-developed reef systems along the Lahaina and Kaanapali coastlines offer many recreational opportunities for residents and visitors. Fishing, by shorecasting and netting, is practiced in the waters near the outlet of Kauaula Stream and Makila Point. Edible seaweed collecting, octopus diving, and spearfishing occur on the adjacent reef flat fronting Kaanapali. During periods of wave activity, the area is a good location for surfing.

An inventory of Maui's coral reefs, published by the Army Corps of Engineers, documents excellent visibility in deeper waters off Makila Point, with extensive coral cover. This water quality characteristic is important to the commercial diving charter and glass-bottom boats operating out of Lahaina Harbor.

b. Potential Impacts and Proposed Mitigation Measures

The applicant has been in coordination with the County of Maui, Department of Parks and Recreation to discuss parks and playgrounds assessment requirements for the project. The applicant will develop an approximately 43,000 sq. ft. grassed neighborhood park near the center of the project. The provision of the park will benefit the proposed Kahoma Residential Subdivision, as well as the surrounding community who may utilize the park for recreational pursuits. Presently, the closest public park in relation to the project site is the Lahaina Recreation Center located approximately one (1) mile to the south. The applicant will seek a 201H-38, HRS exemption from the parks and playground assessment requirement for the project to exempt the project from payment of park and playground fees and exempt the project from the provision of a comfort station and parking areas.

4. Educational Facilities

a. Existing Conditions

The West Maui region is served by four (4) public schools (Lahainaluna High School, Lahaina Intermediate School, Princess Nahienaena Elementary School, and Kamehameha III Elementary School) operated by the State of Hawaii, Department of Education (DOE). Two (2) smaller private schools (Sacred Hearts School and Maui Preparatory Academy) also serve the region. All four (4) of the public schools are located within Lahaina town and three (3) of the schools are located along Lahainaluna Road, mauka of Honoapiilani Highway. The enrollments in the four (4) schools have grown in concert with the growth of residential development in the area. See **Table 5**.

Table 5. Enrollments at Department of Education Schools

Lahaina Complex	Actual Enrollment					*Capacity
	2006-07	2007-08	2008-09	2009-10	2010-11	
Kamehameha III Elementary	738	701	689	713	733	646
Lahaina Intermediate	584	615	683	693	653	571
Lahainaluna High	984	996	977	969	1,027	969
Princess Nahienaena Elementary	625	624	643	610	607	612

Source: Department of Education, 2011.
 *DOE Draft Analysis of Proposed West Maui Impact District, 2010.

The University of Hawaii Maui College (UHMC), which is located in Kahului, is a branch of the University of Hawaii System. As well, there is an UHMC-Lahaina Education Center that opened in 2007 providing non-credit personal development classes. UHMC is the primary higher education institution serving Maui.

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

The entire project will be priced in the affordable range and will provide prospective owners and families the opportunity to own their own homes. The proposed project may be subject to West Maui school impact fees as administered by the DOE. Fees collected are used for new schools and facilities to accommodate students residing in the new residential units. An exemption from the educational fees, however, will be sought through the petition for a DBA with the SLUC as 100 percent of the units will meet the affordable housing program criteria.

D. INFRASTRUCTURE

1. **Roadways**

a. **Existing Conditions**

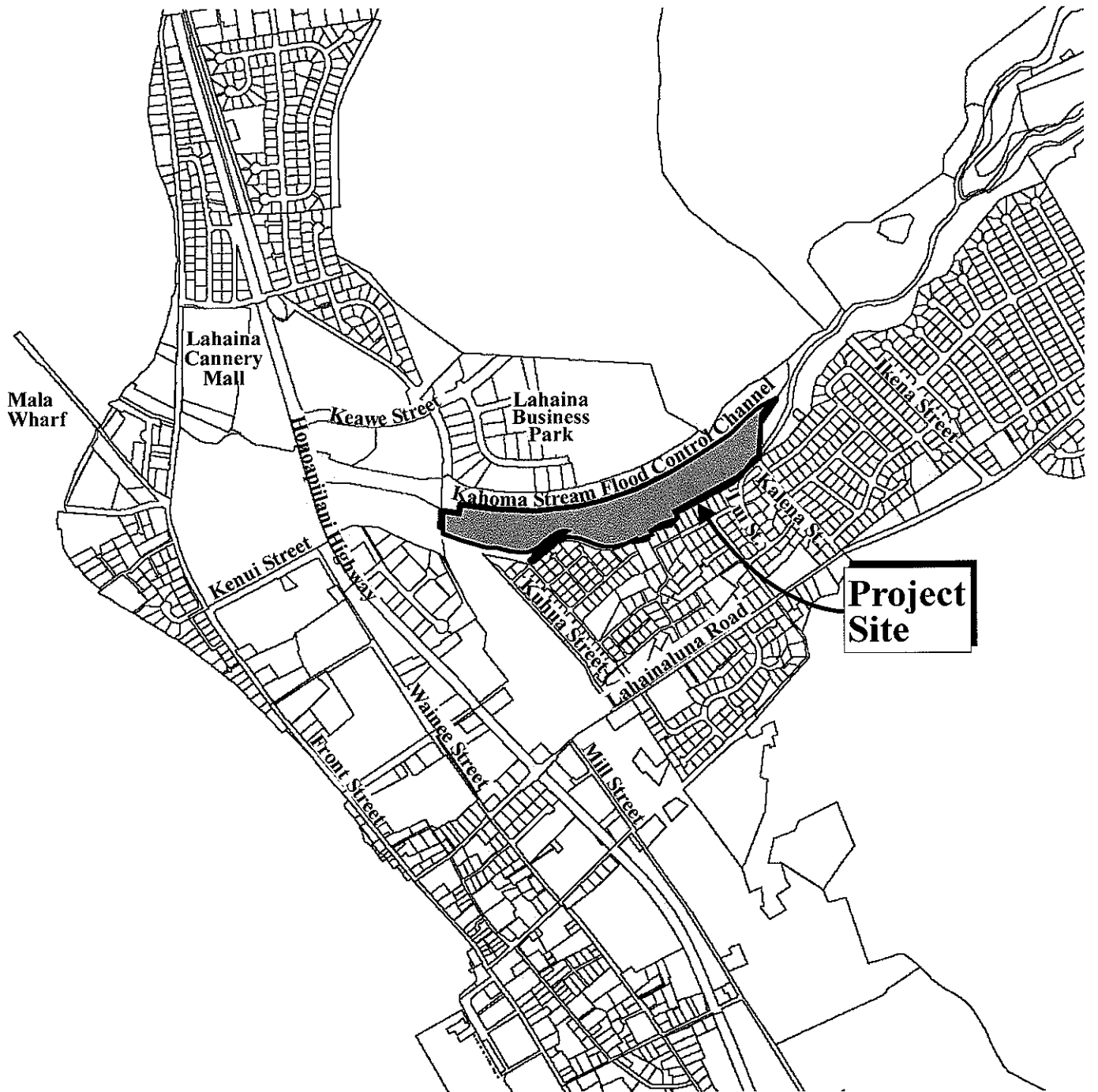
Access to the Lahaina region is provided by Honoapiilani Highway from Central (Wailuku/Kahului) and South (Kihei/Wailea) Maui. The following is a summary of the major roadways in the vicinity of the project site. See **Figure 9**.

Honoapiilani Highway

This principal arterial State owned and maintained roadway provides north-south regional mobility and access to communities in the region. For most of its length, Honoapiilani Highway is a two-lane, two-way arterial roadway with median left-turn lanes provided at major intersections. From Lahaina town (at Aholo Road) to the Honokowai Stream bridge, Honoapiilani Highway functions as a four-lane arterial roadway.

Lahainaluna Road

This collector roadway, owned and maintained by the County of Maui, provides east-west circulation for mauka residential areas to Honoapiilani Highway, as well as the commercial areas of Lahaina. There are three (3) public schools located on this two-lane, two-way collector roadway. The former Pioneer Mill Company facility is located off of Lahainaluna Road. The intersection of Lahainaluna Road and Honoapiilani Highway is signalized.



Source: County of Maui, Department of Planning

Figure 9 Proposed Kahoma Residential Subdivision Area Roadways

NOT TO SCALE



Prepared by: West Maui Land Company, Inc.



Kahoma\EmpeeHsg\AreaRoadways

Kuhua Street

The County owned and maintained Kuhua Street is a 20-foot wide easement adjacent to the former Pioneer Mill property. The County of Maui, in conjunction with Kaanapali Land Management Corp., is currently planning an upgrade of Kuhua Street to a two-lane, two-way public roadway. An extension from Kuhua Street from Aholo Road to Keawe Street is planned. The applicant will improve the access roadway (old cane haul road) between the project site and Keawe Street to the north to provide approximately 20 ft. of pavement width which will accommodate two (2) travel lanes.

Ikena Street/Lahaina Bypass

Formerly, this local roadway is maintained by the County of Maui and serves residents of the Kelaweia Mauka Subdivision. This two-lane, two-way roadway was selected to be the alignment for the eventual Lahaina Bypass Highway and will connect to Keawe Street to the northwest in the first phase (Phase IA) of the bypass highway. The Phase IA project is currently under construction with a target completion by the end of 2012.

Keawe Street

This local roadway is owned and maintained by the County of Maui and originates at Honoapiilani Highway across the Lahaina Cannery Mall entry driveway. Eventually, this two-lane, two-way roadway will connect to the first phase of the Lahaina Bypass Highway at its eastern terminus. From the Lahaina Cannery Mall, Keawe Street begins at Honoapiilani Highway at a signalized intersection and serves the Lahaina Gateway Shopping Center, Lahaina Business Park, and Opukea Condominium, located east (mauka) of Honoapiilani Highway.

Kalena Street

This local roadway with speed bumps is maintained by the County of Maui and serves the residents of the Kelaweia Mauka Subdivision. This two-lane, two-way roadway has a stop controlled intersection with Lahainaluna Road and will provide access to the project site via Lui Street.

Lui Street

This local roadway with speed bumps is owned and maintained by the County of Maui and serves the residents of the Kelaweia Mauka Subdivision. This two-lane, two-way roadway provides access to the project site.

Front Street

This two-lane, two-way collector, County of Maui owned and maintained roadway, stretches the entire span of Lahaina town from Puamana in the south to Wahikuli in the north. A multitude of apparel stores, restaurants, curio shops, and art galleries dot the Front Street landscape. Front Street generally parallels Honoapiilani Highway throughout its length. Residential neighborhoods bracket the commercial core of Front Street to the north and the south.

b. Potential Impacts and Proposed Mitigation Measures

A traffic impact analysis report (TIAR) was developed for the Kahoma Residential Subdivision in October 2007 by Wilson Okamoto Corporation to assess traffic impacts relating to the original project (25 multi-family units and 70 single-family units). See **Appendix "F"**. A supplemental report, which included analysis of additional intersections, was later prepared in January 2010 by Wilson Okamoto Corporation (see **Appendix "F-1"**). This report assumed that the development would include 25 multi-family units and 62 single-family units. More recently, a supplemental traffic assessment was prepared by Austin, Tsutsumi & Associates, Inc. in January 2011 to address the reduction in unit count, as presently proposed (see **Appendix "F-2"**). The TIAR analyzed existing conditions based on current land use, population, the existing roadway network, and recent roadway counts. An average growth rate of approximately 1.6 percent per year was utilized to account for increased daily traffic on Honoapiilani Highway due to statewide population, employment, and visitor forecasts. Traffic impacts attributable to other proposed land development projects in the region were also accounted for in the analysis.

The 2007 TIAR used 2011 (which was then projected as the anticipated start of the construction phase of the Kahoma Residential Subdivision) as the

forecast date, and future projections of two (2) scenarios were performed in conjunction with the growth rate: a baseline scenario (without the proposed project) and a project scenario (baseline with the proposed project). The 2007 report further analyzed the local and regional impacts the proposed Kahoma Residential Subdivision would have on the roadway infrastructure with respect to the baseline future condition.

1. Baseline Scenario (without the proposed project)

The 2007 TIAR predicted that, in the year 2011, traffic improvements will be necessary just to accommodate the baseline condition. Traffic operations in the project vicinity (baseline scenario without the proposed project) are expected to deteriorate from existing conditions during both the morning and afternoon peak hours of traffic due to ambient traffic growth and the development of other projects in the vicinity. (It is noted that a substantial amount of the projects which were assumed by the 2007 TIAR to be completed by 2011 have not been initiated.)

The State and the County are currently in the process of developing two (2) major roadways which will significantly alleviate the congestion along Honoapiilani Highway that exists today. The State Lahaina Bypass Highway will be developed in phases and will eventually span from Launiupoko in the south to Honokowai in the north. The first phase of the bypass highway (Phase IA) will connect Ikena Street with Keawe Street. Future phases of the bypass highway will roughly parallel Honoapiilani Highway to the east.

In addition, the County is coordinating with private developers to design the Kuhua Street Extension, a roadway which will parallel Honoapiilani Highway. The Kuhua Street Extension roadway will span from the southern terminus of Front Street to Keawe Street. The Lahaina Bypass Highway and the Kuhua Street Extension will provide alternative routes to Honoapiilani Highway in and around Lahaina town.

2. Project Scenario (baseline with the proposed project)

The supplemental Traffic Assessment prepared in January 2011 noted that fewer than 100 peak hour trips would be generated as a result of the project. See **Table 6**.

Table 6. Updated Project Trip Generation Counts

Hour	Direction	Projected Trips
Morning (AM) Peak Hour	Enter	15
	Exit	44
	Total	58
Afternoon (PM) Peak Hour	Enter	47
	Exit	28
	Total	75

Table 7, below, compares the trips generated by the October 2007 TIAR, the January 2010 supplemental traffic assessment, and the current 68 unit project.

Table 7. Trip Generation Comparison

Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
October 2007 Traffic Impact Report	17	54	71	59	35	94
January 26, 2010, Supplemental Report	16	50	66	53	31	84
January 19, 2011 Supplemental Report, 68 Single-Family Dwelling Units (Proposed Project)	15	44	58	47	28	75

The 2007 TIAR concluded that Kahoma Residential Subdivision is anticipated to generate an increase of less than 2 percent on Honoapiilani

Highway during both the morning and afternoon peak hours of traffic. The increase in the total traffic volumes are in the range of daily volume fluctuations along the highway and represent a minimal increase in the overall traffic volumes. The 2011 supplemental Traffic Assessment which was based on the reduced unit count concluded that:

- The Project is anticipated to generate 58 total trips during the AM peak hour of traffic and 75 during the PM peak hour of traffic, which is less traffic than the October 2007 TIAR and the January 2010 Supplemental Report.
- The recommendations contained in the October 2007 TIAR and the January 2010 Supplemental Report is conservative since the revised Kahoma Residential Development will generate less trips.
- The preparation of a Traffic Impact Assessment Report is not required as the Project does not meet the minimum trip generation criteria of 100 new trips in the peak direction which is recommended by the Institute of Transportation Engineers (ITE) regarding the preparation of a Traffic Impact Assessment Report.

The TIAR, which was prepared for the previously proposed larger project, provided the following recommendations, which, nevertheless, will be implemented for the proposed 68-unit project.

1. Maintain sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Maintain adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Maintain adequate on-site loading and off-loading service areas and prohibit offsite loading operations.

As mentioned, the traffic conditions in the region are expected to continue to decline over time even in the absence of the proposed project. The construction of the Kuhua Street Extension, the Lahaina Bypass Highway, and more immediately the first phase of the Lahaina Bypass Highway which will connect to Keawe Street will serve to alleviate traffic congestion.

The above four (4) project-specific recommendations will be implemented as part of the subdivision development to minimize impacts caused by the increase in traffic. As a whole, the proposed Kahoma Residential Subdivision is not anticipated to have a significant impact on traffic operations in the vicinity of the project site. The project's location adjacent to existing urban areas presents an opportunity to encourage alternative modes of transportation. Incorporation of bicycle routes, pedestrian paths and potential bus stops, further reduces the dependence on the automobile for transportation needs.

2. Water

a. Existing Conditions

The West Maui region is served by the County's Department of Water Supply (DWS) domestic water system. The County water system services the coastal areas from Launiupoko to Kaanapali and from Honokowai to Napili. The County's system includes both surface and groundwater sources.

The sources of water for Lahaina are four (4) deepwells located above Alaeloa and referred to as Napili Wells 1, 2, and 3 and Honokohau Well A. These wells are supplemented by water treatment plants above Honokowai and Lahainaluna High School that draws surface water from the Honolua Ditch and Kanaha Valley. Several miles of 12- and 16-inch lines and two (2) in-line booster stations convey water from these sources to consumers in Lahaina. Storage is provided by a 1.5 million gallon (MG) storage tank above Wahikuli and a 1.0 MG and a 0.5 MG tank on Lahainaluna Road.

In the project area, there are existing water lines which serve the adjacent residential subdivisions to the south. The system consists of water mains with sizes ranging from 2-inch to 12-inch pipes. The system is fed by the existing 0.5 and 1.0 MG concrete water reservoirs located east (mauka) of the

project site along Lahainaluna Road. The area north of Kahoma Stream is served by a 12-inch waterline on Keawe Street.

b. Potential Impacts and Proposed Mitigation Measures

The Preliminary Civil Engineering and Drainage and Soil Erosion Control Report prepared by R. T. Tanaka Engineers, Inc. for the Kahoma Residential Subdivision in October 2007 and updated in November 2010, contains information regarding the anticipated domestic and fire flow water demands for the project. Refer to **Appendix "G"**. Based on the DWS standards, the average daily demand for single-family residences is 600 gallons per unit. Therefore, the estimated average daily demand for the project is 40,800 gallons per day (gpd).

As is typical of residential developments of this scale, the size of the distribution line for the project is governed by the fire flow requirements. The fire flow demand of 1,000 gpm for the single-family units was used to size the main distribution line. An 8-inch water line, which is capable of delivering 1,565 gallons per minute (gpm), will be utilized to provide the required fire flow.

The domestic water system for the proposed project will be comprised of an 8-inch water line, with fire hydrant and service lateral connections. The single-family units will be served by 5/8-inch water meters, while the neighborhood park area will be served by larger meters, tentatively 1.5-inch meters, for both domestic and irrigation purposes.

Both ends of the on-site system will be tied-in to the existing waterline network serving the area. The upper end will be tied to the existing 8-inch and 4-inch waterlines at the intersection of Kahena and Kalena Streets through Lui Street. The lower end of the on-site system will be connected to the existing 12-inch waterline on Keawe Street via an 8-inch pipe across Kahoma Stream Channel and along the old cane haul road. The latter connection will require approval from the County of Maui and the U.S. Army Corps of Engineers due to the crossing of the Kahoma Stream Flood Control Channel. This connection to Keawe Street will also require an easement as the old cane haul road is privately owned.

The County of Maui recently approved Ordinance No. 3818 amending Section 14.12.030 of the Maui County Code relating to exemptions from the County's water availability policy. This ordinance exempts "*Residential development projects with one hundred percent affordable housing units and are within the service area of the department's central or west Maui water system*". As such, the project is exempt from providing a long-term reliable supply of water.

The information on "Maui County Planting Plan – Plant Zone 3" from the DWS, will be utilized, as applicable, to place plants in landscaping, which will help to conserve water and protect the watershed from degradation. Rain sensors will be provided on all automated irrigation controllers in common landscaping areas. A regular maintenance program to check and reset the automated irrigation controllers will be established.

Plumbing fixtures will be installed in accordance with MCC Section 16.20A.680, which requires the utilization of low-flow fixtures and devices in an effort to conserve water. The applicant will advise owners to maintain fixtures and devices to minimize leakage.

3. Wastewater Systems

a. Existing Conditions

The County Department of Environmental Management's (DEM's) Wastewater Reclamation Division provides sanitary sewer service for the West Maui region.

Wastewater from the Kaanapali and Lahaina areas is treated at the County's Lahaina Wastewater Reclamation Facility (LWRF) located approximately five (5) miles north of the project site on the east (mauka) side of Honoapiilani Highway. The LWRF's total treatment capacity is 9.0 million gallons per day (mgd), with 6.0 mgd for secondary treatment and 3.0 mgd for R-1 treatment. Presently, the facility treats about 5.4 mgd of wastewater. About 1.2 mgd of the R-1 treated effluent is used to irrigate the Royal Kaanapali golf courses, the landscaped areas along Honoapiilani Highway, and the landscaped median of Kaanapali Parkway. The remaining treated effluent (4.2 mgd) is disposed into four (4) injection wells located within the

facility. Under the conditions of its Environmental Protection Agency (EPA) permit, the County is allowed to dispose a maximum flow of 6.7 mgd into the injection wells.

b. Potential Impacts and Proposed Mitigation Measures

The Preliminary Civil Engineering and Drainage and Soil Erosion Control Report prepared by R. T. Tanaka Engineers, Inc. for the Kahoma Residential Subdivision in October 2007 and updated in November 2010, contains information regarding the anticipated wastewater demands for the project. Refer to **Appendix "G"**. The estimated average daily wastewater flow generated by the project is 23,800 gpd.

Based on the average daily wastewater demand of 23,800 gpd, the on-site system will consist of 6-inch and 8-inch PVC sewer pipes and sewer manholes. Further, each proposed lot will be served by a single service lateral as required by the DEM. The system will discharge into the existing County sewer system.

The off-site improvements to provide the connection to the County sewer system will be via an 8-inch PVC sewer pipe that will connect to the existing 10-inch line on Keawe Street. This 8-inch sewerline will be located along the privately owned former cane haul road. Ownership of the line is intended to transfer to the County of Maui. The connection may require approval from the County of Maui and the U.S. Army Corps of Engineers due to the crossing of the Kahoma Stream Flood Control Channel.

The applicant has been in consultation with the DEM to ensure that there is adequate capacity to serve the project.

4. Solid Waste

a. Existing Conditions

Single-family residential refuse collection is provided in Lahaina by the County's DEM's Solid Waste Division on a once-a-week basis. Private refuse collectors provide solid waste disposal services for multi-family, commercial, and institutional accounts. With the exception of the Hana

region, residential and commercial solid waste from throughout the island is transported to the Central Maui Landfill at Puunene.

A refuse transfer station at Olowalu accepts household and green wastes, as well as used oil, for transport to the Central Maui Landfill in Puunene. The disposal of commercial and institutional refuse is not permitted at the Olowalu transfer station.

b. Potential Impacts and Proposed Mitigation Measures

The single-family residential units in the proposed residential subdivision will be served by the County of Maui's solid waste disposal facilities. The proposed project is not anticipated to affect the service capabilities of County or private waste collection operations.

5. Drainage

a. Existing Conditions

The Kahoma Residential Subdivision project area is largely undeveloped, at present, and vegetated by grasses, weeds, shrubs, and trees. The property gently slopes in a westerly direction and varies in elevation from approximately 32 feet amsl at its western extent to approximately 145 feet amsl along its southeastern extent.

The site is situated within the limits of the 2,140-acre Lahaina subwatershed, one of two (2) subwatersheds that comprise the 4,920-acre Lahaina Watershed. The other of the two (2) subwatersheds is the 2,780-acre Kauaula Watershed.

The Lahaina subwatershed rises from the Pacific Ocean to an elevation of 2,561 feet amsl. The coastal area of the subwatershed is relatively flat and has been developed for residential and commercial uses. The area above the developed flatland to about the 1,400-foot elevation is gently sloping and was formerly utilized for growing sugar cane. The remaining upper area of the Lahaina subwatershed is steep and was previously utilized for sugar cane cultivation or pasturing.

Runoff generated in the former sugar cane fields above Lahaina town is conveyed by numerous small drainage ways through the former sugar cane fields and cane haul roads, through culverts in Honoapiilani Highway, and into Lahaina town where it drains into the ocean or ponds in low spots and dissipates through infiltration or evaporation. The storm drainage system within Lahaina town consists of short, limited capacity culverts which outlet into the ocean.

Existing runoff sheet flows in a westerly direction across the project site and discharges into the Kahoma Stream Flood Control Channel. Refer to **Appendix "G"**.

b. Potential Impacts and Proposed Mitigation Measures

A Preliminary Civil Engineering and Drainage and Soil Erosion Control Report was prepared by R. T. Tanaka Engineers, Inc. for the project in October 2007 and updated in November 2010. Refer to **Appendix "G"**. The report notes that the overall project site is anticipated to increase the existing 1-hour rainfall storm as follows:

- 10-year Runoff Rate: 12.6 cubic feet per second (cfs) (from 14.0 to 26.6 cfs);
- 50-year Runoff Rate: 15.8 cfs (from 17.5 to 33.3 cfs); and
- 50-year Runoff Volume: 40,210 cubic feet (cf) (from 44,675 to 84,885 cf).

The report notes that drainage measures will be implemented to maintain storm runoff at or below pre-development conditions. Based on County of Maui Drainage Standards, drainage features have been sized to retain the 50-year, 1-hour storm runoff volume increase that is anticipated to be generated by the proposed project.

An open-cut retention basin (drainage pond) will be located on-site, near the west end of the project site with an overflow outlet that will connect to the Kahoma Stream Flood Control structure. Approvals to connect to the structure will be obtained from the County of Maui and the U.S. Army Corps of Engineers, as applicable. In addition to the drainage pond, the proposed

drainage system will also include catch basins and/or grated drain inlets to collect runoff, non-perforated pipes to convey runoff to the drainage pond, drain manholes and the rerouting of the existing 30-inch and 36-inch drainlines between Lui Street and the Kahoma Stream Flood Control Channel.

During construction, the following recommended BMPs will be considered for erosion and sedimentation control.

- Installation of BMP such as silt fence, gravel bag berms or other approved sediment trapping devices at the downstream side of the grading area and sediment pits.
- Installation of dust control fence surrounding the project site.
- Control dust by means of water trucks or by installing temporary sprinkler systems or both, if necessary.
- Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
- All exposed areas shall be paved, grassed, or permanently landscaped as soon as finished grading is completed.
- Storm runoff will be diverted away from graded areas to natural drainageways during the construction by means of sand bag berms or lined temporary swales.
- Time of construction will be minimized.
- Only areas that are needed for new improvements will be cleared.
- Early construction of drainage control features.
- Construction of pit for proposed drainage ponds prior to mass grading of project site. The pits will be temporarily utilized as sediment catchment during construction.

Greater detail of the design information for the proposed drainage and erosion control plan will be provided when the project progresses to the engineering design phase of development.

In summary, despite the increase in impervious surfaces, such as building roofs, pavement, and concrete walkways, storm runoff to downstream properties will not increase above pre-development levels. Further, the on-site drainage pond and the implementation of soil erosion control measures will reduce the potential of sediments contained in the runoff from entering the ocean. Further, as noted previously, BMPs will be instituted during development of the project and a National Pollutant Discharge Elimination System (NPDES) permit coverage authorizing discharge of storm water associated with construction activities will be obtained from the Department of Health (DOH) prior to any land disturbance. As a result, the proposed project is not anticipated to result in significant adverse drainage impacts to downstream properties.

6. Electrical, Telephone, and CATV Service

a. Existing Conditions

Electrical, telephone, and cable television (CATV) services for the West Maui region are provided by Maui Electric Company, Ltd. (MECO), Hawaiian Telcom, and Oceanic Time Warner Cable, respectively.

b. Potential Impacts and Proposed Mitigation Measures

The applicant has been in early consultation with MECO, Hawaiian Telcom, and Oceanic Time Warner to provide services for the proposed project. The service providers did not note significant issues in providing service, considering they already serve the adjacent Kuhua Village and Kelaweia Subdivision. The applicant will engage these entities in further consultation during the design phase of the project. The proposed project is not anticipated to have significant impacts to electrical, telephone, or CATV services.

E. CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are defined as the impact on the environment which results 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 project is not part of a larger action, nor would it occur within the context of such actions. It is noted, however, that the County of Maui's ongoing General Plan update process will involve the formulation of a Maui Island Plan which would delineate urban and rural growth boundaries. Other landowners in the vicinity may seek to have portions of their respective land holdings placed on the Maui Island Plan for purposes of defining future development potential in the Lahaina region. Should lands other than the proposed Kahoma Residential Subdivision be identified as potential future areas for urban and/or rural growth, planning for such areas would need to consider land planning integration opportunities. Upon completion of the General Plan update, the respective community plans, including the West Maui Community Plan, will be updated. The timeframe for the overall completion of the updating of the community plans has not yet been established. However, the overall timeframe for the General Plan covers a planning horizon up to the year 2030.

The TIAR prepared for the project examined and evaluated traffic impacts of the project, as well as the other potential projects, some of which are currently completed, others of which are still being planned. Based on the analysis, the TIAR has recommended the implementation of applicable traffic mitigation measures and improvements. Since completion of the TIAR in 2007, the economic climate has changed such that many projects in the area have not yet moved forward with construction. As such, their development timeframes are uncertain and may not materialize at all within the time horizon of the project. The implementation timeframe for those projects are dependent on their respective regulatory and market parameters which are not linked to the proposed Kahoma Residential Subdivision.

The mitigation of other potential adverse cumulative impacts resulting from infrastructure use will be resolved during the course of development either through the provision of additional facilities on-site and offsite (drainage, water, and park facilities) and working with State and County agencies. Other planned projects will similarly be required to mitigate the impacts of their respective projects as they progress through the development process.

In general, processes and mechanisms for coordinating mitigation measures attributable to cumulative impacts are in place. An example of a process which addresses cumulative impacts is the scoping of infrastructure studies (including traffic impact) to include those projects which are anticipated to be implemented within a timeframe similar to that of the proposed action.

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. Secondary impacts from highway projects, for example, can occur because they can induce development by removing one of the impediments to growth-transportation access. Aside from the direct development impacts discussed in the previous sections of this chapter, secondary impacts may be attributed to project effects on the island's overall housing situation. That is, the provision of new affordable housing in Lahaina may open up housing (for rental or purchase) in other areas of the island, depending on market conditions at the time of project development. In general, however, the proposed action is not considered a generator of significant secondary impacts.

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, HRS, relating to the SLUC, establishes four (4) major land use districts in which all lands in the state are placed. These districts are designated as “Urban”, “Rural”, “Agricultural”, and “Conservation”. The subject property is located within the “Agricultural” district. See **Figure 10**.

A State Land Use DBA for the project area for reclassification to the “Urban” district is being requested as part of the entitlement application to enable implementation of the proposed Kahoma Residential Subdivision project. As previously described, the district reclassification will be implemented pursuant to Section 15-15-97 of the SLUC Rules to allow for the timely review and action of the 201H-38, HRS proposal. Criteria considered in the reclassification of lands are set forth in the SLUC Rules (Chapter 15-15, HAR).

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

Comment:

The area proposed for reclassification is situated adjacent to the existing Kuhua Village and Kelawea Subdivision to the south and commercial area along Keawe Street north of Kahoma Stream Flood Control Channel, which are located on lands classified as “Urban.” Infrastructure systems implemented in conjunction with the Kahoma Residential Subdivision project will serve all areas within the limits of the project site. The proposed development will include city-like concentrations of people in a community which will include single-family homes. An internal road network and park/open space will serve the needs of the community.

It shall take into consideration the following specific factors:

- 1. Proximity to centers of trading and employment except where the development would generate new centers of trading and employment.**

Comment:

The area proposed for reclassification is located near existing commercial and employment centers in Lahaina. Numerous employment opportunities exist in the retail, resort, and service industries in the Lahaina/Kaanapali/Napili/Kapalua areas.

- 2. Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection.**

Comment:

Domestic water supply, wastewater service, and solid waste collection for the project will be coordinated with the County of Maui, DWS and DEM. The area is located in close proximity to major roadways, such as Honoapiilani Highway, Keawe Street, Lahainaluna Road, and the proposed Lahaina Bypass. Recommended roadway improvements to accommodate traffic will be implemented in the project. Three (3) State DOE schools are located in the Lahainaluna area. Health care facilities as well as police and fire protection services are available in Lahaina. An approximate 43,000 sq. ft. park site, bicycle paths and walking paths will be provided by the project.

- 3. Sufficient reserve areas for foreseeable urban growth.**

Comment:

As noted previously, a significant increase in affordable housing supply will be needed to accommodate the region's anticipated growth. The project will provide resident housing opportunities involving a range of product varieties, which in turn is anticipated to result in a more balanced housing market. The project will be constructed as a single phase over a period of approximately two (2) years. Completion of the project is expected to partially address the shortage of affordable housing currently being experienced in Maui County.

It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil conditions, and other adverse environmental effects.

Comment:

The project site has an average slope of approximately 4.5 percent and is suitable for the planned uses. The project site is situated within Zone X, areas of minimal flood hazards. The site is not situated within any tsunami inundation zone. Drainage improvements will be designed in consultation with applicable governmental agencies to mitigate potential runoff and adverse environmental impacts. No foreseeable adverse environmental effects are anticipated in conjunction with the project.

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

Comment:

The project site is contiguous with Urban district lands to the south. Although the West Maui Community Plan designates the property open space, the adjacent lands are designated for residential land uses. The isolation of the lot from other agricultural uses and lack of irrigation makes it difficult to continue agriculture on the property. Its close proximity to existing urban uses makes it ideal for future urban expansion.

It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the State and County plans.

Comment:

The project site is designated Open Space by the West Maui Community Plan. The project area is in the vicinity of the residential land uses of the Kuhua Village and Kelawea Subdivision. The West Maui Community Plan also designates lands adjacent to the project site for residential use. The lands proposed for reclassification are, therefore, located within an area suitable for new urban growth as evidenced by the existing urban uses in the vicinity of the project area.

It may include lands which do not conform to paragraphs (1) to (5):

When surrounded by or adjacent to existing urban development; and only when those lands represent a minor portion of this district.

It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services.

It may include lands with a general slope of twenty percent (20%) or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any Federal, State, or County agency, are adequate to protect the public health, welfare and safety, and the public's interest in the aesthetic quality of the landscape.

Comment:

As mentioned previously, the project site is located adjacent to areas of existing urban development. Existing urban designated lands lie to the south and include Kuhua Village and the Kelawea Subdivision to the south and east. The development of the project will not necessitate an unreasonable investment in public infrastructure or support systems. All requisite infrastructure systems for the project will be provided. The project area has an average slope of approximately 4.5 percent and is suitable for the planned uses. Governmental regulations will be followed to ensure the protection of public health, safety, and welfare.

B. HAWAII STATE PLAN

Chapter 226, HRS, also known as the Hawaii State Plan, is a long-range comprehensive plan which serves as a guide for the future long-term development of the State by identifying goals, objectives, policies, and priorities, as well as implementation mechanisms. Examples of State objectives and policies relevant to the proposed project are as follows:

1. **Section 226-05, Objectives and policies for population. To achieve this objective, it shall be the State policy to:**
 - a. Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.

- b. Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.

2. **Section 226-13, Objectives and policies for physical environment-land, air, and water quality. To achieve this objective, it shall be the State policy to:**

- a. Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.
- b. Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.
- c. Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.
- d. Encourage urban developments in close proximity to existing service and facilities.

3. **Section 226-14, Objectives and policies for facility systems-in general. To achieve the general facility systems objective, it shall be the policy of the State to:**

- a. Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvements in consonance with State and County plans.
- b. Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.
- c. Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

4. **Section 226-15, Objectives and policies for facility systems-solid and liquid wastes. To achieve the solid and liquid waste objectives, it shall be the policy of the State to:**

- a. Encourage the adequate development of sewage facilities that complement planned growth.
- b. Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.

5. **Section 226-16, Objectives and policies for facility systems-water. To achieve the facilities systems water objectives, it shall be the policy of the State to:**

- a. Coordinate development of land use activities with existing and potential water supply.
- b. Support research and development alternative methods to meet future water requirements well in advance of anticipated needs.
- c. Reclaim and encourage the productive use of runoff water and wastewater discharges.
- d. Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.
- e. Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.

6. **Section 226-17, Objectives and policies for facility systems-transportation. To achieve the facilities systems transportation objective, it shall be the policy of the State to:**

- a. Encourage a reasonable distribution of financial responsibilities for transportation among participating government and private parties.
- b. Encourage transportation systems that serve to accommodate present and future development needs of communities.

7. **Section 226-19, Objectives and policies for socio-cultural advancement – housing. To achieve the housing objectives, it shall be the policy of the State to:**

- a. Effectively accommodate the housing needs of Hawaii's people.
- b. Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.
- c. Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

The Kahoma Residential Subdivision is located in close proximity to existing public services and infrastructure. The project will provide housing for a range of income groups which will serve to meet the varied housing needs of the region at an attractive and central location in Lahaina. Additional housing choices will provide healthy competition and allow for a more

balanced housing market. To this end, the proposed project is in conformance with the above-noted objectives and policies of the Hawaii State Plan.

The State Functional Plans define actions for implementation of the Hawaii State Plan through the identification of needs, problems and issues, and recommendations on policies and priority actions which address the identified areas of concern. The proposed reclassification request is consistent with the following State Functional Plans:

1. State Agricultural Functional Plan

The proposed project will reclassify approximately 16.7 acres of land from the State Agricultural district to the State Urban district. While the project site for the proposed subdivision was formerly used for sugar cane cultivation, the site is now fallow. The proximity of the project site to existing urban land uses provides a reasonable nexus and an appropriate foundation for the proposed reclassification request, particularly in the context of meeting affordable housing needs of the community.

2. State Housing Functional Plan

The growing public demand for affordable housing indicates a current shortage of single-family affordable housing units on Maui. The proposed 68 residential units within the Kahoma Residential Subdivision project will help address a critical community need.

3. State Recreational Functional Plan

Outdoor recreation is recognized by the Hawaii State Plan as an important part of life for Hawaii's residents. As the population rises and residential land uses increase, creating areas dedicated to outdoor recreation becomes increasingly vital. The State Functional Plan for Recreation urges the improvement and expansion of recreational facilities in urban areas and local communities. The proposed project will address recreational needs through the provision of an approximately 43,000 sq. ft. park, bicycle paths, and walking paths.

4. **State Transportation Functional Plan**

The Hawaii State Plan addresses the vital role of transportation, particularly in light of population increases and community growth. The State Functional Plan for transportation calls for a statewide transportation system consistent with planned growth objectives throughout the State. The proposed project's roadway system will be developed in consultation with the County Department of Public Works (DPW) to ensure consistency with the objectives of the State Transportation Functional Plan. The internal subdivision road will be constructed to County of Maui design standards.

5. **State Historic Preservation Functional Plan**

The State Historic Preservation Functional Plan deals with the preservation of historic properties, the collection and preservation of historic records, artifacts and oral histories, and the provision of public information and education on the ethnic and cultural heritages and history of Hawaii. An archaeological assessment report has been completed for the project by Scientific Consultant Services, Inc. in compliance with applicable historic preservation requirements. Refer to **Appendix "D"**. The archaeological assessment report has been reviewed and approved by the SHPD. Refer to **Appendix "D-1"**. The proposed project is, therefore, consistent with the objectives outlined under the State Historic Preservation Functional Plan.

C. **MAUI COUNTY GENERAL PLAN**

As indicated by the Maui County Charter, the purpose of the general plan shall be to:

... 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 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.

Chapter 2.80B of the MCC, relating to the General Plan and Community Plans, implements the foregoing Charter provision through enabling legislation which calls for a Countywide Policy Plan and a Maui Island Plan. The Countywide Policy Plan was adopted as Ordinance No. 3732 on March 24, 2010. The Maui Island Plan is currently in the process of review and formulation by the Maui County Council.

With regard to the Countywide Policy Plan, Section 2.80B.030 of the Maui County Code states the following.

The countywide policy plan shall provide broad policies and objectives which portray the desired direction of the County's future. The countywide policy plan shall include:

1. *A vision for the County;*
2. *A statement of core themes or principles for the County; and*
3. *A list of countywide objectives and policies for population, land use, the environment, the economy, and housing.*

Core principles set forth in the Countywide Policy Plan are listed as follows:

1. Excellence in the stewardship of the natural environment and cultural resources;
2. Compassion for and understanding of others;
3. Respect for diversity;
4. Engagement and empowerment of Maui County residents;
5. Honor for all cultural traditions and histories;
6. Consideration of the contributions of past generations as well as the needs of future generations;
7. Commitment to self-sufficiency;
8. Wisdom and balance in decision making;
9. Thoughtful, island appropriate innovation; and
10. Nurturance of the health and well-being of our families and our communities.

Congruent with these core principles, the Countywide Policy Plan identifies goals objectives, policies and implementing actions for pertinent functional planning categories, which are identified as follows:

1. Natural environment
2. Local cultures and traditions
3. Education
4. Social and healthcare services
5. Housing opportunities for residents
6. Local economy
7. Parks and public facilities
8. Transportation options
9. Physical infrastructure
10. Sustainable land use and growth management
11. Good governance

With respect to the proposed Kahoma Residential Subdivision, the following goals, objectives, policies and implementing actions are illustrative of the project's compliance with the Countywide Policy Plan.

EXPAND HOUSING OPPORTUNITIES FOR RESIDENTS

Goal: Quality, island-appropriate housing will be available to all residents.

Objective:

1. Reduce the affordable housing deficit for residents.

Policies:

- c. Seek innovative methods to secure land for the development of low- and moderate-income housing.

* * *

- k. Ensure residents are given priority to obtain affordable housing units developed in their communities, consistent with all applicable regulations.

Objective:

- 2. Increase the mix of housing types in towns and neighborhoods to promote sustainable land use planning, expand consumer choice, and protect the County's rural and smalltown character.

Policy:

- d. Promote infill housing in urban areas at scales that capitalize on existing infrastructure, lower development costs, and are consistent with existing or desired patterns of development.

Objective:

- 3. Increase and maintain the affordable housing inventory.

Policies:

- a. Recognize housing at a basic human need, and work to fulfill that need.

* * *

- c. Improve communication, collaboration, and coordination among housing providers and social-service organizations.

* * *

- e. Develop public-private and nonprofit partnerships that facilitate the construction of quality affordable housing.

- f. Streamline the review process for high-quality, affordable housing developments that implement the goals, objectives, and policies of the General Plan.

* * *

- h. Encourage long-term residential use of existing and future housing to meet residential needs.

In summary, the proposed Kahoma Residential Subdivision is consistent with the themes and principles of the Countywide Policy Plan.

D. WEST MAUI COMMUNITY PLAN

Within Maui County, there are nine (9) community plan regions. From a General Plan implementation standpoint, each region is governed by a community plan which sets forth desired land use patterns, as well as goals, objectives, policies, and implementing actions for a number of functional areas including infrastructure-related parameters.

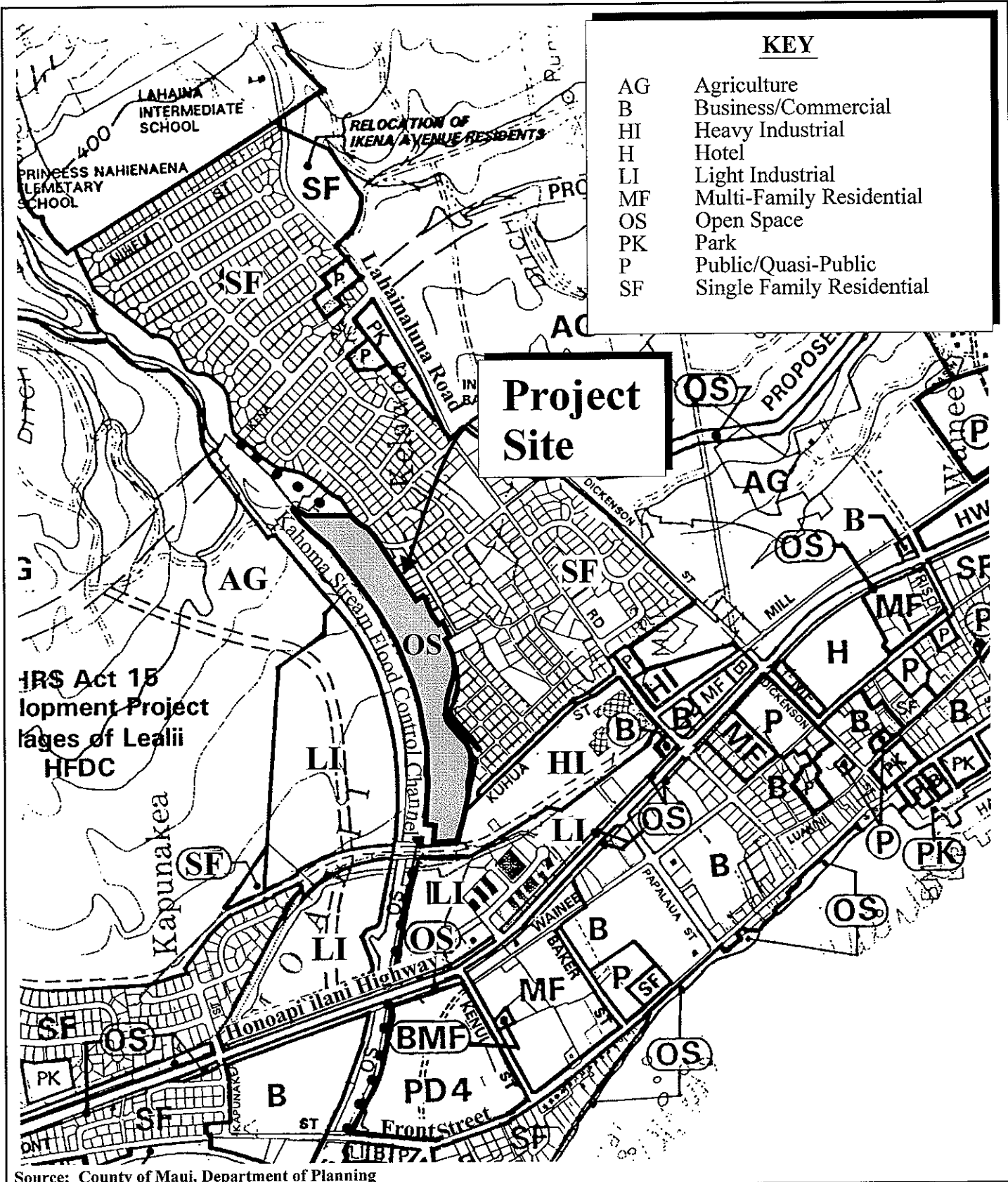
The proposed Kahoma Residential Subdivision is located within the West Maui Community Plan region and is currently designated “Open Space” in the community plan. See **Figure 11**. The applicant will submit a Section 201H-38, HRS application to seek an exemption from Chapter 2.80B of the MCC to enable project implementation without the filing and processing of a CPA application. The project will provide affordable housing opportunities to the residents of Maui County. In this context, the proposed use of the property for residential use offers significant benefits to the community and addresses the need for affordable housing on the island.

The proposed project is in keeping with the following goals, objectives, and policies of the West Maui Community Plan.

LAND USE

Goal

An attractive, well-planned community with a mixture of compatible land uses in appropriate areas to accommodate the future needs of residents and visitors in a manner that provides for the stable social and economic well-being of residents and the preservation and enhancement of the region's open space areas and natural environmental resources.



Source: County of Maui, Department of Planning

Figure 11 Proposed Kahoma Residential Subdivision
Existing Community Plan Land Use Designations



Prepared for: West Maui Land Company, Inc.

Objectives and Policies

- Ensure that appropriate lands are available to support the region's present and future agricultural activities.
- Establish an appropriate supply of urban land within the region to meet the needs of the community over the next 20 years. The Community Plan and its map shall define the urban growth limits for the region and all zoning requests and/or proposed land uses and developments shall be consistent with the West Maui Community Plan and its land use map.

HOUSING

Goal

A sufficient supply and choice of attractive, sanitary, and affordable housing accommodations for a broad cross section of residents.

Objectives and Policies

- Accommodate the 20-year housing needs of the planning region.
- Coordinate the planning, design, and construction of public infrastructure improvements with major residential projects that have an affordable housing component.
- Maintain acceptable standards for affordable housing projects, including but not limited to, the installation of sidewalks and provision of adequate off-street parking.
- Support efforts to develop housing for the elderly and for the homeless.

ENVIRONMENT

Goal

A clean and attractive physical, natural and marine environment in which man-made developments on or alterations to the natural and marine environment are based on sound environmental and ecological practices, and important scenic and open space resources are preserved and protected for public use and enjoyment.

Objectives and Policies

- Emphasize land management techniques such as natural landscaping, regular maintenance of streams and drainage ways and siltation basins, avoidance of development in flood-prone areas, and other measures that maintain stream water quality. Wherever feasible, such management techniques should be used instead of structural solutions, such as building artificial stream channels or diversion of existing natural streams.
- Encourage soil erosion prevention measures and the installation of siltation basins to minimize downstream sedimentation and degradation of nearshore and offshore water quality.
- Promote recycling programs to reduce solid waste disposal in landfills.
- Promote the planting of trees and other landscape planting to enhance streetscapes and the built environment.
- Promote drainage and stormwater management practices that prevent flooding and protect coastal water quality.

URBAN DESIGN

Goal

An attractive and functionally integrated urban environment enhances neighborhood character, promotes quality design at the resort destinations of Kaanapali and Kapalua, defines a unified landscape planting and beautification theme along major public roads and highways, watercourses, and at major public facilities, and recognizes the historic importance and traditions of the region.

Objectives and Policies

- Integrate stream channels and gulches into the region's open space system for the purposes of safety, open space greenways for public use, and visual separation.
- Enhance the appearance of major public roads and highways of the region.
- Improve pedestrian and bicycle access within the region.

INFRASTRUCTURE

Goal

Timely and environmentally sound planning, development, and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal, and efficient transportation systems which meet the needs of the community.

Objectives and Policies (Transportation)

- Support ridesharing, programs to promote safe bicycle and pedestrian travel, alternative work schedules, traffic signal synchronization, and other transportation demand management strategies.
- Promote residential communities that provide convenient pedestrian and bicycle access between residences and neighborhood commercial areas, parks, and public facilities, in order to minimize use of the automobile.

Objectives and Policies (Drainage)

- Construct necessary drainage improvements in flood-prone areas, incorporating landscaped swales and unlined channels to provide open space continuity. Urge the use of landscaped/green belt drainage channels as opposed to concrete-lined channels or culverts.
- Insure that new developments will not result in adverse flooding conditions for downstream properties by requiring on-site retention facilities for stormwater run-off generated by the development.

SOCIAL INFRASTRUCTURE

Goal

Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy, and enjoyable lifestyle, and offers opportunities for self improvement and community well-being.

Objectives and Policies (Recreation and Open Space)

- Provide adequate community-oriented park facilities including facilities for field and court games, children's play, and picnicking within, or adjacent to, existing and future residential areas at the following existing or planned park sites:
 - a. Wainee area near the existing swimming pool and youth center.

- b. Major residential projects.
- c. Napili.
- Provide urban park space for passive activities which allow respite from shopping and sightseeing activities within Lahaina town.
- Establish park areas appropriate for nature study.

Objectives and Policies (Health and Public Safety)

- Encourage the expansion of community and social service facilities and programs in West Maui in convenient and accessible locations through public and private partnerships.

GOVERNMENT

Goal

Government that demonstrates the highest standards of fairness, responsiveness to the needs of the community, fiscal integrity, effectiveness in planning, and implementing programs and projects to accommodate a stable social and economic well-being for residents, a fair and equitable approach to taxation, and efficient and results-oriented management.

Objectives and Policies

- Coordinate and direct future public and private development, including capital improvement projects, consistent with the Community Plan and the island-wide directed and managed growth plan required by the General Plan.
- Expedite the review and approval process for projects, which will result in public benefit by “fast-tracking.”
- Insure that adequate infrastructure is or will be available to accommodate planned development.
- Support public and private partnerships to fund the planning and construction of infrastructure, subject to advanced public notification.

The Kahoma Residential Subdivision consists of 68 units in an area that is an infill location, between an existing residential area and a significant engineered structure (Kahoma Stream Flood Control Channel). Necessary infrastructure systems and services are within close proximity to serve the project. Drainage basins constructed at the project site will capture post-development increases in surface runoff. Recreational needs for the proposed project

will be addressed through the provision of a neighborhood park, bicycle paths, and sidewalks along the subdivision roadway. In addition, the site will be appropriately landscaped to soften the built environment. The proposed project is in conformance with the above-noted goals, objectives, and policies of the West Maui Community Plan.

E. COUNTY ZONING

The lands underlying the proposed Kahoma Residential Subdivision are zoned "Agricultural" by Maui County Zoning. See **Figure 12**. As with the community plan land use designation, the Section 201H-38, HRS application will seek an exemption from Chapter 19.510 of the MCC to allow the project to proceed without the filing and processing of a CIZ application.

According to Chapter 19.30A.020 of the MCC, agricultural lands that meet at least two (2) of the following criteria should be given the highest priority for retention in the agricultural district:

1. Agricultural Lands of Importance to the State of Hawaii (ALISH);
2. Lands not classified by the ALISH system whose agricultural land suitability, based on soil, topographic, and climatic conditions, supports the production of agricultural commodities, including but not limited to coffee, taro, watercress, ginger, orchard and flower crops, and non-irrigated pineapple. In addition, these lands shall include lands used for intensive husbandry, and lands in agricultural cultivation in five of the ten years immediately preceding the date of approval of this chapter; and
3. Lands which have seventy-five percent or more of their boundaries contiguous to lands within the agricultural district.

While portions of the project site partially meet Criteria "1" and Criteria "2" above, there are a number of factors which limit feasibility of the project site for active agriculture use. The project area is designated as "Other Important" agricultural lands and the Kahoma Stream Flood Control Channel effectively isolates these lands from other lands farther north. The geometry of the subject property, with its relatively narrow configuration defined by the Kahoma Stream Flood Control Channel to the north and Kuhua Village and the Kelaweia Subdivision to the south, poses logistical and compatibility challenges to long-term productive agricultural use. Refer to **Figure 2**. With the proposed project, the Kahoma Stream Flood Control Channel would become the natural buffer between light-industrial

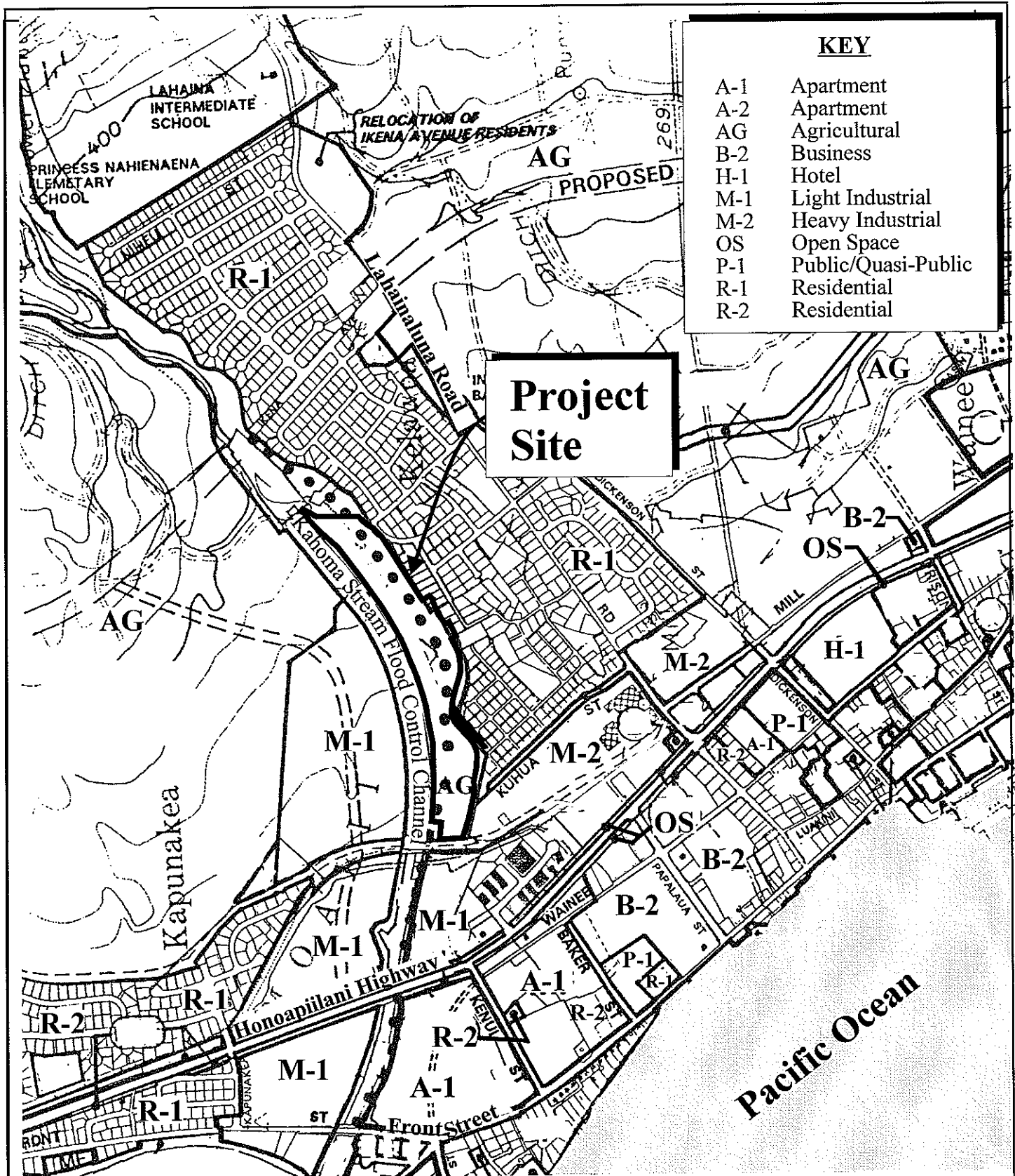


Figure 12

Proposed Kahoma Residential Subdivision

Existing Maui County Zoning Designations



lands farther to the north and the proposed project and existing residential development to the south.

The agricultural impact of this project is near negligible when taken in the context of the recent trends occurring on Maui. In the last 30 years, the closures of Wailuku Sugar and Pioneer Mill on Maui have taken significant acreages out of active sugar cane cultivation, as well as the cessation of pineapple cultivation by Maui Land & Pineapple Company. These actions have greatly increased the supply of agricultural lands. In fact, much of the lands of these former plantations and pineapple operations are still fallow. The proposed project will ultimately involve the use of approximately 16.7 acres of land, which represents 0.007 percent of the roughly 245,000 acres of State Agricultural district lands on the island of Maui.

When evaluated based on the affordable housing shortage that exists on Maui, coupled with the scarcity of entitled, undeveloped residential lands in West Maui, the conversion of the project's agricultural lands to residential development presents a beneficial opportunity. The expansion of the urban district boundary in West Maui will allow residential use up to a buffer at the Kahoma Stream Flood Control Channel. This project will supply additional affordable housing units at a site deemed less than optimal for long-term agricultural use.

In terms of Criteria "3", the boundaries of the 16.7-acre project site border both Urban and Agricultural designated lands. Less than 75 percent of the project site's boundaries are contiguous to lands within the Agricultural district.

F. SECTION 201H-38, HRS APPLICATION

As described in Chapter I.F. of this document, Section 201H-38, HRS allows eligible developers/housing projects to be exempt "*from all statutes, ordinances, charter provisions, and rules of any governmental agency relating to planning, development and improvement of land, and the construction of units thereon...*" in order to facilitate the timely and cost effective implementation of proposed affordable housing projects.

As part of the Section 201H-38, HRS application, exemptions from County of Maui Code requirements will be requested. The full list of proposed exemptions requested were previously described in Chapter I of this report.

A Section 201H-38, HRS application will be prepared and filed with the County of Maui's DHHC. The review of the Draft EA was coordinated with the Department to ensure that issues raised during the Draft EA review process, which are pertinent to Section 201H-38, HRS criteria, are appropriately addressed. The Final EA will be included in the Section 201H-38, HRS application which will be transmitted to the Maui County Council for review and action.

G. COASTAL ZONE MANAGEMENT/OBJECTIVES AND POLICIES

The Hawaii Coastal Zone Management Program (HCZMP), as formalized in Chapter 205A, HRS, establishes objectives and policies for the preservation, protection, and restoration of natural resources of Hawaii's coastal zone. Although the proposed Kahoma Residential Subdivision is not within the County of Maui's Special Management Area, consideration of County coastal zone objectives and policies will be carried out. See **Figure 13**.

As set forth in Chapter 205A, HRS, and the rules of the Maui Planning Commission, this section addresses the project's relationship to applicable coastal zone management considerations.

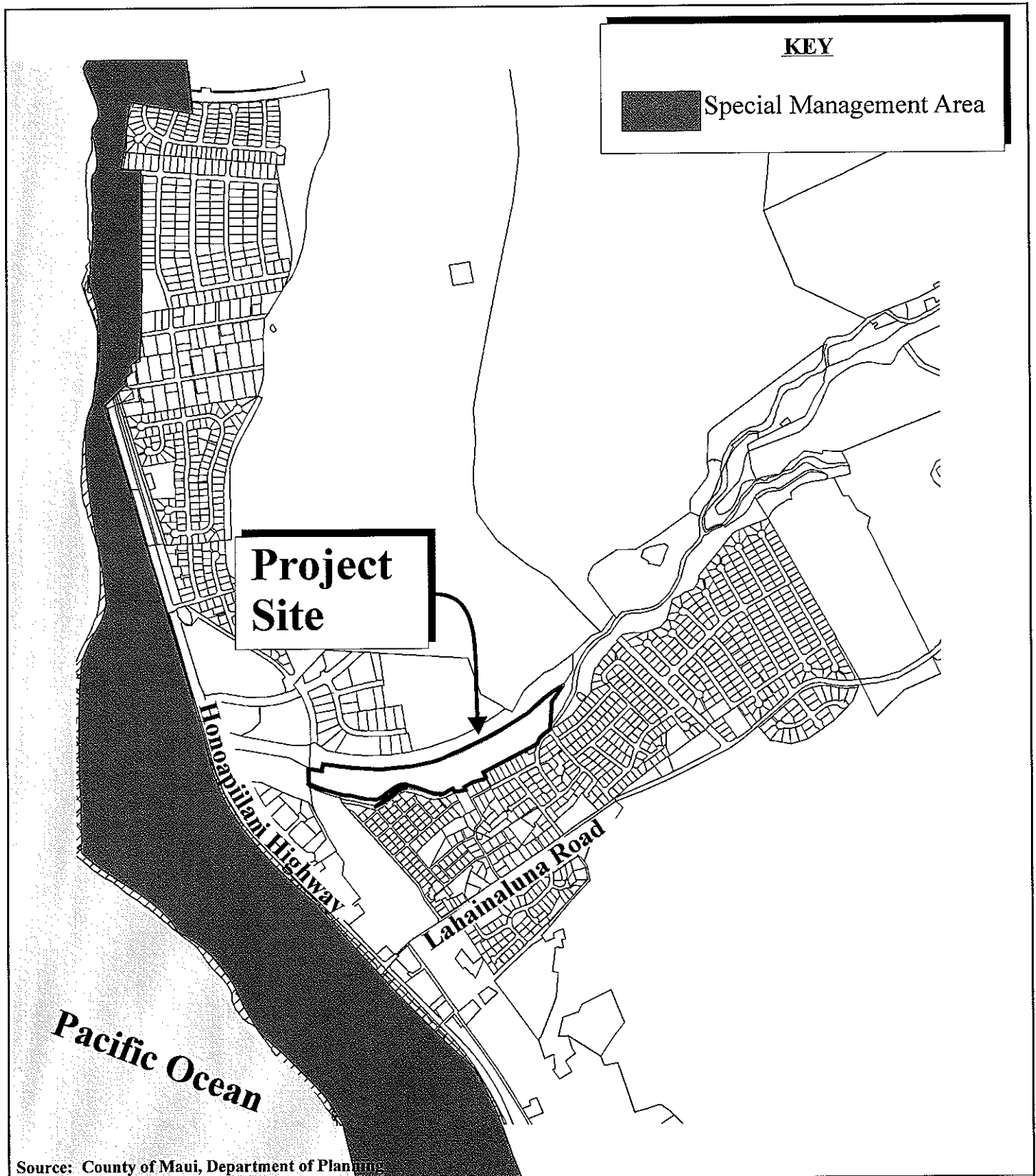
1. Recreational Resources

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



Source: County of Maui, Department of Planning

Figure 13

Proposed Kahoma Residential
Subdivision
Special Management Area (SMA)
Boundary Map

NOT TO SCALE



Prepared for: West Maui Land Company, Inc.



monetary compensation to the state for recreation when replacement is not feasible or desirable;

- (iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;
- (iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;
- (v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having 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: Recreational area needs of the proposed project will be addressed through the development of an approximate 43,000 sq. ft. neighborhood park located within the project limits. Adverse impacts to coastal recreational resources are not anticipated from the project.

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 archaeological 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: An archaeological assessment was undertaken by Scientific Consultant Services, Inc. in order to identify, protect, and preserve historic resources. The archaeological investigation did not reveal any significant historic resources at the project site and the archaeological assessment was accepted by SHPD on February 9, 2006. Should historic finds be uncovered during construction activities, appropriate measures with SHPD and OHA will be followed.

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 which are not coastal dependent to locate in inland areas.

Response: The project site is located along the lower slopes of the West Maui Mountains above Honoapiilani Highway and Lahaina town from approximately 32 feet amsl rising to approximately 145 feet amsl. The low-rise urban forms established by the proposed project plan will be buffered with landscaped areas to

mitigate the impact on visual resources. While the project site has been designated as “Open Space” within the West Maui Community Plan, the applicant will submit a Section 201H-38, HRS application to seek an exemption from Chapter 2.80B of the MCC to enable project implementation without the filing and processing of a CPA. The project will provide affordable housing opportunities to the residents of Maui County. In this context, the proposed use of the property for residential use offers significant benefits to the community and addresses the need for affordable housing on the island.

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: With the on-site drainage pond and implementation of BMPs, the proposed project should have minimal long-term adverse effects on the downstream coastal ecosystems. Appropriate BMPs and erosion-control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

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 proposed project is not located at or near the coastline and will, therefore, not involve coastal development. Short-term employment opportunities will be generated during project construction. There are no significant, adverse economic impacts associated with the proposed project. The proposed action does not contravene the objective and policies for economic uses.

6. Coastal Hazards

Objective

Reduce hazard to life and property from tsunamis, 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 will not be located within environmentally sensitive areas that are subject to natural hazards. As noted previously, the project site is located within Zone X, an area of minimal flood hazards according to the FIRM. Appropriate technical measures will be designed and implemented to address stormwater management requirements for the proposed project plan. The proposed project will be designed in accordance with the Drainage Standards of the County of Maui, as applicable, to ensure that the project will not adversely affect downstream and adjoining properties.

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: Opportunities for public understanding of the proposed project are provided for during processing of the EA in accordance with Chapter 343, HRS, notice and public review provisions. All aspects of development will be conducted in accordance with applicable Federal, State, and County standards. Opportunity for public review and participation will also be provided by the Section 201H-38, HRS application review process.

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 previously mentioned, the EA document will be processed in accordance with Chapter 343, HRS, and opportunity for comment by agencies and the public will be provided. Additionally, public input opportunities will be provided through the Section 201H-38, HRS application processes. It is noted that community meetings were held on May 7, 2008 and March 23, 2010 to provide information and receive comments on the proposed project. In addition, a meeting was held on March 10, 2010 with Kaanapali 2020 Community Advisory Group, as well as multiple project briefing meetings and updates with Lahaina Bypass Now. Meeting summaries from the meetings of May 7, 2008, March 10, 2010 and March 23, 2010 are provided in **Appendix “I”**, **Appendix “I-1”**, and **Appendix “I-2”**, respectively. A letter of support from Lahaina Bypass Now is provided in **Appendix “I-3”**.

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: In broad objective terms, the proposed project will provide appropriate BMPs to manage overall drainage for the project site. In the long term, upland drainage improvements will help protect beach resources from flood damage and reduce the adverse impact to recreation caused by "red tide" from upland sedimentation in stormwater runoff.

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: Appropriate BMPs and erosion control measures will be implemented to ensure that coastal ecosystems are not adversely impacted by construction activities.

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 preliminary lighting plan for the project will be designed to ensure that no lighting is directed across property boundaries towards the shoreline.

H. OTHER REGULATORY APPROVALS

As applicable, a Section 404 Department of Army permit, as well as a Section 401 Water Quality Certification and Coastal Zone Management Consistency Approval may be required for the project.

**IV. SUMMARY OF
UNAVOIDABLE IMPACTS
AND COMMITMENTS OF
RESOURCES**

IV. SUMMARY OF UNAVOIDABLE IMPACTS AND COMMITMENTS OF RESOURCES

The proposed development of the Kahoma Residential Subdivision will result in certain unavoidable construction-related environmental impacts and commitments of resources including land, infrastructure, and public services, as outlined in Chapter II. Commitments of these resources are considered irreversible and irretrievable. These commitments, however, are considered appropriate in the context of providing affordable housing opportunities to Maui County.

In the short-term, construction associated with the proposed development will generate noise impacts. These impacts will be limited to the immediate vicinity of the project construction areas. Sound attenuating construction equipment will be used, where practicable, to mitigate noise impacts caused by construction.

Unavoidable air quality impacts will also arise as a result of construction activities, such as the generation of dust and other airborne pollutants. Appropriate BMPs will be incorporated in the construction process to mitigate adverse impacts such as frequent watering of exposed surfaces and regular maintenance of construction equipment to minimize construction-related impacts.

The project will commit approximately 16.7 acres of agricultural land formerly used for sugar cane cultivation to urban use. The production of sugar cane ceased several years ago and the land has been fallow since then.

The visual resources of the area will be maintained as public view corridors will not be blocked by the Kahoma Residential Subdivision project.

Additional traffic is anticipated with the completion of this development due to project generated traffic flows and increased ambient traffic associated with regional population growth. However, implementation of the traffic improvements outlined in the recommendations section of the 2007 TIAR and 2010 Supplemental Traffic Report (refer to **Appendix "F"** and **Appendix "F-1"**) is anticipated to mitigate the anticipated traffic increases. Further, the 2011 Supplemental Traffic Assessment notes that the recommendations of the 2007 TIAR and 2010 Supplemental Traffic Report are conservative since the revised project plans (as presently proposed) will generate less trips. Refer to **Appendix "F-2"**.

To minimize potential adverse impacts to natural resources in building design, the Office of Environmental Quality Control's publication entitled "Guidelines for Sustainable Building Design in Hawaii" has been reviewed. As a result, the following low-impact development and sustainable design measures to conserve natural resources and to promote energy efficiency will be undertaken in the planning, design, construction, and operation of the project.

- Site buildings to take advantage of natural features and maximize their beneficial effects by providing for solar access, daylighting, and natural cooling.
- Locate buildings to encourage bicycle and pedestrian access and pedestrian oriented uses.
- Consolidate utility and infrastructure in common corridors to minimize site degradation and cost, improve efficiency, and reduce impermeable surfaces.
- Design space for recycling and waste diversion opportunities during occupancy.

Further, the project's location adjacent to existing urban areas is seen as supporting sustainable design principles by shortening necessary trips for everyday needs. Incorporation of bicycle routes, pedestrian paths and potential bus stops, further reduces the dependence on the automobile for transportation needs. The project design respects the existing natural topography resulting in relatively minor topographical changes through excavation or fill activities which, in turn, lessens energy needs and costs during construction. All homes will incorporate solar water heaters.

V. ALTERNATIVES TO THE PROPOSED ACTION

V. ALTERNATIVES TO THE PROPOSED ACTION

The applicant has looked at a variety of options in the future use of the subject area.

A. PREFERRED ALTERNATIVE

In light of the acute housing shortage experienced on Maui in recent years, including in West Maui, the applicant performed an assessment of whether its lands would be suited for workforce and affordable residential development. The subject property was evaluated for development since it has been unutilized for many years.

The proposed development plan represents the preferred alternative. This alternative, covering 16.7 acres, integrates various types of affordable-priced housing units with a neighborhood park, as well as pedestrian walkways and bikeways. Sixty-eight (68) housing units will be developed at a variety of price levels. The applicant chose the particular mix of housing types to be consistent with the neighboring residential subdivision to the south and east.

Although other mixes of housing types were looked at, for compatibility purposes with adjacent residential development and to accommodate residents seeking home ownership, the applicant selected the 68-unit preferred alternative. This location is not ideal for developing a resort community setting, given its proximity to a workforce-oriented residential subdivision. Further, a higher density configuration may cause too great a strain on the roadway infrastructure considering its setting near the gateway to West Maui.

Lastly, the project location is within reach of significant existing infrastructure systems, such as for wastewater treatment, roadways, and water transmission.

B. ALTERNATIVE SITE PLANS

The applicant has evaluated several site plan alternatives that would provide various layouts and unit counts. The following provides a summary of those plans evaluated.

Alternative Site Plan 1: 88-Unit Configuration

The previous plan proposed, and presented in the Draft Environmental Assessment as the preferred alternative, included the development of 88 housing units to have been developed in a combination of single-family homes and apartments (63 single-family homes/parcels and 25 multi-family units in a two-story duplex configuration). Of the 63 single-family homes/parcels, four (4) would have been self-help parcels under the direction of Habitat for Humanity to reduce construction costs and twenty-four (24) homes were to have been developed by Lokahi Pacific. Thirty-five (35) parcels were to have been sold lot only to afford prospective owners flexibility in their building design. In addition, all 25 of the multi-family units were to have been in the affordable category and developed by Lokahi Pacific for the purposes of special needs accommodations. See **Figure H-1** in **Appendix “H”**.

Alternative Site Plan 2: 69-Unit Configuration

An alternative site plan was examined utilizing a slender, remnant parcel identified as TMK (2) 4-5-010:006. This parcel is a remnant of the old Kahoma streambed and is owned by the County of Maui. The intention was to have the parcel transferred to Pioneer Mill Company as part of a land exchange that was to have occurred in conjunction with the construction of the Kahoma Flood Control Project. The Maui County Council approved the exchange via County Resolution 92-106 on December 4, 1992. However, the conveyance document was never finalized and recorded; therefore, the parcel is still County owned.

In the early planning stages of the project, this remnant parcel was included as part of the project area. It was anticipated that the ownership of the parcel would have been transferred to Pioneer Mill Company and that there would have been opportunity to acquire the property by the applicant prior to filing of the Section 201H-38, HRS application. As such, environmental studies completed for the project reflect inclusion of the proposed project site (TMK (2) 4-5-010:005) as well as the remnant parcel (TMK (2) 4-5-010:006). The studies revealed that no sensitive environmental, historical, or cultural conditions existed on this parcel (see **Appendices “C”, “D” and “E”**).

Figure H-2 in **Appendix “H”** depicts this alternative site plan which incorporated the remnant parcel into the project plans. The result is one (1) additional developable lot and slightly larger lot sizes (as reflected in Lot Nos. 55 through 69). It is noted that the 69-unit count is well under the size of the previously proposed project described and analyzed within

the Draft Environmental Assessment (Alternative Site Plan 1). While the applicant maintains its interest in including this remnant parcel into the project and increasing the overall unit count from 68 to 69, as of the date of filing of this Final Environmental Assessment, the property transfer between the County and Pioneer Mill Company has yet to occur. Since it appears as though the property transfer may take additional time to complete, the applicant is pursuing the 68-unit configuration (Preferred Alternative) without inclusion of the remnant parcel in the interest of avoiding time delays. It is noted, however, that the applicant would still be amenable to pursuing the 69-unit configuration should the land ownership transfer occur.

Alternative Site Plan 3: 95-Unit Configuration

A separate alternative also utilizing the remnant parcel (TMK (2) 4-5-010:006) was analyzed by the applicant. This alternative was anticipated to yield 95 residential units. See **Figure H-3 in Appendix "H"**. In this alternative site plan, there would have been a combination of single-family homes and apartments (70 single-family homes/parcels and 25 multi-family units). Of the 70 single-family homes/parcels, four (4) would have been under the direction of Habitat for Humanity, 31 homes were to have been developed by Lokahi Pacific and 35 under the direction of the applicant. In addition, all 25 of the multi-family units were to have been developed by Lokahi Pacific. In this configuration, all 95 units would have been considered affordable according to the Maui Residential Workforce Housing Policy. However, this alternative was deemed not feasible after Lokahi Pacific withdrew from the project.

C. AGRICULTURAL USES

Agricultural use would involve neither a commitment of resources nor short- and long-term adverse environmental effects related to residential and commercial development. As a result, aside from potential water use impacts, the agricultural use alternative would not involve a significant increase of infrastructure or public service demands associated with project implementation. Agricultural use at the project site would increase the potential for locally grown food crops.

However, as mentioned in the agriculture section of this document, many agricultural uses would not be compatible at the project site. The slender nature of the site does not allow for a sizable buffer from the neighboring residential subdivision to the south and east. Due to the presence of the Kahoma Stream Flood Control Channel to the north, the former Pioneer

Mill facility to the west, and the Kuhua Village, Kelaweia, and Kelaweia Mauka Subdivisions to the south and east, there would not be much allowance for expansion. Moreover, the entire project site is considered "Other Important" agricultural lands, the lowest classified designation by the State Department of Agriculture.

With the recent closures of two (2) sugar plantations on Maui and cessation of pineapple cultivation by Maui Land & Pineapple Company, the stock of lands for diversified agriculture increased sizably. Therefore, the supply of "Prime" lands for agribusiness has expanded, such that these project lands bounded on four (4) sides are not as attractive a location for agriculture as many others on Maui. This offers an explanation as to why the property has remained fallow since it was taken out of sugar cane cultivation.

D. COMMERCIAL USES

The applicant also looked at commercial uses of the subject property which could also have positive economic impacts for the island. However, due to the slender geometry of the parcel with no highway frontage, lack of visibility from a major roadway, and its proximity to the adjacent residential subdivisions, large-scale commercial uses would be incompatible. Moreover, with the commercial areas along Honoapiilani Highway and along Front Street, the applicant reasoned that there was not a need for an additional shopping complex in such proximity to those existing establishments.

E. NO ACTION ALTERNATIVE

The no action alternative would involve continued underutilization of the 16.7-acre project site. The "no action" alternative would involve neither a commitment of resources nor short- and long-term adverse environmental effects related to residential development. Under this alternative, there would be no additional demands on infrastructure (e.g. sewer, water, roadways, and educational facilities and resources) or public services (e.g. police and fire protection) associated with project implementation. The no action alternative is not appropriate given the pronounced shortage of affordable and moderately priced homes on the island. The proposed development responds appropriately to current market conditions and needs.

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

VI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The development of the proposed project would involve the commitment of lands and funds. In addition, labor and material resources would be expended as part of the project's construction phase. Commitment of these resources are considered irreversible and irretrievable. This commitment, however, is also considered appropriate in the context of providing a long-term, comprehensive land use plan for the proposed Kahoma Residential Subdivision area.

Addressing land use development issues and market needs from a comprehensive planning perspective provides an efficient and effective means of developing and implementing infrastructure and related service components.

VII. SIGNIFICANCE CRITERIA ASSESSMENT

VII. SIGNIFICANCE CRITERIA ASSESSMENT

The "Significance Criteria", Section 12 of the Administrative Rules, Title 11, Chapter 200, "Environmental Impact Statement Rules", were reviewed and analyzed to determine whether the proposed project will have significant impacts to the environment. The following criteria and preliminary analysis are provided.

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

As mentioned in Chapter II of this document, the archaeological assessment report accepted by SHPD on February 9, 2006 concluded that no historic properties would be affected while the cultural impact assessment of the project area concluded that no significant impacts to cultural practices were anticipated. Refer to **Appendix "D"**, **Appendix "D-1"** and **Appendix "E"**, respectively. There are no sensitive natural resources impacted by the proposed action.

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

The proposed project will not curtail the range of beneficial uses of the environment. Development of specific site plans will allow for the identification of applicable BMPs to minimize any construction-related impacts.

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

The proposed project will foster lifestyles compatible with the largely residential neighboring environment. It will represent a community which provides a sense of identity and social satisfaction in harmony with the environment through the development of architecturally designed buildings, a park, bike lanes, and sidewalks. In addition, the applicant is committed to management practices which conserve natural resources where possible and will implement the planting of native vegetation in an effort to enhance the surrounding environment. As a result, the proposed project does not conflict with the State's Environmental Policy and Guidelines as set forth in Chapter 344, HRS.

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. In the long term, the social welfare of the future residents will be enhanced through the provision of affordable home ownership.

5. **Substantially affects public health.**

The proposed project is consistent with the public health goals of the DOH. Infrastructure systems will be connected to existing County systems to ensure the sound delivery of drinking water and the timely disposal of wastewater. Solid waste will be dispersed at the County of Maui Landfill which has adequate capacity. BMPs will be implemented to minimize air quality and noise impacts during construction. Consequently, the proposed project is not anticipated to have a significant detrimental effect on public health.

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

The proposed project will be a slight extension of population for the West Maui Community Plan region and for Lahaina in particular. In this regard, the proposed project will require public services in the region such as schools, police, and fire protection. The need for such services will be mitigated through additional tax revenues and assessments which are levied by local government and agencies. The applicant is in the process of coordinating with State and County agencies to ensure that all services and facilities requirements for the proposed Kahoma Residential Subdivision are addressed.

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

Impacts to the natural environment are being mitigated through a combination of land planning and engineering design measures. For example, the project limits have been defined to avoid the 100-year flood limits of Kahoma Stream. In addition, drainage improvements for the proposed project have been designed to limit post-development peak flows to current levels. Refer to **Appendix "G"**.

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

The proposed project does not involve a commitment to larger actions. While the impacts assessed in this document are based on the entire action, the design of the project considers long-range planning opportunities as discussed in the "Cumulative and Secondary Impacts" Section II.E. herein.

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

As reported in the biological resources survey, the project site is generally limited to non-native, abundant species of flora and fauna. Refer to **Appendix "C"**. No rare, threatened, or endangered species were observed during the surveys. The U.S. Fish and Wildlife Service noted that Newell's shearwater seabirds and the Hawaiian petrel are known to fly in the area. These seabirds are prone to collisions with objects in artificially lighted areas. As such, lights mounted in the project footprint, throughout the construction period, and within the completed residences, will be appropriately down-shielded to reduce seabird mortality.

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 installation of dust screens, will be implemented to minimize wind-blown emissions. Noise impacts will occur primarily from construction equipment. Equipment mufflers or other noise attenuating equipment, as well as proper equipment and vehicle maintenance, will be used during construction activities. Construction noise impacts will be mitigated through compliance with the provisions of the State of Hawaii, DOH Administrative Rules Title 11, Chapter 46, "Community Noise Control". These rules require a noise permit if the noise levels from construction activities are expected to exceed the allowable levels set forth in the Chapter 46 rules.

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.**

The project lands are currently wholly within Flood Zone X, an area of minimal flood hazard. Additionally, site drainage improvements will be implemented to ensure that there is no net increase in drainage flows as a result of project development. No

other foreseeable environmental effects attributed to environmentally sensitive areas are anticipated in conjunction with the project.

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

The proposed project will not affect any previously identified public scenic vistas or viewplanes. The proposed project will be separated from the neighboring subdivision through a 20 ft. building setback for Lots 32 through 54, which abut neighboring residential properties to the south.

13. Requires substantial energy consumption.

The project's location adjacent to existing urban areas is seen as supporting sustainable design principles by shortening necessary trips for everyday needs. Incorporation of bicycle routes, pedestrian paths and potential bus stops, further reduces the dependence on the automobile for transportation needs. The project design respects the existing natural topography resulting in relatively minor topographical changes through excavation or fill activities which, in turn, lessens energy needs and costs during construction. All homes will incorporate solar water heaters.

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

Coordination with Maui Electric Company (MECO) will be undertaken during the electrical plans preparation phase of work to ensure all operational parameters are addressed for the proposed project.

In the long term, the project is not expected to involve substantial energy consumption.

In summary, the project's location provides for a site well-suited for the provision of additional housing for island residents. Sensitive natural and cultural environments are being avoided and appropriate use of BMPs will be utilized to ensure that offsite natural

ecosystems are not impacted. Infrastructure systems may require upgrades which can be implemented without adversely affecting overall system capacities or resources.

Based on the foregoing findings, the proposed Kahoma Residential Subdivision is not anticipated to result in any significant adverse impacts. Accordingly, this Final Environmental Assessment is being processed with a Finding of No Significant Impact (FONSI) determination by the DHHC.

VIII. LIST OF PERMITS AND APPROVALS

VIII. LIST OF PERMITS AND APPROVALS

The following list of permits and approvals are anticipated to be needed for project implementation:

1. **State of Hawaii**
 - A. Section 201H-38, Hawaii Revised Statutes, District Boundary Amendment Approval
 - B. National Pollutant Discharge Elimination System (NPDES) Permits, as applicable
 - C. Section 401 Water Quality Certification, as applicable
 - D. Coastal Zone Management Consistency Approval, as applicable
2. **County of Maui**
 - A. Section 201H-38, Hawaii Revised Statutes, Approval
 - B. Subdivision Approval
 - C. Construction Permits
3. **Federal**
 - A. Section 404 Department of Army Permit, as applicable

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

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

The following list of agencies, organizations and individuals were consulted in the preparation of the Draft Environmental Assessment (EA). Agency comments and responses to substantive comments are included here in.

- | | | | |
|----|---|-----|---|
| 1. | Ranae Ganske-Cerizo, Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793-2100 | 6. | Sandra Lee Kunimoto, Chair
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814-2512 |
| 2. | George Young
Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440 | 7. | Theodore E. Liu, Director
State of Hawaii
Department of Business, Economic
Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804 |
| 3. | Gordon Furutani, Field Office Director
U. S. Department of Housing and Urban
Development
500 Ala Moana Boulevard, Suite 3A
Honolulu, Hawaii 96813-4918 | 8. | Patricia Hamamoto, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804 |
| 4. | Patrick Leonard
Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122
Box 50088
Honolulu, Hawaii 96813 | 9. | Ron Okamura, Complex Area
Superintendent
State of Hawaii
Department of Education
54 High Street, 4th Floor
Wailuku, Hawaii 96793 |
| 5. | Dan Davidson, Executive Director
Hawaii Housing Finance and Development
Corporation
677 Queen Street
Honolulu, Hawaii 96813 | 10. | Alec Wong, P.E., Acting Chief
Clean Water Branch
State of Hawaii
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawaii 96814 |

11. Herbert Matsubayashi
District Environmental Health
Program Chief
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793
12. Laura H. Thielen, Interim Chairperson
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809
13. Melanie Chinen, Administrator
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Blvd., Room 555
Kapolei, Hawaii 96707
14. Barry Fukunaga, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813
- cc: Fred Cajigal
15. Anthony J. Ching, Executive Officer
State of Hawaii
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804
16. Rosalyn H. Baker, Senator
Hawaii State Senate
Hawaii State Capitol, Room 210
415 S. Beretania Street
Honolulu, Hawaii 96813
17. Angus L.K. McKelvey, Representative
House of Representatives
Hawaii State Capitol, Room 315
415 S. Beretania Street
Honolulu, Hawaii 96813
18. Laurence K. Lau, Interim Director
Office Of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawaii 96813
19. Haunani Apoliona, Board of Trustee
Chair
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813
20. Mary Lou Kobayashi, Planning Program
Administrator
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804
21. Charmaine Tavares, Mayor
County of Maui
200 South High Street
Wailuku, Hawaii 96793
22. Gen Iinuma, Administrator
Maui Civil Defense Agency
200 South High Street
Wailuku, Hawaii 96793
23. Carl Kaupololo, Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawaii 96732
24. Vanessa A. Medeiros, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793
25. Tamara Horcajo, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoa Street, Unit 2
Wailuku, Hawaii 96793
26. Jeffrey Hunt, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793
27. Thomas Phillips, Chief
County of Maui
Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

28. Milton Arakawa, Director
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawaii 96793
29. Cheryl Okuma, Director
County of Maui
Department of Environmental Management
200 South High Street
Wailuku, Hawaii 96793
30. Donald Medeiros, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793
31. Jeffrey Eng, Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793
32. G. Riki Hokama, Council Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
33. Danny Mateo, Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
34. Councilmember Michelle Anderson
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
35. Councilmember Gladys Baisa
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
36. Councilmember Jo Anne Johnson
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
37. Councilmember Bill Medeiros
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
38. Councilmember Michael J. Molina
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
39. Councilmember Joseph Pontanilla
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
40. Councilmember Mike Victorino
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
41. Theo Morrison, Executive Director
Lahaina Bypass Now
505 Front Street, Suite 202
Lahaina, Hawaii 96761
42. Keoki Freeland, Executive Director
Lahaina Restoration Foundation
120 Dickenson Street
Lahaina, Hawaii 96761
43. Karee Karlucci, Executive Director
Lahaina Town Action Committee
648 Wharf Street, Suite 102
Lahaina, Hawaii 96761
44. Joe Pluta, President
West Maui Improvement Foundation
P. O. Box 10338
Lahaina, Hawaii 96761
45. Mahealani Strong, Executive Director
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawaii 96761
46. May Fujiwara
Lahaina-Honolua Senior Citizens Club
P. O. Box 1086
Lahaina, Hawaii 96767

SEP 13 2007



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850

In Reply Refer To:
2007-TA-0316

SEP 12 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Subject: Proposed Kahoma Residential Subdivision, Maui, Hawaii

Dear Mr. Ginoza:

This is in response to your August 10, 2007, letter received on August 13, 2007, requesting information for the preparation of a draft Environmental Assessment (EA), for the proposed Kahoma Residential Subdivision on the island of Maui. The proposed project is located on 16.7 acres of undeveloped land that was formerly under sugar cane production and is identified by Tax Map Key (2) 4-5-010:005. The project will entail the construction of single-family and multi-family units as well as a neighborhood park.

To assist you with this project we have reviewed the information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program and the Hawaii GAP Program. Our species database indicates the federally-threatened and -endangered seabirds Newell's shearwater (*Puffinus auricularis newell*) and the Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), are known to fly through the project area.

We offer the following suggestions to assist you in the development of the draft EA. The EA should address all potential direct and indirect impacts of the project on listed seabirds. Hawaiian petrel and Newell's shearwater are prone to collisions with objects in artificially lighted areas. Early project planning should include minimizing or down-shielding external artificial lighting to reduce seabird mortality.

We hope this information assists you in developing a comprehensive and thorough EA. If, as the project development progresses, it is determined that the proposed project will adversely impact federally-listed species, we recommend you contact our office early in the process, that we may assist you in developing avoidance and minimization measures for these species.

TAKE PRIDE®
IN AMERICA 

Mr. Kyle Ginoza

2

If you have questions, please contact Dr. Jeff Zimpfer, Consultation and Technical Assistance Program (phone: 808/792-9431; fax: 808/792-9581).

Sincerely,

Christa Russell

for Patrick Leonard
Field Supervisor



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICHI" HIRANO
KARLANN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Patrick Leonard, Field Supervisor
United States Fish and Wildlife Service
U.S. Department of the Interior
Pacific Islands Fish and Wildlife Office
300 Ala Moana Blvd., Room 3-122, Box 50088
Honolulu, Hawai'i 96850

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; Reference No. 2007-TA-0316**

Dear Mr. Leonard:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 12, 2007 (reference 2007-TA-0316), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

The applicant acknowledges that seabirds, such as Hawaiian petrel and Newell's shearwater, are prone to collisions with objects in artificially lighted areas. As such, lights mounted in the project footprint, throughout the construction period, and within the completed residences, will be appropriately down-shielded to reduce seabird mortality.

We appreciate the input we received from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 28 2007



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

August 23, 2007

REPLY TO
ATTENTION OF:

Regulatory Branch

File Number POH-2007-271

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

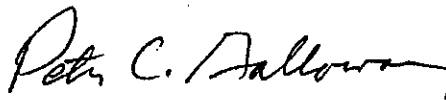
Dear Mr. Ginoza:

This responds to your request for written comments for the draft Environmental Assessment Preparation Notice (dEAPN) which addressess activities and impacts of the proposed Kahoma Residential Subdivision, at Lahaina, Maui Island (about 16.7 acres at TMK (2) 4-5-010: 005).

Our records indicate that waters of the United States, as represented by the Kahoma Stream Flood Control Channel are adjacent and abutted to the project area. The dEA should provide additional geotechnical information regarding flood zones and potential impacts to floodplain management issues and policies. The Corps will reserve comments regarding the applicability of Section 404 of the Clean Water Act and any requirement for a Department of Army (DA) permit application until we have the opportunity to evaluate that information in the forthcoming dEA. It is acknowledged that navigable waters and other special aquatic sites such as anchialine ponds, springs, and wetlands are known to be absent in the proposed project area. The dEA should address in appropriate sections the potential for the Kahoma Flood Control structure to be impacted by construction of project structures and an evaluation of how associated ground disturbing activities within the proposed residential development will be avoided or minimized to the maximum extent practicable.

Thank you for your consideration of potential impacts to the aquatic environment in the Lahaina watershed. Please contact Mr. Farley Watanabe of my staff at 808-438-7701, or facsimile 808-438-4060, or email at Farley.K.Watanabe@usace.army.mil if you have any questions or need additional information.

Sincerely,

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



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICKY" HIRANO
KARLYN KAWAHARA
MARIE ALEXANDER BOY

February 26, 2008

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

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; File No. POH-2007-271**

Dear Mr. Young:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 23, 2007 (File Number POH-2007-271), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. A discussion on the flood zone designation of the project site will be included in the Draft Environmental Assessment (EA).
2. The applicant acknowledges that navigable waters and other special aquatics sites, such as anchialine ponds, springs, and wetlands, are known to be absent in the proposed project area.
3. The project will not impact sections of the Kahoma Stream Flood Control Channel. The implementation of Best Management Practices (BMPs) will mitigate potential impacts to the channel during ground disturbing activities. A discussion on BMPs will be included in the Draft EA.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

George P. Young, P.E.
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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LINDA LINGLE
GOVERNOR



AUG 17 2007

ORLANDO "DAN" DAVIDSON
EXECUTIVE DIRECTOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:

07:PEO/102

August 15, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Re: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010:005, Lahaina, Maui

The proposed project will provide 53 affordable housing units in compliance with the Maui Residential Workforce Housing Policy. It appears the project is consistent with the affordable housing policy set forth in the Hawaii State Plan of increasing homeownership and rental opportunities and choices in terms of quality, location, cost densities, style and size of housing.

Thank you for consulting with us on the subject residential subdivision.

Sincerely,

A handwritten signature in black ink, appearing to read "Orlando Davidson".

Orlando "Dan" Davidson
Executive Director



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

August 31, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Ginoza:

Subject: Early Consultation on Kahoma Residential Subdivision
Lahaina, Maui, TMK:4-5-10:5

The Department of Education (DOE) has reviewed your request for early consultation on a proposed 88-unit residential project called the Kahoma Residential Subdivision (Kahoma).

The DOE is unable to make specific statements as to the anticipated effects of Kahoma since your August 10, 2007, request does not include detailed information on the size of housing being proposed for the project. We expect more details on housing types in the Draft Environmental Assessment (EA). To estimate the student impact of Kahoma, we will need to know the number of bedrooms anticipated in each type of housing and the general price range for various housing types.

The 2007 Legislature passed a bill establishing school impact fees. The bill became Act 245 and is in the process of being implemented. Under this new law, we believe the project will be required to pay an impact fee. We currently do not know the amount of the fee per residential unit in Kahoma but we should have a better idea once the EA is circulated.

If you have any questions, please call Heidi Meeker of the Facilities Development Branch at (808) 733-4862.

Very truly yours,

A handwritten signature in cursive script that reads "Patricia Hamamoto".

Patricia Hamamoto
Superintendent

PH:jmb

c: Randolph Moore, Assistant Superintendent, OBS
Duane Kashiwai, Public Works Administrator, FDB
Ron Okamura, CAS, Hana/Lahaina/Lanai/Molokai Complex Areas



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITCHELL "MIKE" HIRANO
KARLYNN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Patricia Hamamoto, Superintendent
State of Hawai'i
Department of Education
P.O. Box 2360
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Hamamoto:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 31, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The Draft Environmental Assessment (EA) for the project will contain detailed information on the size of housing being proposed, including the number of bedrooms and the approximate price range for the various housing types.

The applicant recognizes that the 2007 Legislature passed a bill establishing school impact fees. As a 100 percent affordable development, the applicant will seek a 201H exemption from the payment of school impact fees.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal line extending to the right.

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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SEP 11 2007

PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD07/3169

September 4, 2007

Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Proposed Kahoma Residential Subdivision, TMK (2) 4-5-010:005, Lahaina, Maui, Hawai'i

Dear Kyle Ginoza,

The Office of Hawaiian Affairs (OHA) is in receipt of your August 10, 2007 submission concerning the proposed Kahoma Residential Subdivision and offers the following comments:


Our staff urges that a complete environmental assessment, including a Cultural Impact Assessment be completed as part of this Draft Environmental Assessment (DEA). A complete analysis of the long term availability of water for the project is also recommended. OHA looks forward to reviewing and offering further comments upon completion of the DEA.

OHA also asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) and OHA shall be contacted.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jason Jeremiah, Policy Advocate-Preservation, Native Rights, Land and Culture, at (808) 594-1816 or jasonj@oha.org.

Kyle Ginoza
Munekiyo & Hiraga, Inc.
August 27, 2007
Page 2

Aloha,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o". The signature is fluid and cursive, with a horizontal line extending from the end.

Clyde W. Nāmu'o
Administrator

C: Thelma Shimaoka
Community Resource Coordinator
OHA – Maui Office
140 Hoohana St., Ste. 206
Kahului, HI 96732



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSUBU "MICK" HIRANO
KARLYN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

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

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai`i**

Dear Mr. Nāmu`o:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 4, 2007 (reference HRD07/3169), regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai`i.

We offer the following comments, in response to your remarks:

1. A cultural impact assessment (CIA) was performed for the project and will be included in the Draft Environmental Assessment (EA).
2. Water for the project is anticipated to be provided by the County of Maui Department of Water Supply. The applicant has been coordinating with the department regarding adequate long-term water source. A discussion on the water source will be included in the Draft EA.
3. In accordance with Section 6E-43.6, Hawai`i Revised Statutes and Chapter 13-300, Hawai`i Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work will stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) and your office will be contacted. This language will be included in the Draft EA.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Clyde W. Nāmu`o, Administrator
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 29 2007

LINDA LINGLE
GOVERNOR OF HAWAII



CHYOME 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

August 28, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Ginoza:

Subject: **Early Consultation Request for Proposed Kahoma Residential Subdivision, TMK: (2) 4-5-010:005 Lahaina, Hawaii**

Thank you for the opportunity to participate in the early consultation process for the proposed Kahoma Residential Subdivision. The following comments are offered:

1. National Pollutant Discharge Elimination System (NPDES) permit coverage may be required for this project. The Clean Water Branch should be contacted at 808 586-4309.
2. The noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules (HAR), Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work.
3. The proposed subdivision is located within the area served by the Lahaina sewer system. Wastewater disposal shall be through this system. No on-site wastewater disposal is allowed.

It is strongly recommended that the Standard Comments found at the Department's website: www.state.hi.us/health/environmental/envy-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, appearing to read "Herbert S. Matsubayashi".

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Roland Tejano
EPO



MICHAEL T. MUNEKIYO
GWEN ORASHI HIRAGA
MITSURU "MIKI" HIRANO
KARLOS KAWAHARA
MARK ALEXANDER ROY

February 26, 2008

Herbert S. Matsubayashi
State of Hawai'i
Maui District Health Office
Department of Health
54 High Street
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i**

Dear Mr. Matsubayashi:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 28, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. The applicant's civil engineer will coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project.
2. Pursuant to Hawai'i Administrative Rules (HAR), Chapter 11-46, "Community Noise Control", a noise permit will be secured prior to commencement of construction, as applicable.

The planning, design, and construction of the project will be undertaken in accordance with the maximum allowable sound levels as set forth by HAR, Chapter 11-46.

3. The project will connect to the County sewer system.
4. The applicant will review the Department of Health's standard comments and will adhere to comments specifically applicable to this project.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Herbert S. Matsubayashi
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal flourish extending to the right.

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.
F:\DATA\KahomalEmpseeHsgidohmaiecl.res.wpd

2008.02.26

AUG 28 2007

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

08066PKP.07

August 27, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**Subject: Early Consultation Request for Proposed Kahoma Residential Subdivision
Wailuku, Maui, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/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, including storm water runoff, into State surface waters (HAR,

Chapter 11-55). For the following types of discharges into Class A or Class 2 State waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

- a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
- b. Once through cooling water less than one (1) million gallons per day.
- c. Hydrotesting water.
- d. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before to the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at:

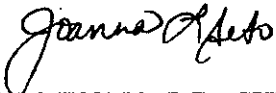
<http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

3. You must also submit a copy of the NOI 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.
4. 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.

Mr. Kyle Ginoza
August 27, 2007
Page 3

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,



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

KP:np



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSUBU "MUCH" HIRANO
KARLYNN KAWAHARA
MARK ALEXANDER ROY

February 26, 2008

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

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Wong:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 27, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The applicant's civil engineer will review the branch's standard comments and will incorporate applicable recommendations into the construction plans. With regards to the specific comments provided by you, please see below.

1. The applicant's civil engineer will evaluate potential impacts to State waters to determine whether or not specific sections of Hawai'i Administrative Rules (HAR), Chapter 11-54 are applicable. All discharges related to project construction or operation activities will comply with relevant State Water Quality Standards. Discharges will be kept at a minimum through the application of engineering Best Management Practices (BMPs).
2. The applicant's civil engineer will coordinate with the Clean Water Branch to address applicable National Pollutant Discharge Elimination System (NPDES) permit requirements for the project, including the possible submittal of a Notice of Intent (NOI) for general permit coverage.
3. The NOI will be submitted for review by the State Historic Preservation Division of the Department of Land and Natural Resources. The applicant will submit a copy of its request for review by SHPD or SHPD's determination letter for the project along with the NOI or NPDES permit application, as applicable.
4. All discharges related to project construction or operation activities will comply with the applicable State Water Quality Standards as specified in HAR, Chapter 11-54

Alec Wong, P.E., Chief
February 26, 2008
Page 2

and/or permitting requirements as specified in HAR, Chapter 11-55. Discharges will be kept to a minimum through the application of engineering BMPs.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,



Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

F:\DATA\Kahoma\EmpeeHsg\dohcwbacl.res.wpd

SEP 07 2007

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM 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

September 5, 2007

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

Attention: Mr. Kyle Ginoza

Gentlemen:

Subject: Proposed Kahoma Residential Subdivision, Lahaina, Maui, Tax Map Key:
(2) 4-5-10:5

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, Commission on Water Resource Management, 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 black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM 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

August 8, 2007

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 -

COMMISSION ON WATER
RESOURCE MANAGEMENT

07 AUG 21 AIO : 02

RECEIVED

FROM: Russell Y. Tsuji
SUBJECT: Proposed Kahoma Residential Subdivision
LOCATION: Lahaina, Maui, Tax Map Key: (2) 4-5-10:5
APPLICANT: Munekiyo & Hiraga, Inc. on behalf of West Maui Land Company, 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 September 1, 2007.

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

Attachments

- (✓) We have no objections.
- () We have no comments.
- (✓) Comments are attached.

Signed: W. Roy
Date: 8/29/07

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THIELEN
INTERIM CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJIWARA
CHYOME L. FUKINO, M.D.
DONNA FAY K. KYOSAKI, P.E.
LAWRENCE H. MIKE, M.D., J.D.

KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

August 29, 2007

REF: Kahoma subd.dr

TO: Russell Tsuji, Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Proposed Kahoma Residential Subdivision, Lahaina, Maui, TMK (2) 4-5-10:5

FILE NO.:

R

RECEIVED
LAND DIVISION
2007 AUG 31 A 10:35
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at www.hawaii.gov/dlnr/cwrm/forms.htm.

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

DRF-1A 03/02/2006

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

The EA should discuss water resources in the area and the potential impact of the proposed development upon such resources. The Commission's Water Resource Protection Plan provides information on hydrologic unit boundaries and groundwater sustainable yields (<http://www.hawaii.gov/dlnr/cwrrv/planning/hwp.htm>). In addition, the County of Maui, Department of Water Supply (DWS) is in the process of updating its Water Use and Development Plan for the Lahaina region; we recommend you contact the DWS to obtain current information on existing and projected water demands for this area.

If there are any questions, please contact Lenore Nakama at 587-0218.

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA R. THIELEN
INTERIM 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

August 8, 2007

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 -

RECEIVED
LAND DIVISION
2007 AUG 31 P 3:21
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

FROM: Russell Y. Tsuji
SUBJECT: Proposed Kahoma Residential Subdivision
LOCATION: Lahaina, Maui, Tax Map Key: (2) 4-5-10:5
APPLICANT: Munekiyo & Hiraga, Inc. on behalf of West Maui Land Company, 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 September 1, 2007.

If no response is received by this date, we will assume your agency has no comment. 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: 8/31/07

07 AUG 21 10:02:06 ENGINEERING

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/RYT

Ref.: KahomaResSubdLahaina
Maui.368

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) Please take note that based on the maps provided it appears that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones C and A. The Flood Insurance Program does not have any regulations for developments within Flood Zone C however, it does regulate developments within Zone A as indicated in bold letters below.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- (X) 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.
 - (X) 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 Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed: 
ERIC T. HIRANO, CHIEF ENGINEER

Date: 8/31/07



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAPLON KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Laura Thielen, Chairperson
Department of Land and Natural
Resources
State of Hawai'i
P. O. Box 621
Honolulu, Hawai'i 96809

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Ms. Thielen:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your department's letter dated September 5, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

1. The applicant has been in contact with County of Maui, Department of Water Supply (DWS) staff regarding project water requirements. As recommended, the applicant will coordinate with the DWS to incorporate this project into the County's Water Use and Development Plan.
2. The project does not involve any alterations to the stream bed and/or banks of the Kahoma Stream Flood Control Channel.
3. The applicant remains in discussions with the DWS regarding the water source of the project. Feasible, alternative non-drinking water sources for the project, including reclaimed wastewater, will be considered as part of the development.
4. To the extent possible, the Draft Environmental Assessment (EA) will contain a discussion of water resources in the area and the potential impact of the proposed development upon such resources. As mentioned above, the applicant will coordinate with the DWS to incorporate this project into the County's Water Use and Development Plan.
5. Regarding the flood zone designation of the project site, the Flood Insurance Rate Map (FIRM) for the area denotes the 100-year and 500-year floods as contained in the Kahoma Stream Flood Control Channel. The project site is located outside of

Laura Thielen, Chairperson
February 26, 2008
Page 2

the concrete channel and is designated in flood zone "C". A more thorough discussion of the flood zone designation will be included in the Draft EA.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Kyle Ginoza", with a long horizontal line extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.
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LINDA LINGLE
GOVERNOR



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

SEP 10 2007

BARRY FUKUNAGA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRENNON T. MORIOKA
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.2606

September 5, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Environmental Assessment Early Consultation
Proposed Kahoma Residential Subdivision, West Maui Land Company, Inc.
TMK: 4-5-010: 005, Lahaina, Maui

Thank you for your notification on the subject proposed subdivision project. We have the following initial comments:

1. The project will impact traffic on our highways by its contribution of vehicle activity onto the local streets and the collective traffic's access/use of State highway infrastructure.
2. The project's access to Honoapiilani Highway and any future connection to the Lahaina By-Pass should be identified and described.
3. A traffic assessment or traffic impact analysis report should be prepared by the developer/landowner and submitted as part of the project's environmental assessment. The traffic report should cover both project and regional impacts and the mitigation measures the project will provide, including any developer/landowner projects or financial contributions toward these mitigation measures.
4. We will defer further comment on the project until our review of the completed environmental assessment. We request that at least four (4) copies of the environmental assessment report be provided to permit simultaneous review by the appropriate DOT staff.

Mr. Kyle Ginoza
Page 2
September 5, 2007

STP 8.2606

We appreciate the courtesy of this early consultation and for the opportunity to provide comments.

Very truly yours,



BARRY FUKUNAGA
Director of Transportation



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLIS KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Brennon Morioka, Interim Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Morioka:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your department's letter (reference STP 8.2606) dated September 5, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

A traffic impact analysis report (TIAR) has been prepared for the project. The TIAR will be included in the Draft Environmental Assessment (EA). The TIAR identifies access points to the local roadway network, the anticipated project and regional impacts, and proposed mitigation measures the project will provide.

We appreciate the input we received from you. Four (4) copies of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very Truly Yours,

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.

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LINDA LINGLE
GOVERNOR



ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, Hawaii 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

August 22, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza:

Subject: Proposed Kahoma Residential Subdivision
TMK No.: (2) 4-5-010: 005
Kihei, Maui, Hawaii

We have reviewed your transmittal dated August 21, 2007, requesting preliminary comments on the proposed development of the Kahoma Residential Subdivision.

Based upon preliminary review of the proposed development, we have the following comments:

1. We confirm that the subject parcel is located within the State Land Use Agricultural District.
2. Pursuant to §205-3.1(c), Hawai'i Revised Statutes (HRS) and given the location, scope, and nature of the proposed activity, I would expect that the County of Maui will need to consider all relevant aspects of the State Land Use Law (§205 HRS) and appropriate county regulations regarding the subdivision of land in processing this application.
3. As the proposed project may qualify for certification and processing as a fast-track affordable housing project under Chapter 201H-38, HRS, the proposed project should be processed first through the County of Maui prior to submission to the Land Use Commission.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the proposed development. Please do not hesitate to contact Cameron Lowry of my office at 587-3822 should you require further assistance or clarification.

Sincerely,

A handwritten signature in black ink, appearing to read "Anthony J. H. Ching".
ANTHONY J. H. CHING
Executive Officer



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSUBU "MICK" HIRANO
KAROLYN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Rodney Maile, Interim Executive Director
State of Hawai'i
State Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK: (2) 4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Maile:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your office's letter dated August 22, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

The Draft Environmental Assessment (EA) for the project will contain detailed information addressing all relevant aspects of State Land Use Law (Chapter 205, Hawai'i Revised Statutes) and County community plan and zoning regulations.

The applicant will submit a Section 201H-38 application with the State Land Use Commission in seeking a district boundary amendment. Separately, the applicant will submit a Section 201H-38 application at the County level to secure County land use entitlements and exemptions. The applicant understands that these 201H-38 applications would not be processed until the Final EA is accepted.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

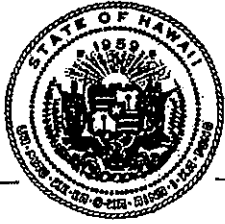
Very Truly Yours,

Kyle Ginoza
Project Manager

KG:lh

cc: Heidi Bigelow, West Maui Land Company, Inc.
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SEP 11 2007



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

LINDA LINGLE
GOVERNOR
THEODORE E. LIU
DIRECTOR
MARK K. ANDERSON
DEPUTY DIRECTOR
LAURA H. THIELEN
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-11905

September 10, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

Subject: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010: 005
Lahaina, Maui, Hawaii

Thank you for submitting your request for comments and early consultation on the above referenced proposal regarding development of 16.7 acres of land in Lahaina, Maui, Hawaii. The subject project proposes the development of 88 residential units, including 63 unattached single-family homes/parcels and 25 multi-family units.

The subject property comprises a long and narrow stretch of land, sandwiched between the Kahoma Stream Flood Control Channel to the north and a number of residential subdivisions to the south. A few hundred meters *makai* of the property's western boundary, Honoapiilani Highway runs in a north-south direction, with the Lahaina bypass road planned along a roughly parallel route just *mauka* of the parcel's eastern edge.

Because the proposed project may involve the use of government lands for roadway and utility connections, the applicant is preparing an Environmental Assessment (EA), for which it seeks early consultation comments from relevant agencies. The Office of Planning offers the following comments on issues of crosscutting State concern:

1. **State and County Plans** – Development of the proposed project will require reclassification of the subject property from the State Agricultural District to the State Urban District. Because the area proposed for development will presumably comprise more than 15 acres, such reclassification will be subject to the approval of the State Land Use Commission. Please discuss whether the proposed project is consistent with the standards for determining State Urban District boundaries, as outlined in §15-15-18, Hawaii Administrative Rules.

We recommend that the EA provide information about County plans for the subject property, including the parcel's current zoning, its classification under the West Maui Community Plan, and the status of any proposed amendments to such County designations.

2. **Water Supply** – Water resource protection is a critical State issue, particularly for the island of Maui. Please include information on the availability and capacity of potable and non-potable water sources for the project, plans for transmission and storage, and efforts to promote water conservation, including, if applicable, the use of recycled or irrigation water for landscaping and other non-domestic uses. In addition, please discuss coordination efforts and agreements reached with the Maui Department of Water Supply and, if necessary, the State Commission on Water Resource Management.
3. **Agricultural Lands** – Preservation of important agricultural lands is a priority for the State and Counties. As the subject property is currently classified within the State Agricultural District, we recommend that the applicant discuss how the loss of these farmlands can be justified, or how other agricultural lands of equal importance can be protected. Information should be provided about the productive value and agricultural potential of the subject property, based on the most commonly used rating schemes: the Agricultural Lands of Importance to the State of Hawaii (ALISH) system and the Land Study Bureau's (LSB) classifications for soil productivity. We also require that the applicant provide information about prior use of the land, with particular emphasis on current agricultural activity that may be displaced by development of the proposed project.
4. **Affordable Housing** – Increasing the supply of affordable housing is a critical State and County issue, particularly for the island of Maui, which has seen some of the highest home prices in the islands. The Maui County Council recently passed Ordinance No. 3418, codifying the County's residential workforce housing policy, which requires that at least 40 percent of new housing units be reserved and priced to accommodate lower-income groups. The proposed project would provide for the development of 88 residential units. We understand that all 25 of the proposed multi-family units and 28 of the 63 single-family homes will be designated as affordable, resulting in a total workforce housing component of 53 units or 60.2 percent. The proposal therefore exceeds the requirements set forth in Maui's residential workforce housing policy, and may qualify the project for certain exemptions and expedited processing available under Chapter 201H, Hawaii Revised Statutes, for housing projects that are primarily or exclusively designated for lower-income groups. We recommend that the applicant clarify whether it intends to seek the Chapter 201H exemptions for the proposed project.

5. **Transportation** – The State and County have serious concerns about the traffic implications associated with new developments. Please provide a Traffic Impact Analysis Report (TIAR) that: assesses current traffic conditions based on actual counts; projects future traffic conditions, incorporating cumulative impacts associated with the proposed project and any other developments currently planned for the region; describes relevant transportation improvements planned by the State and/or County, along with the status of such efforts; and proposes measures to mitigate the traffic generated by the proposed project. Of particular interest within the project region is the status of the Lahaina bypass road, which, according to our records, is slated to run just *mauka* of the subject property. Please discuss the Petitioner's efforts to coordinate project development and traffic mitigation with the State Department of Transportation and the County Department of Public Works.

6. **Ocean Resources** – The subject property is located roughly half a mile *mauka* of Maui's western shoreline. However, the proposed project lies immediately adjacent to the Kahoma Stream channel, a major *mauka--makai* waterway that flows from the West Maui mountains through Lahaina town, ultimately draining into the ocean near Mala Wharf. Due to high levels of turbidity, Kahoma Stream was included in the most recent (2004) list of "impaired waters" compiled by the State Department of Health, Environmental Planning Office. Please discuss the project's drainage systems as well as other measures and best management practices that will be undertaken to prevent stormwater runoff generated on site from flowing into the Kahoma Stream channel and the coastal waters beyond. Given the project's close connection to the ocean, the developers should take special care to ensure protection of the region's valuable coastal and marine resources, including the recreational and commercial activities at Mala Wharf, the sensitive corals located offshore, and the coastal reaches of the Hawaiian Islands Humpback Whale National Marine Sanctuary.

7. **Public Health** – If the project will have the potential to generate hazardous materials or result in the possible contamination of the air, soil or water, the EA should explain how public health and safety will be protected. We note that the agricultural history of the subject property may necessitate soil testing to detect elevated levels of fertilizers, pesticides, and other contaminants with the potential to impact the proposed use.

Please discuss the wastewater disposal systems for the project. Because individual wastewater systems have the potential to pollute and contaminate coastal waters, we encourage developers to install a project connection to the County's sewage treatment facility. Please provide estimates of the wastewater flow to be generated by the project and current capacity at the Lahaina Wastewater Reclamation Facility. We recommend that the applicant note the status of any discussions with the Maui

Department of Environmental Management regarding contributions toward maintenance and improvement of the County wastewater system.

8. **Cultural/Historic Resources** – The State has a duty to protect archaeological resources and cultural access rights. The EA should include an archaeological inventory survey that identifies historically significant sites and recommends appropriate monitoring and preservation measures as necessary. Such study should be submitted to the State Historic Preservation Division for review and approval. A cultural impact assessment should also be conducted to identify any cultural resources, customary practices, or historically significant landmarks associated with the project site. Where relevant, please discuss how traditional access rites will be preserved for Native Hawaiians.
9. **Environmental, Recreational, and Scenic Resources** – An inventory of flora and fauna on the project site should be completed. Please discuss the findings of those studies and any proposed protections for important species. The reports should include an assessment of any aquatic life associated with Kahoma Stream, which runs directly adjacent to the project site. In addition, please include a description of scenic resources and recreational uses on or near the subject property.
10. **Education** – Although Act 245, Session Laws of Hawaii 2007, has established a formal process for determining educational impact fees, that law applies only to designated “school impact districts,” the identification of which may take a year or more to complete. Until that process has been finalized, education contribution agreements must continue to be negotiated on a case-by-case basis between developers and the DOE. We therefore recommend that the EA estimate the increase in school enrollment associated with the project and discuss the status of negotiations with the Hawaii Department of Education (DOE) toward Petitioner’s fair-share contribution.
11. **Coastal Zone Management** – The State oversees protection of natural and cultural resources within the coastal zone. Although the subject property is located outside the Special Management Area, the adjacent Kahoma Stream channel provides a direct connection between the project site and the ocean. Please discuss any impact the proposed project may have on coastal and marine resources, and how the project will balance the competing values of economic development and preservation of coastal resources, including protection from flood hazard and soil erosion. As noted previously, we recommend that the applicant discuss the potential impact of project-generated runoff and non-point source pollution on nearshore waters and coastal resources, with a detailed explanation of the stormwater management systems that will be implemented to minimize this impact.

Mr. Kyle Ginoza
Page 5
September 10, 2007

The Office of Planning looks forward to receiving the EA addressing potential impacts and mitigation measures relative to the issues raised above. If you have any questions, please contact the Land Use Division at 587-2842.

Sincerely,



Mary Lou Kobayashi
Planning Program Administrator

c: Anthony Ching, Land Use Commission



MICHAEL T. MUNEKIYO
GIVEN OHASHI HIRAGA
MITSURU "MICK" HIRANO
KARLYN KAWAHARA

MARK ALEXANDER BOY

February 26, 2008

Mary Lou Kobayashi, Planning Program Administrator
Department of Business, Economic
Development & Tourism
Office of Planning
State of Hawai'i
P. O. Box 2359
Honolulu, Hawai'i 96804

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i; Reference No. P-11905

Dear Ms. Kobayashi:

We are writing to you on behalf of the applicant, West Maui Land Company, to thank you for your letter dated September 10, 2007, regarding the proposed Kahoma Residential Subdivision project located in Lahaina, Maui, Hawai'i.

On behalf of the applicant, we would like to provide the following information to help address your comments, following the order set forth in your letter:

1. **State and County Plans** – We acknowledge that the project comprises an area over 15 acres and, as such, the reclassification of land from agricultural to urban will be subject to the approval of the State Land Use Commission. The Draft Environmental Assessment (EA) for the project will discuss consistency with State Urban District standards, as outlined in Section 15-15-18, Hawai'i Administrative Rules. In addition, the subject property's current zoning and West Maui Community Plan designation will be evaluated in detail in the Draft EA.
2. **Water Supply** – The applicant will initiate dialogue with the County of Maui, Department of Water Supply (DWS) to discuss drinking and non-drinking water source and transmission coordination efforts. The applicant intends to dedicate the water transmission system to the DWS upon completion of the improvements. The Draft EA will address issues relating to water provision, including source, storage, and transmission. The applicant would like to note that they plan to undertake water conservation measures, where appropriate. A discussion of coordination activities with the DWS will be included in the Draft EA.

3. **Agricultural Lands** – The Draft EA will include a discussion of the agricultural designations of the land according to the Agricultural Lands of Importance to the State of Hawai'i (ALISH) and the Land Study Bureau (LSB) classification systems. Decades ago, the prior use of the land was for sugar cane cultivation and the land is currently fallow.
4. **Affordable Housing** – The proposed development will provide affordable housing, as required by applicable County of Maui affordable housing policies. The applicant has been coordinating with the County of Maui, Department of Housing and Human Concerns and the County of Maui Housing Commissioner to ensure the fulfillment of affordable housing requirements. The Draft EA will include a discussion on how the proposed subdivision will satisfy the requirements. The applicant intends on utilizing the 201H process with both the State Land Use Commission and the County of Maui. A discussion of the proposed 201H exemptions will be included in the Draft EA.
5. **Transportation** – The applicant has contracted with Wilson Okamoto Corporation, for preparation of a Traffic Impact Analysis Report (TIAR), which will address issues relating to traffic impacts generated and traffic mitigation measures proposed by the project. The Draft EA will include the findings of the report and a copy of the report will be attached as an appendix. The TIAR addresses the status of the State Lahaina Bypass Highway development. Additionally, the applicant has been in discussions with the County of Maui, Department of Public Works to coordinate project development and traffic mitigation measures. The Draft EA will include a discussion of these efforts.
6. **Ocean Resources** – The applicant recognizes the importance of the ocean resources in the vicinity of the subject project, particularly the Hawaiian Islands Humpback Whale National Marine Sanctuary. National Pollutant Discharge System (NPDES) and/or other permits will be obtained, as applicable, during the building permit and subdivision review processes. A more detailed discussion regarding State of Hawai'i, Department of Health guidelines and engineering Best Management Practices (BMPs), which will be utilized to mitigate potential drainage and runoff impacts to downstream properties, the Kahoma Stream, and coastal ecosystems, will be discussed in the Draft EA.
7. **Public Health** – As applicable, appropriate mitigation measures will be implemented and BMPs will be utilized where possible, to minimize infiltration and runoff from construction activities. The Draft EA will include a discussion on the wastewater system including estimates of flow. The Kahoma Residential Subdivision will connect to the County wastewater system. The applicant has

initiated discussions with the County of Maui, Department of Environmental Management regarding wastewater capacity and project requirements. The Draft EA will include a discussion of these efforts.

8. **Cultural/Historic Resources** – The Archaeological Inventory Survey report was submitted to the State Historic Preservation Division (SHPD). The SHPD's findings, as well as the Archaeological Inventory Survey report, will be included in the Draft EA. Moreover, the Draft EA will include a discussion of the Native Hawaiian traditional and customary practices in the area, as applicable. The Cultural Impact Assessment report will be included in the Draft EA as an appendix.
9. **Environmental, Recreational, and Scenic Resources** – The Draft EA will include a discussion of the inventory of flora and fauna at the project site. Additionally, a copy of the flora and fauna study will be included in the Draft EA as an appendix. There is no aquatic life associated with the Kahoma Stream that borders the project to the north, as the stream is normally dry. Lastly, the Draft EA will include a discussion of the scenic resources and recreational uses on or near the project site.
10. **Education** – The applicant is aware that the 2007 State Legislature established a formal process for determining educational impact fees. As a 100 percent affordable development, the applicant will seek a 201H exemption from the payment of school impact fees.
11. **Coastal Zone Management** – The Draft EA will include a discussion of any potential impact to coastal and/or marine resources, economic development, and preservation of coastal resources, including protection from flood hazard and soil erosion, associated with the proposed project.

We appreciate the input we received from you. A copy of the Draft EA will be provided for your review and comment.

Mary Lou Kobayashi, Planning Program Administrator
February 26, 2008
Page 4

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal line extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 29 2007



The Senate

STATE CAPITOL
HONOLULU, HAWAII 96813

August 28, 2007

COLLEEN HANABUSA
PRESIDENT
DONNA MERCADO KIM
VICE PRESIDENT
GARY L. HOOSER
MAJORITY LEADER
FRED HEMMINGS
MINORITY LEADER

FIRST DISTRICT
LORRAINE R. INOUE

SECOND DISTRICT
RUSSELL S. KOKUBUN

THIRD DISTRICT
PAUL WHALEN

FOURTH DISTRICT
SHAN S. TSUTSUI

FIFTH DISTRICT
ROSALYN H. BAKER

SIXTH DISTRICT
J. KALANI ENGLISH

SEVENTH DISTRICT
GARY L. HOOSER

EIGHTH DISTRICT
SAM SLOM

NINTH DISTRICT
LES IHARA, JR.

TENTH DISTRICT
BRIAN T. TANIGUCHI

ELEVENTH DISTRICT
CAROL FUKUNAGA

TWELFTH DISTRICT
GORDON TRIMBLE

THIRTEENTH DISTRICT
SUZANNE CHUN OAKLAND

FOURTEENTH DISTRICT
DONNA MERCADO KIM

FIFTEENTH DISTRICT
NORMAN SAKAMOTO

SIXTEENTH DISTRICT
DAVID Y. IGE

SEVENTEENTH DISTRICT
RON MENDR

EIGHTEENTH DISTRICT
CLARENCE K. NISHIHARA

NINETEENTH DISTRICT
MIKE GABBARD

TWENTIETH DISTRICT
WILL ESPERO

TWENTY-FIRST DISTRICT
COLLEEN HANABUSA

TWENTY-SECOND DISTRICT
ROBERT BUNDA

TWENTY-THIRD DISTRICT
CLAYTON HEE

TWENTY-FOURTH DISTRICT
JILL N. TOKUDA

TWENTY-FIFTH DISTRICT
FRED HEMMINGS

CHIEF CLERK
CAROL TANIGUCHI

Mr. Kyle Ginoza
Project Manager
Kahoma Residential Subdivision
Munekiyo & Hiraga Inc.
305 South High Street, Suite 104
Wailuku, Hawai'i 96793

Dear Mr. Ginoza,

I am in receipt of your letter requesting my comments on the proposed development of an 88-unit Kahoma Residential Subdivision in Lahaina, Maui. The project looks like an interesting and potentially fruitful collaboration between West Maui Land Company, Lokahi Pacific and the Habitat for Humanity in the creation of much-needed affordable housing. The proposed subdivision seems an appropriate fill-in project for the land-use you have specified.

Thank you so much for taking the time to request my comments. I am always interested in projects that can provide affordable housing for Maui's workforce without adverse impact on the environment or the community.

Me ke aloha pumehana,

A handwritten signature in black ink, appearing to read "Rosalyn H. Baker".

Rosalyn H. Baker
SENATOR
5th District – South and West Maui

Council Chair
G. Riki Hokama

Vice-Chair
Danny A. Mateo

Council Members
Michelle Anderson
Gladys C. Balsa
Jo Anne Johnson
Bill Kauakea Medeiros
Michael J. Molina
Joseph Pontanilla
Michael P. Victorino



COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/council

SEP 06 2007
Director of Council Services
Ken Fukuoka

September 4, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: Proposed Kahoma Residential Subdivision
Tax Map Key (24-5-010:005, Lahaina, Maui, Hawaii)

Thank you for the opportunity to provide early consultation comments for the proposed Kahoma Residential Subdivision.

After review of the preliminary proposal, I have no comments at the present time.

Sincerely,

Handwritten signature of Joseph Pontanilla in black ink.
JOSEPH PONTANILLA,
COUNCIL MEMBER

SEP 11 2007



DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

VANESSA A. MEDEIROS
Director

LORI TSUHAKO
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165 • EMAIL director.hhc@mauicounty.gov

September 7, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: Proposed Kahoma Residential Subdivision
TMK (2) 4-5-010:005, Lahaina, Maui, Hawai'i**

We have reviewed your August 10, 2007 early consultation letter and enclosures for the subject project and would like to offer the following comments:

1. West Maui Land Company, Inc. is proposing to develop 16.7 acres of land for the construction of an 88-unit residential subdivision. The project will consist of 63 single-family residential units (of which 28 shall be designated affordable) and 25 multi-family residential units (all of which shall be designated affordable). Of the proposed 88 units, 53 units shall be designated affordable.
2. Since the proposed project will involve the subdividing of five or more lots, the project is subject to the requirements of Chapter 2.96, Maui County Code (MCC).
3. Section 2.96.080A, MCC, states that before final subdivision approval or issuance of a building permit, the developer shall enter into a residential workforce housing agreement with the County of Maui that sets forth the detailed terms and conditions of compliance with the residential workforce policy.

Thank you for the opportunity to comment.

Sincerely,

VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Assistant Housing Administrator



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

MARK ALEXANDER ROY

February 26, 2008

Vanessa A. Medeiros, Director
Department of Housing and Human Concerns
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i**

Dear Ms. Medeiros:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 7, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. The applicant acknowledges that the proposed project will be subject to the requirements of Chapter 2.96, Maui County Code, regarding the Maui Residential Workforce Housing Policy.
2. The applicant will coordinate with the department in the development of an affordable housing agreement, which sets forth the detailed terms and conditions of compliance with the residential workforce policy.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Vanessa A. Medeiros, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', written over a horizontal line.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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SEP 14 2007

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 Nakoia Street, Unit 2, Wailuku, Hawaii 96793

September 10, 2007

Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
LAHAINA, MAUI, HAWAII
TMK: (2) 4-5-010:005**

Thank you for the opportunity to review and comment on the subject project. Pursuant to Section 18.16.320, Maui County Code, the project will be subject to park assessment requirements. Our Department will be requiring the applicant to satisfy these requirements with a cash contribution in lieu of land.

The current parks and playgrounds assessment fee rate for the West Maui Community Plan Area is \$26,795.00 per lot in excess of three (3). Utilizing the 3-lot/unit exemption, the parks and playgrounds assessment fee for the subject eighty-eight (88) lot/unit project is **\$2,277,575.00** [\$26,795.00/lot or unit x (88-3) lot/unit].

The aforementioned rate and fees, are valid until June 30, 2008 and are subject to change. The applicant is required to satisfy the applicable parks and playgrounds requirements at the time of final subdivision approval.

Should there be any questions, please contact Karla Peters, of our Parks Planning and Development Division, at 270-7981.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tamara Horcajo".

TAMARA HORCAJO
Director

c: Patrick Matsui, Chief of Parks Planning and Development



MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAPLYNN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

Tamara Horcajo, Director
Department of Parks and Recreation
County of Maui
700 Hali'a Nakoa Street, Unit 2
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i**

Dear Ms. Horcajo:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 10, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

The applicant acknowledges that, pursuant to Maui County Code Section 18.16.320, the project will be subject to the parks and playgrounds assessment requirements. We understand that the parks and playgrounds assessment fee amount of \$26,795.00 per lot in excess of three (3) lots for the West Maui Community Plan area is only valid until June 30, 2008.

The applicant intends on submitting a 201H application for this project, which consists of 100 percent affordable units. The applicant will seek exemption from the parks and playgrounds assessment fees for the project. A discussion on the proposed exemptions will be included in the Draft Environmental Assessment (EA).

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Tamara Horcajo, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'K. Ginoza', with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

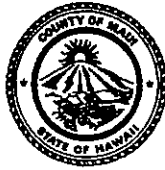
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CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director

SEP 28 2007



COUNTY OF MAUI
DEPARTMENT OF PLANNING

September 25, 2007

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: PRE-CONSULTATION COMMENTS IN PREPARATION OF
A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
LOCATED AT TMK: 4-5-010:005, LAHAINA, MAUI, HAWAII
(EAC 2007/0028)**

The Maui Planning Department (Department) is in receipt of the above-referenced document for the proposed Kahoma Residential Subdivision. The Department understands the proposed action includes the following:

- West Maui Land Company proposes the development of 88 residential units on approximately 16.7 acres of land;
- The project will be comprised of 63 single-family residential units and 25 multi-family unit as well as a neighborhood park;
- 28 of the single-family residential units will be designated affordable pursuant to Maui Residential Workforce Housing Policy (MRWHP); and
- All of the 25 multi-family units will be affordable pursuant to the MRWHP. These 25 units will be developed by Lokahi Pacific and Habitat for Humanity.

Based on the foregoing, the Department provides the following comments in preparation of the Draft EA:

1. The land use designations for the project area are as follows:

- a. State Land Use – Agricultural
 - b. Community Plan – Open Space & Bike Path
 - c. County Zoning – Agricultural
 - d. Other – Located outside of the Special Management Area and the Lahaina National Historic Land Mark District.
2. Petitions to reclassify lands designated Agricultural that are 15 acres or greater are processed by the Land Uses Commission (LUC);
 3. The Maui Planning Commission may not be the accepting authority for the Environmental Assessment as the only administrative action is the proposed reclassification of lands designated State Agricultural. This action is taken by the LUC. The Office of Environmental Quality Control (OEQC) should be consulted to determine the appropriate accepting authority for the environmental assessment;
 4. The current Community Plan designation of Open Space was identified as Matrix Item #29 and adopted as part of West Maui Community Plan update in 1996.
 5. The current Community Plan designation of Bikeway was identified as Matrix Item #3 and adopted as part of the West Maui Community Plan update in 1996.
 6. The document should contain a thorough discussion of the relationship of the proposed project with the Lahaina Town Village Drainage Master Plan developed by Maui County.
 7. The document should contain a thorough discussion of the proposed project with the West Maui Community Plan. At a minimum, the following elements should be discussed:

ENVIRONMENT

6. Integrate stream channels, gulches and other areas deemed unsuitable for development into the region's open space system for the purposes of safety, open space relief, greenways for public use and visual separation. Existing development of the stream channels, gulches and other areas shall be maintained and shall not be expanded. Drainage channels and siltation basins should not be considered for building sites, but used, rather, for public open space.

Mr. Kyle Ginoza
September 25, 2007
Page 3

The following major streams and gulches, as named on the United States Geologic Survey topographic maps (Lahaina and Honolua, Hawaii, 7.5 minute series, 1:24,000 scale), are to be kept as open space;

- a. Kahoma Stream.....

URBAN DESIGN

5. Integrate stream channels and gulches into the region's open space system for the purposes of safety, open space relief, greenways for public use and visual separation. Drainage channels and siltation basins should not be used for building sites, but, rather, for public open space. Drainage channel rights-of-way and easements may also be used for pedestrian walkways and bikeway facilities.

- 8. With the ongoing update of the Maui General Plan and subsequent Community Plan updates, the Department may not support the proposed Community Plan Amendment from Open Space and Bikeway at this time pending the outcome of the West Maui Community Plan Update currently scheduled for 2008.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Draft EA. Should you require further clarification, please contact Staff Planner. Robyn Loudermilk by email at robyn.loudermilk@mauicounty.gov or by phone at 270-7180.

Sincerely,



Jr JEFFREY S. HUNT, AICP
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Robyn L. Loudermilk, Staff Planner
Joe Krueger, Department of Public Works

JSH:RLL:bv

EA Project File
General File

K:\WP_DOCS\PLANNING\EAC\2007\0028_KahomaResidential\comments.wpd



MICHAEL T. MUNEKIYO
GIVEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KARLYNN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

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

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i**

Dear Mr. Hunt:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated September 25, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. We concur with the land use designations listed in your letter.
2. We understand that petitions to reclassify lands designated Agricultural that are 15 acres or greater are processed by the State Land Use Commission.
3. After consultation with the County Department of Housing and Human Concerns (DHHC), the DHHC will be the accepting agency for the Environmental Assessment (EA).
4. We acknowledge that the subject property is designated as Open Space in the West Maui Community Plan.
5. We further acknowledge that a Bikeway is aligned through the subject property in the West Maui Community Plan.
6. The proposed project will retain additional post-development drainage flows onsite. In other words, no additional flows will be drained into the Kahoma Stream Flood Control Channel to the north or the Lahaina Watershed project to the south.

Jeffrey S. Hunt, AICP
Planning Director
February 26, 2008
Page 2

7. With the implementation of the fortified concrete Kahoma Stream Flood Control Channel, the 100-year and 500-year flood areas are contained within the channel. Therefore, the subject property is not located within a portion of the adjacent stream or drainage channel. A public bicycle path and walking trail will be developed along the northern boundary of the Kahoma Residential project.
8. The applicant will first seek a District Boundary Amendment from the State Land Use Commission. We acknowledge that the West Maui Community Plan Update is scheduled for 2008.

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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CHARMAINE TAVARES
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

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

SEP 13 2007



THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

August 20, 2007

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: Proposed Kahoma Residential Subdivision
TMK (2) 4-5-010:005, Lahaina, Maui, Hawaii

Thank you for your letter of August 10, 2007, requesting comments on the above subject.

We have reviewed the information submitted for this project and would like to defer and comments and/or recommendations until the draft for the Environmental Assessment is completed and submitted by the applicant. 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

Enclosure
c: Jeff Hunt, Planning Department

COPY

TO : THOMAS PHILLIPS, CHIEF OF POLICE
VIA : CHANNELS @ 8/15/07
FROM : RICKY UEDO, SERGEANT, LAHAINA PATROL DIVISION
SUBJECT : PROPOSED KAHOMA RESIDENTIAL SUBDIVISION

CONCUR:
AC [Signature]
08/16/07

This form of communication is being forwarded to your office regarding a request for early consultation for a proposed Kahoma Residential Subdivision. The applicant is proposing a development of an 88-unit subdivision in Lahaina. The subject property comprises approximately 16.7 acres.

At this time, there is no input for an early consultation on the proposed project from the police standpoint; therefore, I would recommend that we defer this matter until we receive the draft for the Environmental Assessment from the applicant. At that time, we can address any concerns that the police may have.

Submitted for your information.

Respectfully submitted,

[Signature]

Sgt. Ricky E. Uedoi #1512
Lahaina Patrol Division
August 15, 2007 @ 1030 hours

SEP 06 2007

CHARMAINE TAVARES
Mayor

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

MICHAEL M. MIYAMOTO
Deputy Director

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



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
WAILUKU, MAUI, HAWAII 96793

August 31, 2007

Mr. Kyle Ginoza
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza:

SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
TMK: (2) 4-5-010:005

We reviewed the subject application and have the following comments:

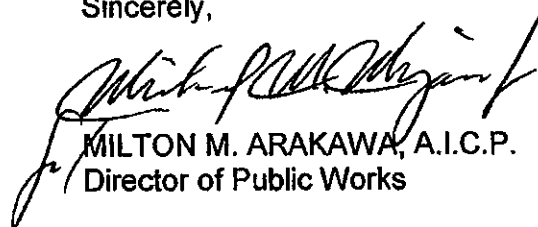
1. A detailed review will be conducted upon submittal of appropriate documents.
2. It is unclear from the figure as to the project site's property relationship to the Kahoma Flood Control Facility access road along Kahoma Stream. In any case, access must be provided and the access road must be kept clear for use by County heavy equipment to access the Kahoma Stream Flood Control facility for maintenance.
3. The U.S. Army Corps of Engineers has concerns regarding projects adjacent to projects they design, such as the Kahoma Stream Flood Control Facility. We would recommend that they be included in the agencies to review projects such as this one, adjacent to the Kahoma Stream Flood Control Facility. Of particular interest may be the deletion of the Existing Easement A which is being proposed to be deleted or relocated, and which was a requirement of the original Kahoma Stream project design.

Mr. Kyle Ginoza
August 31, 2007
Page 2

4. Trees and shrubs cannot be planted adjacent to the access road, such that the landscaping's roots grow into the access road. A root barrier will be required at the boundary between the project's property and the Kahoma Stream access road, paralleling the entire length of Kahoma Stream. OK
5. We would not have any objections if the developer chose to grass and maintain our access road to minimize dust.
6. We would like to suggest that the 21,571 square foot County lot denoted as the "Old Kahoma Stream" on Figure 3, be swapped for additional buffer space between the Kahoma Stream and the adjoining development. I do not believe that parcel serves any useful purpose for the County and would be problematic for future maintenance. However, I would suggest that other agencies review to see if they have need of the property.
7. Clarify access to the proposed development as the timing of the Mill Street extension is uncertain.
8. It may be beneficial to have an additional access to the proposed development in the vicinity of the Existing Easement A and Lui Street. In the present configuration, the project access is an extended cul-de-sac without another egress point. Any blockages of the road on the makai portion of the road would "trap" all users mauka of the blockage.
9. Indicate whether the project roadway is intended to be kept under private ownership and maintenance or proposed for dedication to the County of Maui.

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: Engineering Division
Highways Division

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

MARK ALEXANDER ROY

February 26, 2008

Milton M. Arakawa, A.I.C.P.
Director of Public Works
County of Maui
Department of Public Works
200 South High Street
Wailuku, Hawai'i 96793

**SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i**

Dear Mr. Arakawa:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 31, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. We acknowledge that a detailed review will be conducted upon submittal of appropriate documents.
2. Fencing will be installed between the limits of the proposed project and the Kahoma Stream Flood Control facility. The existing access road along the southern side of the flood control facility will not be altered by the proposed project.
3. We acknowledge that the U.S. Army Corps of Engineers would want to be consulted to review projects such as this one, and as such, we sent an early consultation to the Department of Army. We note that Easement A, which traverses the mauka portion of the property, is no longer in existence. The agreement which created Easement A auto-terminated a number of years ago.
4. We acknowledge that trees and shrubs cannot be planted next to the access road along the Kahoma Stream Flood Control facility and understand that a root barrier may be required at the boundary between the access road and the project site.
5. We note that the department would not have any objections if the developer chose to grass and maintain the access road to minimize dust.

Milton M. Arakawa, A.I.C.P.
Director of Public Works
February 26, 2008
Page 2

6. The applicant is exploring acquisition of the 21,571 square foot lot.
7. The applicant will be funding the construction of the portion of the Mill Street extension between the project site and Keawe Street.
8. The site plan has been revised to include an additional access point near Lui Street.
9. The project roadway is intended to be designed and constructed to County standards for subsequent dedication to the County of Maui.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,



Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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AUG 31 2007

CHARMAINE TAVARES
MAYOR



DON A. MEDEIROS
Director
WAYNE A. BOTELHO
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

August 28, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo and Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

**SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
(TMK (2) 4-5-010:005, LAHAINA, MAUI, HAWAII)**

Dear Mr. Ginoza:

Thank you for the opportunity to comment on this project.

Should the opportunity present itself, the Department of Transportation requests the consideration of a bus stop for this project, perhaps even a street cut-out. We believe you have an opportunity to build a walkable community. Residents of the area will be able to bus to and from work, and they'll be able to shop at the commercial areas nearby. If done right, your project could become a very desirable place to live.

Please do not hesitate to contact me at 270-7511 if I can be of any assistance or clarification.

Sincerely,

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

DON MEDEIROS
Director of Transportation

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MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSUBU "MICH" HIRANO
KARLYN KAWAHARA

MARK ALEXANDER ROY

February 26, 2008

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

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Medeiros:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 28, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

This project is local residential housing development, where 100 percent of the units will be in the affordable price range. As such, the applicant is trying to minimize costs for the development. Nonetheless, your request for consideration of a bus stop either within or adjacent to the project site will be forwarded to the project civil engineer.

We appreciate the input from your office. A copy of the Draft Environmental Assessment will be provided for your review and comment.

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R. T. Tanaka Engineers, Inc.

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CHARMAINE TAVARES
Mayor



JEFFREY K. ENG
Director
ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

August 27, 2007

Mr. Kyle Ginoza, Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

SUBJECT: Proposed Kahoma Residential Subdivision
TMK: (2) 4-5-010:005, Lahaina, Hawaii

Dear Mr. Ginoza:

Thank you for the opportunity to participate in the Environmental Assessment early consultation process for the above stated project proposal.

Source Availability and Consumption

The project area is served by our Lahaina system. The main sources of water for this portion of the system are wells withdrawing from Launiupoko aquifer and surface water from Kanaha Stream. DWS does not grant or imply any guarantee of water until an application for water meter has been received and reviewed. Additional water for development is not currently available at the Lahaina system pending completion of new source projects. However, water availability will be determined at time of meter application. DWS will not issue reservations for future meters until new development efforts which include the expansion of Lahaina and Mahinahina Water Treatment Plants are completed.

The EA should address anticipated potable and non-potable water use for the proposed development. Anticipated daily consumption would be in the range of 51,800 to 83,500 gallons based on system standards. However, empirical usage information for Lahaina suggests that actual demand will likely be higher.

System Infrastructure

The applicant will be required to provide domestic and irrigation services as well as fire protection in accordance with system standards. Required fire flow for residential subdivisions is 1000 gallons per minute at 350 feet spacing for a 2 hour duration.

Conservation

In order to reduce demand in the Lahaina system, we recommend that the following water conservation measures be included in the EA:

"By Water All Things Find Life"

The Department of Water Supply is an Equal Opportunity provider and employer. To file a complaint of discrimination, write: USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington DC 20250-9410. Or call (202) 720-5964 (voice and TDD)



Mr. Kyle Ginoza
Proposed Kahoma Residential Subdivision

Use brackish and/or reclaimed water sources for dust control and for all non-potable water uses during various phases of construction. Reclaimed water is readily available at the Lahaina Wastewater Reclamation Facility.

Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.

Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets, and hose bibs. Water conserving washing machines, ice-makers and other units are also available.

Use Climate-adapted Plants: The project is located in the "Maui County Planting Plan"- Plant Zones 3, 4, & 5. We encourage the applicant to utilize appropriate native and non invasive species in landscaping. Native plants adapted to the area conserve water and protect the watershed from degradation due to invasive alien species. Please refer to the attached brochure: "Saving Water in the Yard- What and How to Plant in Your Area".

Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip".

Limit Irrigated Turf: Limit irrigated turf to 25% or less of total landscaped area. Low-water use shrubs and ground covers can be equally attractive and require substantially less water than turf.

Look for Opportunities to Conserve Water: A few examples of these are as follows: When clearing driveways, etc. of debris, use a broom instead of a hose; check for leaks in faucets and toilet tanks.

Pollution Prevention

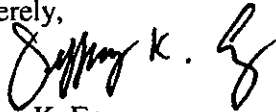
The project overlies the Launiupoko aquifer which has an estimated sustainable yield of 8 MGD of potable water. In order to protect ground and surface water resources, we recommend that the applicant utilize Best Management Practices (BMPs) designed to minimize infiltration and runoff from construction and vehicle operations. We ask the applicant to take precautionary measures during construction to prevent construction materials and debris and eroded soils from entering the Kahoma Stream. We have attached sample BMPs for principle operations for reference. Additional mitigation measures are enumerated below and should be implemented during construction:

1. Prevent cement products, oil, fuel and other toxic substances from falling or leaching into the water.
2. Properly and promptly dispose of all loosened and excavated soil and debris material from drainage structure work.
3. Retain ground cover until the last possible date.
4. Stabilize denuded areas by sodding or planting as soon as possible. Replanting should include soil amendments, fertilizers and temporary irrigation. Use high seeding rates to ensure rapid stand establishment.
5. Avoid fertilizers and biocides, or apply only during periods of low rainfall to minimize chemical run-off.
6. Keep run-off on site.

Mr. Kyle Ginoza
Proposed Kahoma Residential Subdivision

Should you have any questions regarding system infrastructure and requirements, please call our Engineering Division at 270-7835 and any questions on source availability or conservation and resource matters, please contact our Water Resources and Planning Division at 244-8550.

Sincerely,



Jeffrey K. Eng
Director
eam

c: engineering division
applicant, with attachments:

The Costly Drip
Maui County Planting Plan - Saving Water in the Yard - What and How to Plant in your Area
Ordinance No. 2108 - A Bill for an Ordinance Amending Chapter 16.20 of the Maui County Code, Pertaining to the Plumbing Code
Selected BMP's from "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters"-EPA
A Checklist of Water Conservation Ideas for the Home and Yard

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MICHAEL T. MUNEKIYO
GWEN OHASHI HIRAGA
MITSURU "MICH" HIRANO
KAPLYNK KAWAHARA
MARK ALEXANDER ROY

February 26, 2008

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

SUBJECT: Proposed Kahoma Residential Subdivision at TMK (2)4-5-010:005,
Lahaina, Maui, Hawai'i

Dear Mr. Eng:

We are writing to you on behalf of the applicant, West Maui Land Company, Inc., to thank you for your letter dated August 27, 2007, regarding the proposed Kahoma Residential Subdivision project in Lahaina, Maui, Hawai'i.

We offer the following comments, in response to your remarks:

1. We acknowledge that County water availability will be determined at the time of water meter application. The proposed project will utilize County water to satisfy its daily consumption requirements.
2. We note that the required fire flow for residential subdivisions is 1,000 gallons per minute at 350 feet spacing for a two (2) hour duration.
3. We will forward the suggested water conservation measures to the applicant for incorporation into the landscaping design of the project, as applicable.
4. A list of the Best Management Practices (BMPs) which will be utilized for the project may be found in the Preliminary Civil Engineering and Drainage and Erosion Control Report in the Draft Environmental Assessment (EA).

We appreciate the input from your office. A copy of the Draft EA will be provided for your review and comment.

Jeffrey K. Eng, Director
February 26, 2008
Page 2

Should you have any questions, please do not hesitate to contact me at (808) 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Kyle Ginoza', with a long horizontal flourish extending to the right.

Kyle Ginoza, Project Manager

KG:lfm

cc: Heidi Bigelow, West Maui Land Company, Inc.

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**X. PARTIES CONSULTED
DURING THE
PREPARATION OF THE
FINAL ENVIRONMENTAL
ASSESSMENT; LETTERS
RECEIVED DURING THE
30-DAY PUBLIC
COMMENT PERIOD AND
RESPONSES TO
SUBSTANTIVE
COMMENTS**

X. PARTIES CONSULTED DURING THE PREPARATION OF THE FINAL ENVIRONMENTAL ASSESSMENT; LETTERS RECEIVED DURING THE 30-DAY PUBLIC COMMENT PERIOD AND RESPONSES TO SUBSTANTIVE COMMENTS

A notice of the Draft EA for the subject project was filed and published in the Office of Environmental Quality Control's The Environmental Notice, on March 23, 2008.

The following agencies were also sent a copy of the Draft EA for review and comment. Comments on the Draft EA were received during the 30-day public comment period. Comments, as well as responses to substantive comments, are included in this chapter.

- | | |
|--|---|
| 1. Ranae Ganske-Cerizo, Soil Conservationist
Natural Resources Conservation Service
U.S. Department of Agriculture
210 Imi Kala Street, Suite 209
Wailuku, Hawaii 96793-2100 | 5. Dan Davidson, Executive Director
Hawaii Housing Finance and
Development Corporation
677 Queen Street
Honolulu, Hawaii 96813 |
| 2. George Young
Chief, Regulatory Branch
U.S. Department of the Army
U.S. Army Engineer District, Honolulu
Regulatory Branch
Building 230
Fort Shafter, Hawaii 96858-5440 | 6. Sandra Lee Kunimoto, Chair
Department of Agriculture
1428 South King Street
Honolulu, Hawaii 96814-2512 |
| 3. Gordon Furutani, Field Office Director
U. S. Department of Housing and Urban
Development
500 Ala Moana Boulevard, Suite 3A
Honolulu, Hawaii 96813-4918 | 7. Theodore E. Liu, Director
State of Hawaii
Department of Business, Economic
Development & Tourism
P.O. Box 2359
Honolulu, Hawaii 96804 |
| 4. Patrick Leonard
Field Supervisor
U. S. Fish and Wildlife Service
300 Ala Moana Blvd., Rm. 3-122
Box 50088
Honolulu, Hawaii 96813 | 8. Patricia Hamamoto, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804 |

9. Ron Okamura, Complex Area
Superintendent
State of Hawaii
Department of Education
54 High Street, 4th Floor
Wailuku, Hawaii 96793
10. Denis Lau, Chief
Clean Water Branch
State of Hawaii
Department of Health
919 Ala Moana Blvd., Room 300
Honolulu, Hawaii 96814
11. Laura H. Thielen, Chairperson (5 copies)
State of Hawaii
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813
12. Rodney Maile, Interim Executive Officer
State of Hawaii
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804
13. Rosalyn H. Baker, Senator
Hawaii State Senate
Hawaii State Capitol, Room 210
415 S. Beretania Street
Honolulu, Hawaii 96813
14. Angus L.K. McKelvey, Representative
House of Representatives
Hawaii State Capitol, Room 315
415 S. Beretania Street
Honolulu, Hawaii 96813
15. Katherine Kealoha, Director
Office Of Environmental Quality Control
235 S. Beretania Street, Suite 702
Honolulu, Hawaii 96813
16. Clyde Namuo, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813
17. Abbey Seth Mayer, Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804
18. Charmaine Tavares, Mayor
County of Maui
200 South High Street
Wailuku, Hawaii 96793
19. Gen Inuma, Administrator
Maui Civil Defense Agency
200 South High Street
Wailuku, Hawaii 96793
20. Donald Medeiros, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793
21. G. Riki Hokama, Council Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
22. Danny Mateo, Council Vice Chair
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
23. Councilmember Michelle Anderson
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
24. Councilmember Gladys Baisa
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
25. Councilmember Jo-Anne Johnson
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
26. Councilmember Bill Medeiros
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
27. Councilmember Michael J. Molina
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

28. Councilmember Joseph Pontanilla
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
29. Councilmember Mike Victorino
Maui County Council
200 South High Street
Wailuku, Hawaii 96793
30. Theo Morrison, Executive Director
Lahaina Bypass Now
505 Front Street, Suite 202
Lahaina, Hawaii 96761
31. Keoki Freeland, Executive Director
Lahaina Restoration Foundation
120 Dickenson Street
Lahaina, Hawaii 96761
32. Karee Karlucci, Executive Director
Lahaina Town Action Committee
648 Wharf Street, Suite 102
Lahaina, Hawaii 96761
33. Joe Pluta, President
West Maui Improvement Foundation
P. O. Box 10338
Lahaina, Hawaii 96761
34. May Fujiwara
Lahaina-Honolua Senior Citizens Club
P. O. Box 1086
Lahaina, Hawaii 96767
35. Zeke Kalua, Executive Director
West Maui Taxpayers Association
P.O. Box 10338
Lahaina, Hawaii 96761
36. Neal Shinyama, Manager – Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733
37. **Hawaiian Telcom**
60 South Church Street
Wailuku, Hawaii 96793



MAR 31 2008

United States
Department of
Agriculture

Our People...Our Islands...In Harmony

Natural
Resources
Conservation
Service
210 Ima Kala
Suite 209
Wailuku, HI 96793

TO: Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Ms. Vanessa Medeiros
Department of Housing and Human Concerns
County of Maui
200 S. High St., Suite 400
Wailuku, HI 96793

DATE: March 28, 2008

FROM: James J. Ino *JJI*
County Resource Planner/Acting District Conservationist

SUBJECT: Draft Environmental Assessment for Proposed Kahoma Residential
Subdivision, Lahaina, Maui, Hawaii
TMK: (2) 4-5-010:005

Due to the location of the project along Kahoma Stream, drainage outlets from the subdivision into the channel need to be coordinated with various government agencies.

Comments on drainage and erosion control issues will be provided upon submittal of plans and designs.

Thank you for the opportunity to comment.



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

MARK ALEXANDER ROY

September 12, 2011

Ranae Ganske-Cerizo, Soil Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
700 Hookele Street, Suite 202
Kahului, Hawaii 96732

SUBJECT: Response to Draft Environmental Assessment and Preliminary
201H-38, Hawaii Revised Statutes Application Comment Letter
Regarding Proposed Kahoma Residential Subdivision, Located at
TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Ganske-Cerizo:

Thank you for your department's letter dated March 28, 2008, providing us with your comments on the subject project. On behalf of our client, West Maui Land Company, Inc., we would like to offer the following responses to your comments. We concur with your comment regarding the coordination between the project's civil engineering consultant and various government agencies on the proposed drainage improvements for the project. The civil engineering consultant noted in the project's engineering and drainage report that construction plan approvals will be sought from various Federal, State of Hawaii, and County of Maui agencies. Further, the applicant continues to meet with various County Departments regarding the project and its proposed improvements.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,



Erin Mukai, Associate

EM:tn

Cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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APR 08 2008

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 7, 2008

Ms. Vanessa Medeiros
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawai'i 96793-2155

Dear Ms. Medeiros:

Subject: **Draft Environmental Assessment and Preliminary Section 201H-38,
Hawaii Revised Statutes, Application for Proposed Kahoma
Residential Subdivision, TMK: (2) 4-5-010: 005**

Thank you for the opportunity to comment on the Draft Environmental Assessment and Preliminary Section 201H for the proposed Kahoma Residential Subdivision. Comments from this office were submitted during the early consultation process. We have no further comments.

Should you have any questions, please call me at 808 984-8230.

Sincerely,

A handwritten signature in black ink, appearing to read "Herbert S. Matsubayashi".

Herbert S. Matsubayashi
District Environmental Health Program Chief

c Kyle Ginoza



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

MARK ALEXANDER ROY,

September 12, 2011

Patti Kitkowski
District Environmental Health Program Chief
State of Hawaii
Department of Health
54 High Street
Wailuku, Hawaii 96793

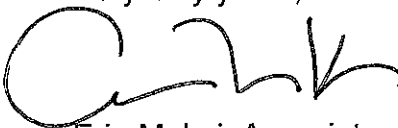
SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Kitkowski:

Thank you for your department's letter dated April 7, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc., we appreciate your review of the document and your conveying confirmation that the Department has no comment at this time.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process. A copy of your letter will be included in the Final Environmental Assessment. Should you have any additional questions on the project, please feel free to contact me at 244-2015.

Very truly yours,



Erin Mukai, Associate

EM:tn

Cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

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APR 16 2008

LINDA LINGLE
Governor

JAMES R. AIONA, JR.
Lieutenant Governor

THEODORE E. LIU
Director

MARK K. ANDERSON
Deputy Director



LAND USE COMMISSION
Department of Business, Economic Development & Tourism
State of Hawai'i

RODNEY A. MAILE
Interim Executive Officer

SANDRA M. MATSUSHIMA
Chief Clerk

BERT K. SARUWATARI
Senior Planner

FRED A. TALON
Drafting Technician

April 14, 2008

Ms. Vanessa Medeiros
Department of Housing and Human Concerns
County of Maui
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

Subject: Draft Environmental Assessment (DEA) for Proposed Kahoma Residential Subdivision
Lahaina, Maui, Hawaii
Tax Map Key: 4-5-10: 5

We have reviewed the subject DEA and have the following comments for your consideration:

- 1) In accordance with section 11-200-10(5), Hawaii Administrative Rules (HAR), a summary description of the affected environment, including suitable and adequate regional, location, and site maps, should be provided. Based on our review of the project site on the tax map (Figure 2) and the subdivision plan (Figure 4), there appears to be a discrepancy in the depiction of the site as it relates to the sliver of land near the intersection of Kopili and Keone Streets. We also note that on Figure 14, the western boundary of the site is not accurately depicted in relation to the State land use districts.

Inasmuch as the Underground Injection Control (UIC) line runs across the site, please include a UIC map.

- 2) In accordance with section 11-200-10(6) and (7), HAR, the impacts of and the alternatives to the proposed project and the proposed mitigation measures should be identified and summarized. The alternatives that are presented are primarily discussed in a negative context relative to the proposed project. Please also include a discussion on the potential benefits of the alternatives, including the extent to which the alternatives could avoid some or all of the short and long-term adverse environmental effects.

We also note that the DEA contains statements that affirm the proposed project's negligible long-term impacts upon the air quality and ambient noise levels of the area. We further note that there are no studies in the DEA on which these conclusions are based. Given the technical and scientific nature of these issues, it has been customary to assess existing conditions and potential impacts and mitigation measures based on studies conducted by experts in the respective fields. In fact, the location, size, and configuration of the project would appear to require that such studies be done. As an alternative, the statements should be affirmed by acknowledged experts in the fields in question or, at a minimum, be comprehensively supported by published studies that have addressed the impacts on air quality and ambient noise levels from developments on Maui that are similar to the proposed project.

We request that the discussion on cumulative and secondary effects (pp. 60-61) reference the existing and proposed developments in the Lahaina area that were examined and include a quantitative analysis documenting the extent to which each development contributes or will contribute to the impacts on the region's infrastructure and services.

We note that the subject property was previously used for sugarcane cultivation. As such, there may be chemicals associated with the sugar industry that remain present in the soils. To the extent that such chemicals could be a threat to public health and the environment, we request that this matter be assessed to determine the potential risks and any remedial action that needs to be taken.

Finally, a discussion on the specific measures that will be undertaken to design and construct structures within the project to conserve natural resources and that are energy efficient should be included as should a discussion on the existing civil defense conditions, potential impacts, and proposed mitigation measures.

- 3) In accordance with section 11-200-10(9), HAR, the findings and reasons supporting the anticipated determination should be provided. In this case, it is anticipated that the proposed project will result in a Finding of No Significant Impact. Based on our review of chapter VII entitled *Findings and Conclusions* (pp. 99-102), we believe that the findings under significance criterion 3 and 5 are inadequate as they merely reflect the respective criterion in the negative.
- 4) In accordance with section 11-200-10(11), HAR, a list of all permits and approvals is required. To the extent possible, the status of each identified approval should be described in terms of the projected submittal dates (i.e., by month/year) of the applications and plans for approval.
- 5) The discussion on the need for the project (p. 13) should be expanded to include specific information on the incomes of Maui residents (e.g., household, per capita, etc.) and the existing and projected housing conditions as they pertain to affordable and market single-family and multi-family units to justify the statements that they are

Ms. Vanessa Medeiros
April 14, 2008
Page 3

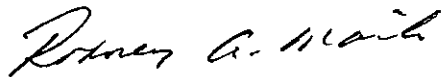
unable to afford the median sales prices of single-family house and lots on Maui and in Lahaina.

- 6) We understand that the subject property on which the project is proposed is currently owned by Kahoma Land LLC. We further understand that West Maui Land Company, Inc., has an agreement to purchase the subject property. The nature and status of the agreement should be clarified.
- 7) We suggest that a list of acronyms and abbreviations be included for ease of reference.
- 8) We understand that a petition for land use district boundary amendment for the proposed project will be filed with the Land Use Commission (LUC) pursuant to section 15-15-97, Hawaii Administrative Rules. Given the expedited nature of this process, the applicant is strongly advised to work closely with the LUC staff prior to submittal of the required documents to ensure the orderly processing of the petition.

We have no further comments to offer at this time. Thank you for the opportunity to comment on the subject DEA.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,



RODNEY A. MAILE
Interim Executive Officer

c: Office of Environmental Quality Control
Kyle Ginoza, Munekiyo & Hiraga, Inc. ✓



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

MARK ALEXANDER ROY

September 12, 2011

Dan Davidson, Executive Officer
State of Hawaii
State Land Use Commission
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comments For Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Davidson:

Thank you for the Land Use Commission's letter dated April 14, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments, in the same order as your letter.

Response to Comment No. 1

We note your comment regarding the maps provided in the Draft Environmental Assessment (EA). The discrepancy in the depiction of the site as it relates to the sliver of land near the intersection of Kopili and Keone Streets on Figure 2 (Tax Map Key Map) and Figure 4 (Site Plan) has been corrected in the Final EA. We also note your comment regarding the western boundary of the site in the State Land Use District Map (Figure 14). Please note that the site boundary is an approximation, based on discernable landmarks from the State Land Use District Map, as parcels are not illustrated on the map.

The underground injection control (UIC) map from the State Department of Health (DOH) website is attached. The UIC line may cross the lower portion of the project site, however no injection wells will be constructed as part of this project. The project will connect to the County of Maui wastewater system.

Response to Comment No. 2

The Alternatives section has been expanded in the Final EA to include a discussion of the potential benefits of the alternatives. Please note, however, that alternatives to the proposed affordable housing project would be a loss of 68 residential units in a housing market where the median single-family home in Lahaina as of June 2011 is \$1,320,000.00, according to statistics published by the Realtors Association of Maui.

We note the comment regarding the need for specialized studies for air quality and ambient noise levels of the area. It is noted that the proposed project site is surrounded by existing residential homes to the south and east. To the north and west of the project site are existing commercial and industrial developments, as well as the Kahoma Stream Flood Control Channel. The analysis on the air quality and ambient noise levels related to the proposed project was done taking into account the existing surrounding development, as well as the scope of the proposed residential project. The proposed project is an infill project, with no unusual circumstances proposed in the construction or operations for the residential subdivision

The major potential short-term air quality impact of the project will occur from the emission of fugitive dust during construction. In addition to regular watering and sprinkling, the following measures will be implemented by the applicant's contractor during construction activities to minimize the proliferation of fugitive dust, in accordance with Hawaii Administrative Rules, Chapter 11-60.1, Air Pollution Control.

Use of wind screens and/or limiting the area that is disturbed at any given time will help to contain fugitive dust emissions. Wind erosion of inactive areas of the site that have been disturbed could be controlled by mulching. Trucks hauling soil material would be covered to mitigate dust. A routine road cleaning and tire washing program would help reduce fugitive dust emissions from trucks/vehicles tracking dirt onto nearby paved roadways. Installation of landscaping early in the construction schedule will also help to control dust.

During the construction phase, emissions from engine exhaust will occur from onsite construction equipment and other construction related vehicles. Increased vehicular emissions due to traffic disruptions by construction equipment or vehicles entering/exiting the site can be mitigated by moving equipment during off-peak hours. Construction related emissions would be limited to the construction period of the project. After the project is completed, carbon monoxide concentrations at the site are anticipated to remain within acceptable air quality standards.

Development of the project will entail typical construction activities including excavation, grading, and the use of construction equipment (e.g. bulldozers, front-end loaders, and diesel-powered trucks). Existing residences to the south may be impacted by

construction noise due to their close proximity to the project site. Noise from such construction activities would be short term and must comply with the State DOH noise regulations. Should noise during the construction phase of the project exceed the maximum allowable levels, a noise permit may be required. This has been noted by the State DOH Maui District Health Office in their early consultation comment letter of August 28, 2007.

A review of relevant noise studies revealed that, for residential exterior environmental noise, a day-night average sound level should not exceed 65 dBA, according to the U.S. Department of Housing and Urban Development and the U.S. Environmental Protection Agency. According to data from the Kapalua Mauka Final Environmental Impact Statement, prepared by PBR Hawaii in November 2002, based on this acoustical standard, traffic noise from Honoapiilani Highway may impact residential properties located within 75 feet of the highway. The distance between the Honoapiilani Highway centerline and the project's property line is over 700 feet. Therefore, based on the sizable distance between the highway and the project site, it is anticipated that traffic noise attributed to Honoapiilani Highway will not adversely impact the proposed project. The applicant will work with the State Department of Transportation (DOT), the DOH, and other agencies in complying with all applicable noise standards.

The Final EA includes discussion on the cumulative and secondary impacts. It is noted that since publication of the Draft EA in 2008, the economic climate has changed such that many projects in the area have not yet moved forward with construction. As such, their development timeframes are uncertain.

There are no indications that chemicals associated with the sugar industry or other agricultural chemicals are present at the subject property. The land has remained fallow since the cessation of sugar cane cultivation at the subject property over 20 years ago.

We note your comment with regards to design and construction measures for the project that will conserve natural resources and energy. A discussion has been added to the Final EA to highlight the project's potential measures. Regarding existing civil defense conditions, there exist a civil defense warning siren on Papalaua Street in proximity to the project site. In consultation with both the State and County Civil defense agencies, neither agency noted a need for an upgrade to the existing warning system.

Response to Comment No. 3

We acknowledge your comment regarding the Findings and Conclusion section of the Draft EA. The findings and conclusions for items 3 and 5 in the "Significance Criteria"

has been expanded in the Final EA to illustrate how the project will not have significant impacts on the environment.

Response to Comment No. 4

We note your comment regarding a complete list of permits and approvals required of the project and projected submittal dates of said permits and approvals. It is noted, however, that WMLC will not submit its application for permits (construction and subdivision related) unless it receives approval for the proposed 201H-38, Hawaii Revised Statutes (HRS) application from the County of Maui and the State Land Use Commission. As such, it would be difficult to estimate the projected submittal and approval time frames for all permits.

Response to Comment No. 5

An expanded discussion on the need for the project has been included in the Final EA. We do note that the socio-economic forecast data prepared for the County of Maui's General Plan Update process reflects a continuing increase in housing demand. By the year 2020, the demand for resident housing units in the West Maui region is projected to increase to 9,687 units and by 2030 to 11,369 units. The project will provide 68 residential units, all affordable, to the supply of housing in West Maui. In June 2011, the median price of a single-family home in Lahaina was \$1,320,000.00.

Response to Comment No. 6

We note your comment regarding the ownership of the land. The WMLC proposes to purchase the subject property from the landowner after the land use entitlements are secured for the project.

Response to Comment No. 7

A list of acronyms and abbreviations used in the Final EA has been included in the document.

Response to Comment No. 8

We concur with your comment regarding coordination between your office and the project team regarding the expedited processing of the 201H-38, HRS application. Following the review of the 201H-38, HRS application for affordable housing by the Maui County Council, the applicant will contact your office to schedule a meeting with staff to discuss processing of the petition for land use district boundary amendment.

Dan Davidson, Executive Director
September 12, 2011
Page 5

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA.

Very truly yours,



Erin Mukai, Associate

EM:tn

Attachment

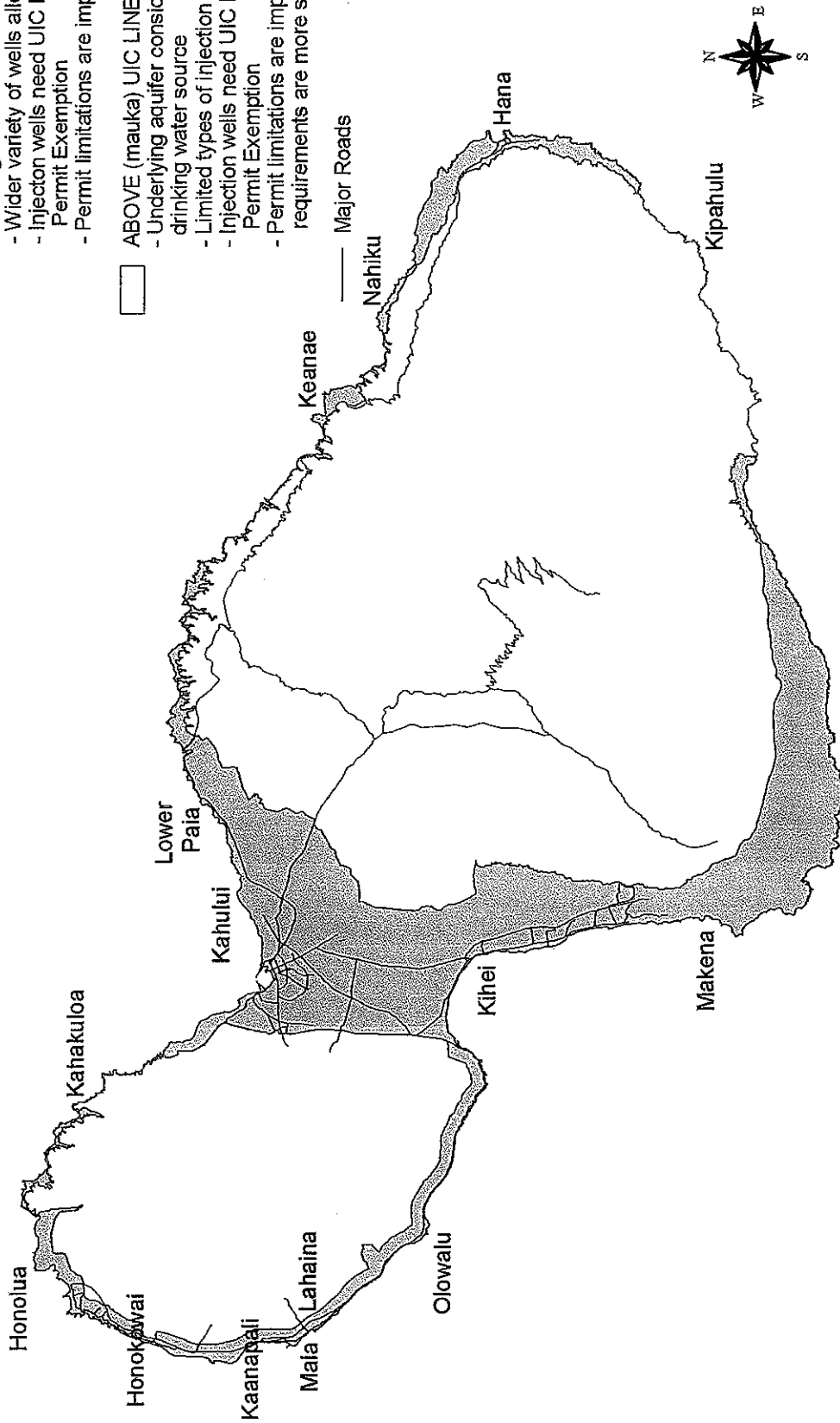
Cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

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Island of Maui Underground Injection Control Areas

- BELOW (makai) UIC LINE**
 - Underlying aquifer not considered drinking water source
 - Wider variety of wells allowed
 - Injection wells need UIC Permit or Permit Exemption
 - Permit limitations are imposed

- ABOVE (mauka) UIC LINE**
 - Underlying aquifer considered a drinking water source
 - Limited types of injection wells allowed
 - Injection wells need UIC Permit or Permit Exemption
 - Permit limitations are imposed and requirements are more stringent





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

APR 21 2008
BRENNON T. MORIOKA
DIRECTOR

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

IN REPLY REFER TO:

STP 8.2842

April 16, 2008

Ms. Vanessa Medeiros
Department of Housing and Human Concerns
County of Maui
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

Subject: Draft Environmental Assessment
Kahoma Residential Subdivision
West Maui Land Company, Inc.
TMK: (2) 4-5-010:005

The Department of Transportation (DOT) submits the following comments on the subject project as presented in the Draft Environmental Assessment (Draft EA):

1. The project will impact State highways by its contribution of traffic on to roads that connect to the highways. The determination of this impact, as discussed in the traffic impact analysis report (TIAR), Appendix E of the Draft EA, requires clarification and revision of the TIAR.
2. The items below represent the evaluation of the TIAR by the DOT Highways Division:
 - a. The TIAR should be revised to comprehensively address the potential impacts of the proposed Mill Street improvements on the surrounding circulation system. The Draft EA states that the subject applicant will improve Mill Street between the project site and Keawe Street. The TIAR, however, does not specifically identify what assumptions are being made regarding the surrounding roadway system and does not clearly describe the assumptions that were used to determine the distribution and assignment of traffic on the surrounding streets (other than on Honoapiilani Highway).
 - b. Clarification is needed on whether the TIAR is based on the presumption that Mill Street will be improved between the project site and Keawe Street or between Lahainaluna Road and Mill Street. Since the TIAR emphasizes the Mill Street extension mitigating project generated impacts, the TIAR should include an analysis of the proposed intersection of Lahainaluna Road with the Mill Street extension. The

proximity of the Honoapiilani Highway/Lahainaluna Road intersection to a future Lahainaluna Road/Mill Street intersection raises operational concerns as well as the potential for undesirable congestion on Lahainaluna Road and at the Honoapiilani/Lahainaluna Road intersection. As such, the TIAR should include intersection configuration, turn pockets, and taper lengths between these two intersections, along with capacity analyses and potential impacts at both the Honoapiilani Highway/Lahainaluna Road intersection and Lahainaluna Road/Mill Street intersection.

- c. The DOT questions the assumed distribution of project-generated traffic presented in the TIAR as no traffic from the project site being distributed toward Lahaina town (or toward the three schools along Lahainaluna Road). As an affordable housing project, this development could be viewed as a step toward fulfilling the existing housing need for employees in the area. The distribution of project traffic, therefore, will not mirror existing traffic patterns but could reflect higher directional flows to and from major employment centers in the area. The TIAR should also include a discussion of the positive benefits to be gained by providing affordable housing in West Maui, thus reducing the demand for travel to/from Central and South Maui.

Occupancy arrangements for the project, whether for residents working in West Maui or for occupants who may work elsewhere on Maui, influences traffic assignment. The TIAR should include a figure that clearly identifies the assumed distribution of project-generated trips as well as a figure that identifies the assignment of these project-generated trips on the surrounding roadway system and not just on Honoapiilani Highway. The reasonableness of the traffic assignment assumptions can be resolved with more and sufficient documentation of the planned or anticipated conditions for resident occupancy.

- d. The TIAR should also include analyses and discussion of the Honoapiilani Highway/Lahainaluna Road intersection during the afternoon peak hour, when the students from the three schools that are along Lahainaluna Road are dismissed. This intersection experiences two afternoon peak periods, with an extremely heavy peak condition occurring at the end of the school day for the elementary, middle, and high schools on Lahainaluna Road. Extremely heavy queuing of westbound right-turn vehicles on Lahainaluna Road at Honoapiilani Highway has been observed during this afternoon school peak period. The TIAR analyses should, therefore, again include a discussion of the potential impacts to both the Honoapiilani Highway/Lahainaluna Road intersection and Lahainaluna Road/Mill Street intersection.

- e. The TIAR should be revised to include the overall levels-of-service at signalized intersections along with the Level of Service (LOS) of individual movements. Further, the TIAR should more clearly identify those intersections that are anticipated to exceed LOS E and the mitigation measures needed to improve operations to LOS D or better.
 - f. Information on other potential developments in the area, as they relate to the growth in background traffic, should be presented in tabular format.
 - g. The discussion on trip generation, distribution, and assignment of project-generated traffic should follow future year without project conditions rather than precede it. This change in the TIAR would make the presentation follow the standard, traditional report format.
3. Discussion and resolution of the foregoing concerns with the DOT Highways Division can be arranged by contacting Mr. Ken Tatsuguchi of the Highways Planning Branch in Honolulu at 587-1830.

The DOT appreciates the opportunity to provide comments.

Very truly yours,



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

c: Mr. Kyle Ginoza, Munekiyo & Hiraga, Inc.



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

MARK ALEXANDER ROY

September 12, 2011

Glenn Okimoto, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comments for Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii (STP 8.2842)

Dear Mr. Okimoto:

Thank you for your department's letter dated April 16, 2008, providing us with your comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments, provided by the project's traffic consultant.

1. As indicated on page 14 of the traffic impact analysis report (TIAR), trips were distributed between the two (2) project access connections, to the old cane haul road on the north edge of the project and to Lui Street on the south edge of the project, based upon relative proximity of the planned dwelling units to each connection. These trips were then routed to Honoapiilani Highway utilizing the most convenient routes along the adjacent local roadways. Those trips distributed to the southern access connection were assumed to utilize Lui and Kalena Street and the surrounding local roadways to reach Lahainaluna Road and Honoapiilani Highway. Those trips distributed to the northern access connection were assumed to utilize the old cane haul road to reach Keawe Street and Honoapiilani Highway.
2. The TIAR is based upon the assumption that the old cane haul road will be improved between the project site and Keawe Street. All vehicles routed to Lahainaluna Road are assumed to access that roadway via Lui and Kalena Streets and the surrounding network of local roadways. As such, the TIAR does not include analysis of a future extension of the old cane haul road (Mill Street to Lahainaluna Road).

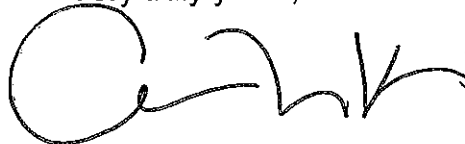
3. Although there are many philosophies regarding the distribution of trips, the methodology utilized for the TIAR was selected to represent a worst-case scenario. Turning movements at an intersection require additional time to execute their movement in comparison to through movements. As such, the site-generated trips were assigned to turning movements at the subject intersections to assess the worst-case scenario for traffic operations. The distribution of trips utilized for the TIAR is shown in Figure 4 of the study. It should be noted that the trip generation for the project is expected to be relatively low during the peak periods with a total (entering and exiting) of 58 trips and 75 trips during the AM and PM peak periods, respectively.
4. The data collection periods were determined based upon the available State DOT traffic counts at the intersection of Honoapiilani Highway and Lahainaluna Road which indicate that the peak periods at that intersection occur around 7:00 AM to 8:00 AM in the morning and 3:30 PM and 4:30 PM during the afternoon. The available data does indicate an earlier peak around 2:00 PM that corresponds with the ending of the school day. However, the volumes during this time period are lower than during the PM commuter peak period. As such, the PM commuter peak period was selected for analyses to present the worst-case scenario. As noted previously, the project does not include a future extension of the cane haul road between Keawe Street and Lahainaluna Road. As such, the future intersection at Lahainaluna Road was not analyzed. However, the traffic consultant does note that the construction of Phase 1A of the Lahaina Bypass Road and extension of Keawe Street are expected to alleviate existing traffic conditions along Lahainaluna Road due to the provision of an alternate route mauka of the highway. In addition, Year 2010 existing conditions at the intersection of Honoapiilani Highway with Lahainaluna Road were compared with the baseline conditions from the 2007 TIAR to verify if the previous analyses were still valid. The comparison indicated that Year 2010 traffic volumes were similar to or less than those utilized for the 2007 TIAR. As such, the proposed Kahoma Residential Development is not expected to have a significant impact on traffic operations in the vicinity and the recommendations included in the 2007 TIAR are still applicable to this project.
5. The purpose of the TIAR is to identify project-related impacts and provide mitigative measures to alleviate those impacts. As previously stated, it should be noted that the trip generation for the project is expected to be relatively low during the peak periods. As such, under with project conditions, the traffic movements at the subject intersections are expected to operate at levels-of-service similar to without project conditions. However, the TIAR does acknowledge that some of the traffic movements may operate at low levels-of-

service without the proposed project and provides discussion of the planned Keawe Street extension that may alleviate these conditions.

6. Although not in tabular form, other potential developments in the area, as they relate to the growth in background traffic, was included in the 2007 TIAR on pages 16 through 18.
7. In preparing the TIAR, the project details and overall characteristics including trip generation, distribution, and assignment are included up front to provide a comprehensive discussion of the project without a fixed frame of reference. The following sections discussing without and with project conditions then provide the appropriate frame of reference for the project. In addition, the placement of the without and with project scenarios in adjacent sections of the report allows for a direct comparison of the two scenarios.

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA. Should you have any additional questions on the project, please feel free to contact me at (808)244-2015.

Very truly yours,



Erin Mukai
Associate

EM:tn

cc: Jo-Ann Ridao, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Keith Niiya, Austin, Tsutsumi & Associates, Inc.

K:\DATA\Kahoma\EmpeeHsg\SDOTresponse.llr.doc

APR 22 2008

LINDA LINGLE
GOVERNOR



ORLANDO "DAN" DAVIDSON
EXECUTIVE DIRECTOR

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

IN REPLY REFER TO:

08:PEO/49

April 18, 2008

Ms. Vanessa Medeiros, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

Re: Draft Environmental Assessment for the Proposed Kahoma Residential
Subdivision, Lahaina, Maui, TMK: (2) 4-5-010:005

The proposed project will provide 88 affordable housing units in compliance with the Maui Residential Workforce Housing Policy. It appears the project is consistent with the affordable housing policy set forth in the Hawaii State Plan of increasing homeownership and rental opportunities and choices in terms of quality, location, cost densities, style and size of housing.

Thank you for the opportunity to comment.

Sincerely,

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

Orlando "Dan" Davidson
Executive Director

c: ✓ Kyle Ginoza, Munekiyo & Hiraga, Inc.



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

MARK ALEXANDER ROY

September 12, 2011

Karen Seddon, Executive Director
Hawaii Housing Finance and Development
Corporation
677 Queen Street
Honolulu, Hawaii 96813

SUBJECT: Response to Draft Environmental Assessment and Preliminary
201H-38, Hawaii Revised Statutes, Application Comment Letter
Regarding Proposed Kahoma Residential Subdivision, Located at
TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Seddon:

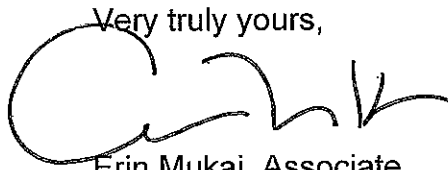
Thank you for your department's letter dated April 18, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc., we would like to offer the following information in response to the comment.

We note that since publication of the Draft Environmental Assessment (EA), the project plans have been revised to provide a total of 68 affordable single-family units.

We also note your department's comment that the project is consistent with the affordable housing policy set forth in the Hawaii State Plan.

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA. Should you have any additional questions on the project, please feel free to contact me at 244-2015.

Very truly yours,



Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
K:\DATA\Kahoma\EmpeeHsg\HHFDCresponse.ltr.doc

APR 22 2008

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 18, 2008

County of Maui
Department of Housing & Human Concerns
200 South High Street Suite 400
Wailuku, Hawaii 96793-2155

Attention: Ms. Vanessa Medeiros

Gentlemen:

Subject: Draft Environmental Assessment for proposed Kahoma Residential Subdivision,
Lahaina, Maui, Tax Map Key: (2) 4-5-10:5

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

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

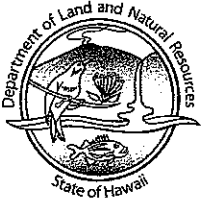
Sincerely,

A handwritten signature in black ink, appearing to read "Morris M. Atta".

for Morris M. Atta
Administrator

Cc: Munekiyo & Hiraga, Inc.

08 MAR 24 AM 10:19



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 20, 2008

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 – District

FROM: *for* Morris M. Atta *Charlene*

SUBJECT: Draft Environmental Assessment for Proposed Kahoma Residential Subdivision

LOCATION: Lahaina, Maui, TMK: (2) 4-5-10:5

APPLICANT: Munekiyo & Hiraga, Inc. on behalf West Maui Land Co., 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 15, 2008.

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: *Carl T. Heinen*

Date: 4/11/08

RECEIVED
 APR 15 2008
 ENGINEERING DIVISION

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Morris Atta
Ref.: DEA for Proposed Kahoma Residential Subdivision
Maui.001

COMMENTS

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

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

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

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

- () Additional Comments: _____

- () Other: _____

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

Signed: 
ERIC T. HIRANO, CHIEF ENGINEER

Date: 4/1/08

LINDA LINGLE
GOVERNOR OF HAWAII



LAURA H. THELEN
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 29, 2008

RECEIVED
2008 MAY -1 PM 3:26
DHL-DIRECTOR'S OFFICE
COUNTY OF MAUI HI

County of Maui
Department of housing & Human Concerns
200 South High Street, Suite 400
Wailuku, HI 96793-2155

Attention: Ms. Vanessa Medeiros

Dear Ms. Medeiros:

SUBJECT: Draft Environmental Assessment for proposed Kahoma Residential
Subdivision, Lahaina, Maui; TMK: (2) 4-5-10:5

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

Other than the comments from the Engineering Division previously sent you, enclosed are comments from the Commission on Water Resources Management on the subject matter. Should you have any questions, please feel free to call my office at 587-0433. Thank you.

Sincerely,

Ja Morris M. Atta
Acting Administrator

Enclosure



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 20, 2008

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 - District

FROM: *for* Morris M. Atta *Maule*
SUBJECT: Draft Environmental Assessment for Proposed Kahoma Residential Subdivision
LOCATION: Lahaina, Maui, TMK: (2) 4-5-10:5
APPLICANT: Munekiyo & Hiraga, Inc. on behalf West Maui Land Co., 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 15, 2008.

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

Attachments

- () We have no objections.
- () We have no comments.
- () Comments are attached.

Signed: _____
Date: _____

RECEIVED
08 MAR 24 09:52
COMMISSION ON WATER
RESOURCE MANAGEMENT



RECEIVED
LAND DIVISION

LAURA H. THIELEN
CHAIRPERSON
MEREDITH J. CHING
JAMES A. FRAZIER
NEAL S. FUJWARA
CHIYOME L. FUKINO, M.D.
DONNA FAY K. KYOSAKI, P.E.
LAWRENCE H. MIKE, M.D., J.D.
KEN C. KAWAHARA, P.E.
DEPUTY DIRECTOR

2008 APR 25 P 3:55

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96821
NATURAL RESOURCES
STATE OF HAWAII

April 22, 2008

TO: Morris Atta, Acting Administrator
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Kahoma Residential Subdivision (63 SF/25 MF), Maui

FILE NO.: TMK: (2) 4-5-10:5

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at www.hawaii.gov/dlnr/cwrm/forms.htm.

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump-Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.

OTHER:

The project seems to meet the county guidelines for projected water demand. It reflects an awareness of limitations on potable water for irrigation. Continued use of surface water is subject to potential limitations due to determination of stream flow standards for the source streams.

If there are any questions, please contact Charley Ice at 587-0261.



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

MARK ALEXANDER ROY

September 12, 2011

Russel Y. Tsuji, Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38 Hawaii Revised Statutes Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Tsuji:

Thank you for your Department's letter dated April 18, 2008, providing us with comments from the Engineering Division on the subject project. We note that since receiving your letter on September 25, 2009, the Flood Designation for the project site was modified to Zone X.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

K:\DATA\Kahoma\EmpeeHsg\DLNRLandresponse.ltr.doc



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

MARK ALEXANDER ROY

September 12, 2011

William M. Tam, Interim Deputy Director
State of Hawaii
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

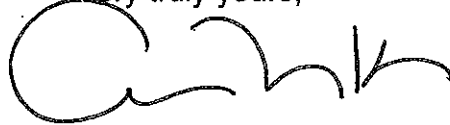
Dear Mr. Tam:

Thank you for the Commission's memorandum dated April 22, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments. We note the comment regarding coordination with the County of Maui's Department of Water Supply (DWS) and Department of Planning for inclusion of the project into the Water Use and Development Plan. Please note that both the DWS and Planning Department have been informed about the proposed Kahoma Residential affordable housing project through various meetings and correspondences with the departments. It is our understanding that the project has been included in the Planning Department's future projects list. We also note that since receiving your letter, the County of Maui approved Ordinance No. 3818 amending Section 14.12.030 of the Maui County Code relating to exemptions from the County's water availability policy. This Ordinance exempts "Residential development projects with one hundred percent affordable housing units and are within the service area of the department's Central or West Maui water system". As such, the project is exempt from providing a long-term reliable supply of water. Lastly, we note the comment regarding the limitations of potable water use for irrigation. WMLC will incorporate the use of drought tolerant plants to reduce the amount of water utilized for irrigation in the Kahoma Residential subdivision.

William M. Tam, Interim Deputy Director
September 12, 2011
Page 2

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,

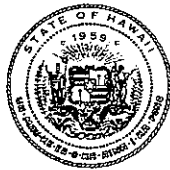
A handwritten signature in black ink, appearing to read 'Erin Mukai', written in a cursive style.

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, Tanaka Engineers, Inc.

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STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

April 21, 2008

Ms. Vanessa Medeiros
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

Subject: Draft Environmental Assessment (DEA) for Proposed
Kahoma Subdivision, Lahaina, Maui, TMK: (2) 4-5-010:005

The Department of Education (DOE) has reviewed the DEA for the proposed Kahoma Residential Subdivision. We have the following comments:

Page 46, Section 4. Educational Facilities, a. Existing Conditions: Please update your figures to reflect the following 2007 update of actual and projected enrollments at DOE schools. Our enrollment numbers and future projections have changed since the data provided to you in 2006.

	ACTUAL ENROLLMENT		CAPACITY	PROJECTED ENROLLMENT				
	2006-07	2007-08		2006-07	2008-09	2009-10	2010-11	2011-12
LAHAINA COMPLEX								
KAMEHAMEHA III	738	701	588	724	746	760	765	778
LAHAINA INT	584	615	545	598	605	608	611	615
LAHAINALUNA HI	984	996	756	979	976	974	972	970
NAHIENAENA	625	624	576	576	580	580	577	580

Page 46, b. Potential Impacts and Proposed Mitigation Measures: As we mentioned in our August 10, 2007 letter, the 2007 Legislature established school impact fees. DOE is in the process of implementing that law, which permits the DOE to impose impact fees on developers, outside of the county planning review process. A 201-H exemption does not apply.

Ms. Vanessa Medeiros

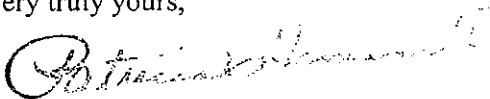
Page 2

April 21, 2008

Under the new law, we believe the project will be required to pay an impact fee. We currently do not know the amount of the fee per residential unit. The DOE looks forward to meeting with the developers of the project to discuss an agreement to mitigate the impacts of enrollment growth generated by this project.

Thank you for the opportunity to review this document. If you have any questions, please call George Casen of our Facilities Development Branch at (808) 377-8308.

Very truly yours,



Patricia Hamamoto
Superintendent

PH:jmb

- c: Randolph Moore, Assistant Superintendent, OSFSS
- Duane Kashiwai, Public Works Administrator, FDB
- Ron Okamura, CAS, Hana/Lahaina/Lanai/Molokai Complex Areas
- ✓ Kyle Ginoza, Munekiyo & Hiraga, Inc.



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

MARK ALEXANDER ROY

September 12, 2011

Kathryn Matayoshi, Superintendent
State of Hawaii
Department of Education
P.O. Box 2360
Honolulu, Hawaii 96813-5097

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

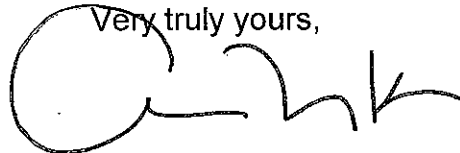
Dear Ms. Matayoshi:

Thank you for your department's letter dated April 21, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments.

1. Thank you for the enrollment information for the West Maui public schools. Since receiving your letter in 2008, we have updated our table in the Final Environmental Assessment (EA) to reflect new figures.
2. We note your comment regarding the passage by the State Legislature of the school impact fees. Please note that WMLC will be filing a Section 201H-38, Hawaii Revised Statutes (HRS), petition for a District Boundary Amendment with the State Land Use Commission (SLUC). An exemption from the educational fees will be sought through this process as one hundred percent (100%) of the units will meet the affordable housing pricing criteria based on Maui County's Residential Workforce Housing Policy. It is our understanding that the SLUC has previously provided exemptions from the educational fees for other projects to support the development of affordable housing.

Kathryn Matayoshi, Superintendent
September 12, 2011
Page 2

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA.

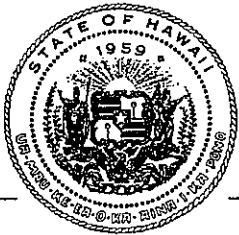
Very truly yours,

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

K:\DATA\Kahoma\Empeehsg\DOEresponse.ltr.doc

APR 25 2008



**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-12096

April 22, 2008

Ms. Vanessa Medeiros
Department of Housing and Human Concerns
County of Maui
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

Subject: West Maui Land Company, Inc.
Proposed Kahoma Residential Subdivision Draft Environmental Assessment (EA)
TMK: (2) 4-5-010:005
Lahaina, Maui, Hawaii

Thank you for the opportunity to submit comments on the draft EA, for the above referenced proposal to reclassify approximately 16.7 acres of land from the State Agricultural District to the State Urban District in Lahaina, Maui, Hawaii. The subject project proposes the development of a mix of approximately 88 affordable single-family and multi-family residential units, roadways, park, and open space. The applicant proposes to file a Section 201H-38 petition with the State Land Use Commission (LUC). LUC is required to "fast track" and approve or deny the petition within 45 days of acceptance as a proper filing.

We note that the project site is designated "Open Space" by the West Maui Community Plan, and the applicant will seek an exemption via the "fast track" process.

We offer the following comments and general observations related to topic areas of interest to the State:

1. **Transportation.** The final EA should include information on alternative modes of transportation that could serve the project and project residents, such as the public bus system, (i.e., identification of bus stops or street cut-out), and bike paths incorporated in regional transportation plans.
2. **Water.** The final EA should include a discussion of the water conservation measures such as use of brackish and/or reclaimed water sources for dust control and for all non-potable water uses during various phases of construction;

reduction of single-pass cooling systems, utilization of low-flow fixtures/devices; use of climate-adapted plants; and limitation of irrigated turf. In addition, please discuss coordination efforts and agreements reached with the Maui Department of Water Supply and if necessary, the State Commission on Water Resource Management.

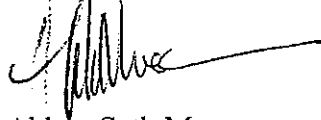
3. **Wastewater.** The final EA should include identification of the selected wastewater disposal option and mitigation measures. The first option identified in the draft EA requires approval by the Department of Environmental Management to ensure that there is adequate transmission, treatment, and disposal capacity to serve the project. The second option requires additional approval from the U.S. Army Corps of Engineers due to the crossing of Kahoma Stream Flood Control Channel. Both options require easements to cross beneath private properties.
4. **Drainage.** The final EA should include a discussion of low impact development techniques that can be incorporated into the building and site design to improve stormwater management. The Hawaii Coastal Zone Management Program's publication, *Low Impact Development: A Practitioner's Guide* (2006), provides examples of design techniques that offer alternatives to conventional drainage plans. Impacts to the Kahoma Stream Flood Control Channel should be addressed.
5. **Other comments.**
 - a. Page 57, Solid Waste Disposal: The final EA should include a discussion of the project's mitigation measures to reduce, reuse, or recycle solid waste in order to minimize impacts to County landfill facilities.
 - b. Page 60, Electrical, Telephone, and Cable Television Services: The final EA should incorporate an exploration of measures to reduce energy demand generated by the project. This section should identify some of the demand side management measures for energy conservation.

Finally, the Office recommends using the final EA process as a means to incorporate and use sustainable design and development practices in the proposed project. The Office of Environmental Quality Control's (OEQC), *Guidelines for Sustainable Building Design in Hawai'i*, and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) programs for new construction, and its pilot program for neighborhood development, offer guidelines and checklists for this purpose. The adoption of sustainable building and development practices has long-term environmental, social, and economic benefits to Hawaii's residents and communities.

Ms. Venessa Medeiros
Page 3
April 22, 2008

Thank you again for the opportunity to review the draft EA and offer comments. The Office of Planning looks forward to receiving the Petitioner's final EA. If you have any questions, please call Debra Mendes in the Land Use Division at 587-2840.

Sincerely,

A handwritten signature in black ink, appearing to read "Abbey Seth Mayer", with a long horizontal flourish extending to the right.

Abbey Seth Mayer
Director

c: ✓ Mr. Kyle Ginoza, Munekiyo & Hiraga, Inc.
Mr. Rodney Maile, State Land Use Commission
Ms. Katherine Kealoha, OEQC



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

MARK ALEXANDER ROY

September 12, 2011

Jesse Souki, Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii (Reference No. P-12096)

Dear Mr. Souki:

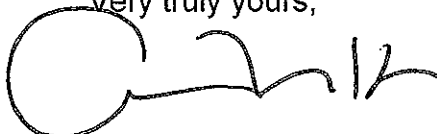
Thank you for your office's letter dated April 22, 2008, providing us with your comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments.

1. We note your comment regarding the inclusion of a discussion on alternative modes of transportation that could serve the project's residents. The project presents an opportunity to promote non-automobile travel for recreational and household pursuits. Accommodations to support public bus transportation services will be considered to facilitate an alternative travel mode. Also, recreational needs will be served by the addition of an active park as part of the project. A network of bicycle lanes and walking paths will connect areas and promote recreational activity and also serve to reduce residents' reliance on automobiles.
2. Water conservation measures for the project are included in the "Water" section of the Draft Environmental Assessment (EA) and Final EA. During the development of the construction plans for the project, the applicant will coordinate with the Department of Water Supply (DWS) to specify an acceptable water conservation program. In addition, the applicant will coordinate with the DWS and the Commission on Water Resource Management, as applicable, to include the project on the County of Maui Water Use and Development Plan.

3. The project will connect to the County of Maui's wastewater system via the old cane haul road to Keawe Street.
4. The applicant has reviewed the possible incorporation of low impact development techniques for the project and this information is found in the Final EA. The project's civil engineer is coordinating review of the proposed drainage plans with the various Federal, State and County agencies. Potential impacts to the Kahoma Stream Flood Control Channel are not anticipated to be significant as the post-development increase in surface runoff will be retained onsite.
5. We note your comment regarding the inclusion of mitigation measures to reduce, reuse or recycle solid waste during construction. A construction waste disposal, recycling, and reuse plan will be included in the project's construction plans.
6. The project will review potential alternatives for reducing energy demands of the subdivision. The project's electrical consultant, once selected, will meet with Maui Electric Company, Ltd. personnel to examine potential energy conservation measures.
7. We note your comment regarding the incorporation of sustainable design and development practices for the proposed affordable housing subdivision. The Final EA has included a discussion on sustainable design measures.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS) review process. A copy of your letter will be included in the Final EA.

Very truly yours,



Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, Tanaka Engineers, Inc.

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PHONE (808) 594-1888

FAX (808) 594-1865



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

HRD08/3169B

April 22, 2008

Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

RE: Draft Environmental Assessment (DEA) for Proposed Kahoma Residential Subdivision, Lahaina, Maui, Hawai'i, TMK (2) 4-5-010:005.

Dear Mr. Ginoza,

The Office of Hawaiian Affairs (OHA) is in receipt of your request for comments concerning the DEA for the proposed Kahoma Residential Subdivision in Lahaina on Maui. We offer the following comments:

OHA understands that this proposed project intends for all the units to be priced in the affordable category as defined in Table 2 on page 14 of the DEA. As such, OHA applauds the intent of this proposed project in trying to fulfill this important need. OHA is a bit concerned, however, by the description on page 10 of the DEA which states:

At this point and time, based on the project's location proximate to established residential subdivisions, it is anticipated that the lots will be priced to be affordable to individuals and families in the 140 percent to 160 percent of the household median income range, assuming affordable lot only prices are 50 percent of the affordable 4-bedroom house and lot prices.¹ (emphasis added)

¹ OHA also points out that the affordability aspect of the proposed project is noticeably absent from section b. on page 19 of the DEA.

OHA had understood that this project was being proposed specifically to address the need for affordable housing in the Lahaina area and would encourage the applicant to provide assurances that this is indeed the intent.

OHA notes that ensuring that all units of this project are made to be affordable as proposed is particularly important in part due to the fact that the applicant intends to file a HRS section 201H-38 application for a total of eight different exemptions for the entire project. While OHA is generally supportive of this proposed project due to its affordability, we are critical of steps which allow applicants to bypass legal precedents and safeguards that this State struggled so hard to put in place. In particular, exemptions from zoning and community plan amendments as well as agency permitting process silences the community's voice and eliminates the expertise that these agencies were created to advocate for. OHA also recognizes that regulatory exemptions can create uncomfortable situations for applicants as well as recent environmental exemptions have so well demonstrated. Therefore, we urge that Maui City Council be particularly diligent when dealing with this part of the proposed project.

Because the DEA recognizes the presence of Newell's shearwater seabirds, all outdoor lights should be fully shaded or full cut-off styles. Uplighting should be avoided. Every effort should be made to avoid lighting situations where light glare projects upwards or laterally. Large, high-intensity floodlights located on building tops or poles should also be avoided. Use of amber colored or other color (such as blue or green) filters or bulbs should be used to assist in decreasing risk of seabird attraction. For the same reasons, OHA also recommends the use of motion detection-activated lights to prevent lights from being on for extended periods of time. Also, the painting of buildings and other facilities should be in earth tones; white or reflecting colors are to be avoided.

OHA was confused by section b. of the DEA on page 35 which states:

In general, the proposed project will employ appropriate management and coordination practices to ensure that impacts to cultural values and practices are appropriately mitigated.

OHA's confusion stems from the fact that the DEA states on page 34 that adverse cultural impacts are not expected to arise from the proposed action. We seek clarification as to whether or not cultural impacts are expected from this proposed project and if so, what specifically are the appropriate management and coordination practices that will be employed to mitigate these adverse effects.

OHA also notes that the Maui County Department of Housing and Human Concerns, as a county agency, is mandated by the Hawai'i Constitution article XII, section 7, "to preserve and protect customary and traditional practices of Native Hawaiians." (Ka Pa'akai O Ka 'Aina v. Land Use Comm'n, 94 Haw. 31, 45 (2000)). Under Ka Pa'akai, to uphold the mandate of article XII, section 7, agencies are required, at a minimum, to determine "(1) the identity and scope of 'valued cultural, historical, or natural resources' in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area; (2) the extent to which those resources -- including traditional and customary native Hawaiian rights -- will be affected or impaired by the proposed action; and (3) the feasible action, if any, to be taken by the [agency] to reasonably protect native Hawaiian rights if they are found to exist."² If the Maui County Department of Housing and Human Concerns concludes that there is no practice of traditional and customary rights in the project area, that conclusion must be clearly supported.

OHA also asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division (SHPD/DLNR) and OHA shall be contacted.

County of Maui Ordinance No. 3502 which requires that a long-term reliable supply of water be verified. OHA realizes that this verification must be made at the time of subdivision approval; however, an environmental review should not be segmented and particularly so when it deals with the fundamental issue of water. By the applicant already committing itself to this project without first meeting the burden presented by Ordinance No. 3502, the very intent of the law is being skirted.

As such, OHA seeks clarification regarding the water source and water availability. We realize that the applicant intends to bypass both Title 18 (subdivisions) and Title 19 (Zoning) of the Maui County Code as mentioned above; however, OHA requests assurances that Ordinance No. 3502 will still be complied with irregardless of whether or not the applicant intends to apply for subdivision approval.³ The applicant has failed to provide enough information regarding the supply of water for this proposed project in this DEA. Saying that, "The applicant's discussions with the department (of Water Supply) are ongoing" is not enough.

² Ka Pa'akai, 94 Haw. at 47.

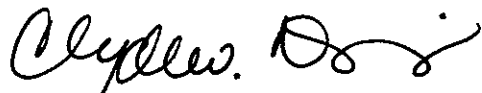
³ This is also a good example of how exemptions can present potential problems for all involved.

Kyle Ginoza
Munekiyo & Hiraga, Inc.
April 22, 2008
Page 4

OHA does note that the project site does include lands which have been defined as important agricultural lands by the State Department of Agriculture and that the soils also classified as highly productive by the University of Hawai'i . The potential removal of approximately 16.7 acres of highly rated and historically productive agricultural lands concerns OHA. Our concerns are echoed by the myriad of laws and legislation supporting a strong agricultural economic base and retention of those lands primarily in agricultural pursuits in the specific project area. (see Hawaii Revised Statutes, Section 205, and the State Coastal Zone Management Act, among many other citations) OHA stresses that only accessory agribusiness activities which meet the above intent are to be permitted in this area. OHA's concern regarding this issue would be heightened should the project be exempted from zoning processes.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Grant Arnold, Policy Advocate-Preservation, Native Rights, Land and Culture, at (808) 594-0263 or granta@oha.org.

Aloha,



Clyde W. Nāmu'o
Administrator

C: Thelma Shimaoka
Community Resource Coordinator
OHA – Maui Office
140 Hoohana St., Ste. 206
Kahului, HI 96732

C: Vanessa Medeiros
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawai'i 96793



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

MARK ALEXANDER ROY

September 12, 2011

Clyde Namu`o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Namu`o:

Thank you for your letter of April 22, 2008, providing comments on the subject project. We offer the following information to address the comments raised.

1. Affordability

The text in the Draft Environmental Assessment (EA) describing affordability parameters reflected the stage of planning for the project. This language has been clarified in the Final EA. As you note, the applicant is committed to providing a fully affordable project which will meet the needs of not only Lahaina residents but also Maui Island residents.

2. Section 201H-38, Hawaii Revised Statutes (HRS) Exemptions

The Section 201H-38, HRS process is being utilized to ensure timely delivery of affordable units without compromising public health, safety and welfare. At the County level, the appropriateness and applicability of the 201H-38, HRS process for housing projects are carefully considered to ensure that exemptions being requested are reasonable and feasible within the context of the project's environs. In this regard, the applicant has worked closely with County and State agencies and will coordinate with the County Council to ensure that exemptions being sought will serve the best interest of advancing the provision of affordable housing on the island.

3. Outdoor Lighting and Building Colors

Outdoor lighting will be designed to conform with the County's Outdoor Lighting Ordinance (Chapter 20.35, Maui County Code (MCC)) to ensure that effects on the night visual environment are minimized.

4. Cultural Impacts

Adverse impacts to cultural resources and practices are not anticipated from the proposed action. Management and coordination measures referenced in the Draft EA pertain to actions which may be required should unanticipated cultural finds be discovered during the construction phase of project development. These measures include work stoppage if significant cultural deposits or human skeletal remains are encountered and contacting the State Historic Preservation Division and the Office of Hawaiian Affairs. In this connection, the Department of Housing and Human Concerns, as approving agency for the EA document, understands its role and responsibilities in terms of preservation and protection of customary and traditional practices of Native Hawaiians.

5. Water Availability

Since receiving your letter, the County of Maui approved Ordinance No. 3818 amending Section 14.12.030 of the Maui County Code relating to exemptions from the County's water availability policy. This Ordinance exempts "Residential development projects with one hundred percent affordable housing units and are within the service area of the department's central or west Maui water system". As such, the project is exempt from providing a long term reliable supply of water.

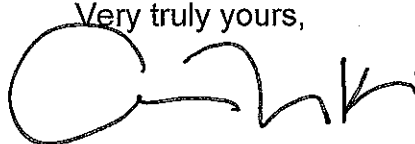
6. Agricultural Potential

The use of the subject property for affordable housing use is deemed appropriate given the surrounding existing and planned urban uses in the project vicinity. Bordering the property along its northern extent is the Kahoma Stream Flood Control Channel. Single-family residential use borders the project site to the south and east. Thus, while agricultural pursuit is an important public policy consideration, the applicant believes that this location provides an ideal infill setting to meet an equally important public policy need in affordable housing.

Clyde Nāmu`o, Administrator
September 12, 2011
Page 3

We very much appreciate the comments provided. Thank you again for your participation in the Chapter 343, HRS, review process. A copy of your letter will be included in the Final EA.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Erin Mukai', with a large initial 'E' and a stylized 'M'.

Erin Mukai, Associate

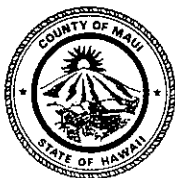
EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

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APR 0 2 2008

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 27, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga Inc.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Subject: Proposed Kahoma Residential Subdivision, Lahaina ,Maui

Dear Mr. Ginoza,

Thank you for the opportunity to comment on this project. We have reviewed the project and have no comments to make at this time.

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

Sincerely,

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

Don Medeiros
Director



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

MARK ALEXANDER ROY

September 12, 2011

JoAnne Johnson Winer, Director
County of Maui
Department of Transportation
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Johnson Winer:

Thank you for your department's letter dated March 27, 2008 providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc., we note that your department has no comments at this time.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,

Erin Mukai
Associate

EM:tn

Cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

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APR 11 2008

RALPH NAGAMINE, L.S., P.E.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division



CHARMAINE TAVARES
Mayor

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

MICHAEL M. MIYAMOTO
Deputy Director

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

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

April 8, 2008

Mr. Kyle Ginoza, Project Manager
MUNEKIYO & HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza :

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND
PRELIMINARY 201H REVIEW FOR PROPOSED KAHOMA
RESIDENTIAL SUBDIVISION**

We reviewed the subject application and have the following comments:

1. The architect and owner are advised that the project is subject to possible flood inundation. As such, said project must conform to Ordinance No. 1145 pertaining to flood hazard districts.
2. A verification shall be provided by a Registered Civil Engineer that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties.
3. A detailed and final drainage report and a Best Management Practices (BMP) Plan shall be submitted with the grading plans for review and approval prior to issuance of grading permits. The drainage report shall include hydrologic and hydraulic calculations and the schemes for disposal of runoff waters. It must comply with the provisions of the "Rules and Design of Storm Drainage Facilities in the County of Maui" and must provide verification that the grading and runoff water generated by the project will not have an adverse effect on adjacent and downstream properties. The BMP plans shall show the location and details of structural and non-structural measures to control erosion and sedimentation to the maximum extent practicable.

4. Applicant shall have U. S. Army Corps of Engineers review the drainage plan affecting Kahoma Stream. The Corps' response shall be provided to the Engineering Division for confirmation of action.
5. All existing features such as structures, driveways, drainage ways, edge of pavement, etc. shall be shown on the project plat plan.
6. A site plan and a sight distance report to determine required sight distance and available sight distance at existing and proposed street intersections shall be provided for our review and approval.
7. Sight distance setbacks and easements will not be allowed for all roadways public or private. Road right of way must accommodate sight distance allowances.
8. The applicant shall obtain street name approvals from the Commission on Naming Streets, Parks and Facilities and show street names on the map.
9. The 100-year flood inundation limits shall be shown on the project site plans. Lot geometrics cannot be approved until such data is submitted and reviewed.
10. The existing streets providing access to the subdivision shall have a 20 foot minimum pavement width and, therefore, must be improved.
11. A detailed final Traffic Impact Assessment Report for the entire subdivision/development shall be submitted for our review and approval. The report shall also address regional traffic impacts and include assessments from the local community police officer.
12. For all infrastructure that may be dedicated to the County, preliminary construction plan submittal shall include a completed technical assistance review performed by the Disability and Communication Access Board (DCAB) for compliance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) for all facilities. All technical and structural infeasible assessments shall be the responsibility of the developer and an agreement

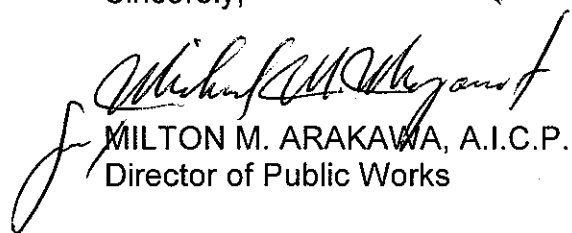
Mr. Kyle Ginoza, Project Manager
April 8, 2008
Page 3

waiving the County of Maui of any future liability, including redesign and reconstruction for said facility, shall be recorded with the State Bureau of Conveyances.

13. The applicant shall be responsible for all required improvements as required by Hawaii Revised Statutes, Maui County Code and rules and regulations.
14. Construction plans shall be designed in conformance with Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and Standard Details for Public Works Construction, 1984, as amended.
15. Worksite traffic-control plans/devices shall conform to Manual on Uniform Traffic Control Devices for Streets and Highways, 2003.
16. In the Traffic Impact Analysis Report (TIAR), at the Papalaua Street intersection, the through movements on Honoapiilani Highway were not counted. This information would provide a check of the traffic count at the adjacent intersection.
17. Additional comments provided in the Department of Public Works' letter dated August 31, 2007.

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

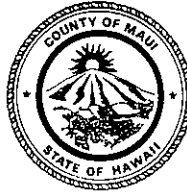
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JUL 0 1 2008

CHARMAINE TAVARES
Mayor

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

MICHAEL M. MIYAMOTO
Deputy Director



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
ENGINEERING DIVISION
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

Telephone: (808) 270-7745
Fax: (808) 270-7975

June 27, 2008

Mr. Kyle Ginoza, Project Manager
MUNEKIYO AND HIRAGA, INC.
305 High Street, Suite 104
Wailuku, Maui, Hawaii 96793

Dear Mr. Ginoza:

SUBJECT: EARLY CONSULTATION REQUEST AND DRAFT ENVIRONMENTAL ASSESSMENT AND PRELIMINARY 201H REVIEW FOR PROPOSED KAHOMA RESIDENTIAL SUBDIVISION

This letter supplements our previous response dated April 8, 2008 regarding the subject project.

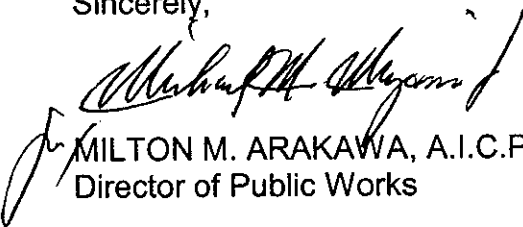
We understand that the alignment for the proposed Mill Street Extension in the vicinity of your project is constrained immediately to the north with the location of the Cane Haul Bridge. However, please ensure that all other segments of your proposed access roadway and the alignment of any off-site utilities are closely coordinated with the design of Mill Street Extension by Kaanapali Land Management Corp. (KLMC).

Furthermore, the configuration of the proposed Roadway Reserve, Lot 68, exhibited on Figure 3 (attached), should also be closely coordinated with the alignment and design of Mill Street Extension by Kaanapali Land Management Corp. to ensure that a smooth reverse curve transition occurs immediately to the south of your project, to allow Mill Street Extension to swing up further east (refer to Figure 2 from your Early Consultation Request for Mill Street Extension Roadway Project dated December 26, 2007 as attached). Since Mill Street Extension is construed as a possible reliever to Honoapiilani Highway, it is being located as far away from Honoapiilani Highway as possible to provide the necessary queuing required between the two roadway systems as they converge on Lahainaluna Road.

Mr. Kyle Ginoza, Project Manager
June 27, 2008
Page 2

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

Sincerely,



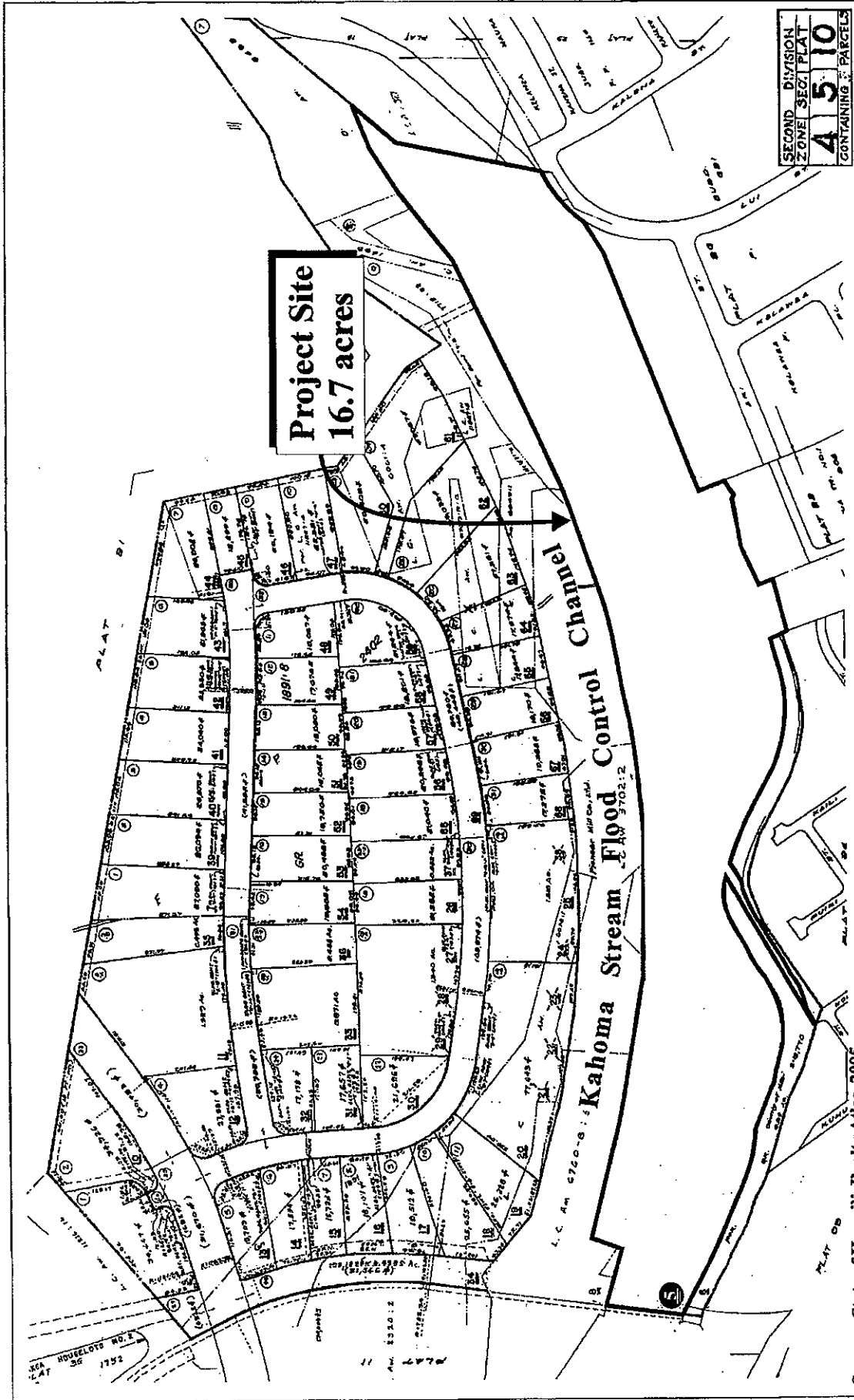
MILTON M. ARAKAWA, A.I.C.P.
Director of Public Works

CY:nco(ED08-421)

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Attahments

xc: Developmental Services Administration
Kaanapali Land Management Corp. (Chad Fukunaga)
CY (File)



Source: State of Hawaii, Realty Atlas, 2005

Figure 2

Proposed Kahoma Residential Subdivision
 Site Location and Tax Map Key

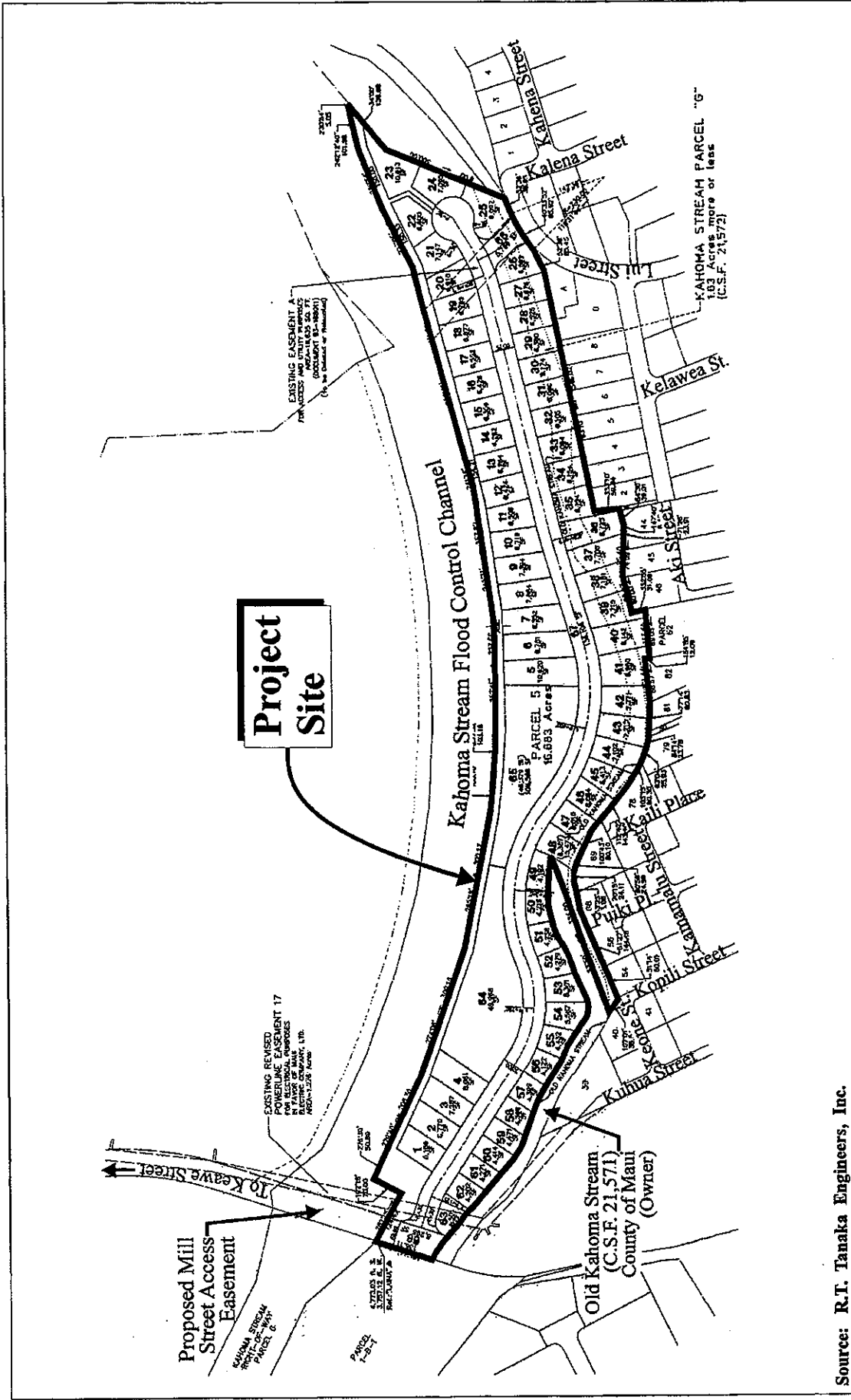


NOT TO SCALE



Prepared for: West Mani Land Company, Inc.

Kahoma Stream Flood Control Channel



Source: R.T. Tanaka Engineers, Inc.

Figure 3 Proposed Kahoma Residential Subdivision
Subdivision Plan



Prepared for: West Maui Land Company, Inc.

Kahoma/Empepts/subdivplan

September 12, 2011

David Goode, Director
County of Maui
Department of Public Works
200 South High Street, Room No. 434
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Goode:

Thank you for your department's letters of April 8, 2008 and June 27, 2008 providing comments on the subject project, as well as meeting with the project team on July 20, 2011. We offer the following information to address the comments raised.

Comments from June 27, 2008 Letter

1. The applicant will continue to work with Kaanapali Land Management Corp. (KLMC) to ensure proper design coordination for the Kuhua Street Extension project (previously known as Mill Street Extension). In particular, criteria relating to horizontal design parameters will be coordinated with KLMC and the County of Maui to facilitate achieving required traffic operational outcomes. Please note that the project site plan has been revised to account for the proposed Kuhua Street Extension Alignment. This, in turn, resulted in the loss of one developable lot.

Comments from April 8, 2008 Letter

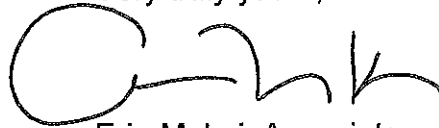
1. The project will comply with applicable requirements of the County of Maui's flood hazard ordinance.
2. Grading plans and a final drainage report prepared by a licensed civil engineer will be submitted to the Department for review. These documents will ensure that there will be no adverse effect on adjacent and downstream properties.

3. Best Management Practices and required hydrologic and hydraulic calculations will be included as part of the construction documents submittal package.
4. Coordination with the Department of the Army will be undertaken and appropriately documented as part of the design phase of work.
5. The plat map will reflect existing features such as driveways, drainage ways and pavement edges.
6. A sight distance report will be prepared as required.
7. Sight distance design parameters will be incorporated into the project plans.
8. Street naming shall be implemented in accordance with required protocols.
9. The 100-year flood inundation limits will be reflected on the project site plans.
10. Existing streets providing access to the subdivision will comply with applicable design and construction requirements.
11. Traffic Impact Analysis Reports (TIARs) have been prepared and submitted in connection with the Chapter 343, Hawaii Revised Statutes (HRS) process.
12. As may be required, technical assistance review by the Disability and Communication Access Board will be undertaken. Additionally, waivers of liability will be processed in accordance with County of Maui requirements.
13. With the exception of the Section 201H exemptions being sought, the design and construction of the project will be in compliance with applicable governmental regulations.
14. See response to Comment No. 13, above.
15. See response to Comment No. 13, above.
16. In addition to the TIAR prepared for the project in 2007, the applicant commissioned two (2) additional supplemental traffic studies in 2010 and 2011 which are included in the Final EA.
17. Responses to your comments of August 31, 2007 were submitted by letter dated February 26, 2008.

David Goode, Director
September 12, 2011
Page 3

We very much appreciate the comments provided. Thank you again for your participation in the Chapter 343, HRS, review process. Copies of your letters will be included in the Final EA.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Erin Mukai', with a large, stylized initial 'E'.

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Keith Niiya, Austin Tsutsumi & Associates, Inc.
Kirk Tanaka, R.T. Tanaka Engineers, Inc.

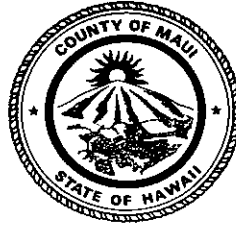
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APR 18 2008

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 175
WAILUKU, MAUI, HAWAII 96793

April 14, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

**SUBJECT: KAHOMA RESIDENTIAL SUBDIVISION
DRAFT ENVIRONMENTAL ASSESSMENT &
PRELIMINARY 201H REVIEW
TMK (2) 4-5-010:005, LAHAINA**

Dear Mr. Ginoza,

We reviewed the subject project and have the following comments:

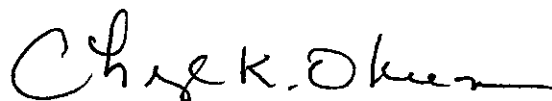
1. Solid Waste Division comments
 - a. Include a plan for construction waste disposal, recycling, reuse.
2. Wastewater Reclamation Division comments:
 - a. Although wastewater system capacity is currently available as of 3/20/08, the developer should be informed that wastewater system capacity cannot be ensured until the issuance of the building permit.
 - b. Provide discussion and calculations (sewer impact study) to substantiate that the existing wastewater system is adequate to serve this project.
 - c. Wastewater contribution calculations are required before building permit is issued.
 - d. Developer is not required to pay assessment fees for this area at the current time.
 - e. Developer is required to fund any necessary off-site improvements to collection system and wastewater pump stations.

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- f. Plans should show the installation of a single service lateral and advanced riser for each lot.
- g. Plans should show the installation of a service manhole near the property line prior to connection to the County sewer.
- h. The subject subdivision's wastewater system shall remain privately owned and maintained.
- i. Indicate on the plans the ownership of each easement (in favor of which party). Note: County will not accept sewer easements that traverse private property.
- j. Kitchen facilities within the proposed project shall comply with pre-treatment requirements (including grease interceptors, sample boxes, screens etc.)
- k. Non-contact cooling water and condensate should not drain to the wastewater system.
- l. Should the subject subdivision's wastewater discharge into the Lahaina Business Park's existing private wastewater system (hereafter referred to as the LBP wastewater system), a letter from the owner of the LBP wastewater system will need to be submitted for our records. The letter shall confirm that the owner of the LBP wastewater system approves of the subject subdivision's sewerline connection and that the LBP wastewater system is adequate to accept the additional discharge created from the subject subdivision.
- m. Hold Harmless should be executed. Signed agreement required before WWRD will give recommendations for final subdivision approval.

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

Sincerely,



Cheryl Okuma, Director

xc: Vanessa Medeiros, DHHC



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

MARK ALEXANDER ROY

September 12, 2011

Kyle Ginoza, Director
County of Maui
Department of Environmental Management
2200 Main Street, Suite 175
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Ginoza:

Thank you for your department's letter dated April 14, 2008, providing us with your department's comments on the subject project, as well as your time in meeting with the project team on July 8, 2011. On behalf of our client, West Maui Land Company, Inc (WMLC), we would like to offer the following responses to the comments.

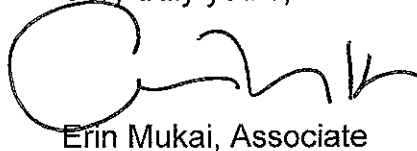
1. We note your comment regarding the inclusion of a construction waste disposal, recycling, and reuse plan, which will be addressed in the project's construction plans.
2. WMLC acknowledges the comment regarding the availability of wastewater system capacity at the Lahaina Wastewater Treatment Facility (LWTF).
3. We note your comment to include a discussion to substantiate that the existing wastewater system is adequate to serve the project. The project's civil engineer noted in the engineering report, that the project's estimated wastewater flow is 23,800 gallons per day for the entire project. A sewer impact study will be provided at the time of building permit processing.
4. Wastewater contribution calculations will be provided at the time of building permit processing.
5. Thank you for the confirmation that no wastewater assessment fee is required at this time for the project area.

6. We confirm that WMLC will fund any necessary offsite improvements to the collection system and wastewater pump station for the proposed project.
7. We acknowledge your comment with regards to the construction plans indicating the existing single service lateral and advanced riser for each lot. The comment has been forwarded to the civil engineer for inclusion in the construction plans.
8. Project plans will indicate the service manhole location near the property line.
9. The project will connect to the County of Maui's wastewater system. The intent, as discussed at our meeting of July 8, 2011, is to convey the collection system to the County.
10. Project plans will indicate easement ownerships. We acknowledge your comment regarding easements on private property. However, the intent is to convey the transmission lines to the County, based on the long term plans for County ownership of Kuhua Street.
11. There are no commercial kitchen facilities proposed for the project. Residential kitchens will comply with County of Maui requirements.
12. We acknowledge your comment with regards to the disposal of non-contact cooling water and condensate. Said water will not be disposed of in the wastewater system.
13. We acknowledge your comment regarding the potential connection to the Lahaina Business Park's (LBP) private wastewater system. The connection will be made to an existing 10-inch line owned by the County. Should the applicant pursue that option for their wastewater system requirements, a letter confirming approval by LBP and confirmation of capacity will be submitted to your office.
14. Should the applicant pursue the use of a private wastewater system, a hold harmless agreement will be submitted to the DEM prior to the final subdivision approval. However, as previously mentioned, the applicant intends on connecting to the County of Maui's wastewater system for the project.

Kyle Ginoza, Director
September 12, 2011
Page 3

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS), review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,



Erin Mukai, Associate

EM:tn

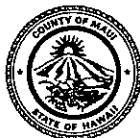
cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, Tanaka Engineers, Inc.

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APR 23 2008

Council Chair
G. Riki Hokama

Director of Council Services
Ken Fukuoka



Vice-Chair
Danny A. Mateo

Council Members
Michelle Anderson
Gladys C. Baisa
Jo Anne Johnson
Bill Kauakea Medeiros
Michael J. Molina
Joseph Pontanilla
Michael P. Victorino

COUNTY COUNCIL
COUNTY OF MAUI
200 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793
www.mauicounty.gov/council

April 21, 2008

Vanessa Medeiros, Director
Department of Housing and Human Concerns
County of Maui
200 S. High Street
Wailuku, HI 96793

SUBJECT: Draft Environmental Assessment for Proposed Kahoma Residential Subdivision Lahaina, Maui, Hawaii TMK (2) 4-5-010:005

Dear Ms. Medeiros:

Thank you for the opportunity to provide comments on the Draft Environmental Assessment for the proposed Kahoma Residential Subdivision.

After review of the draft assessment, My only comment at the present time is that the developer will coordinate with the Maui County Department of Water Supply on water requirements for the project and the projected water source being planned.

Sincerely,

JOSEPH PONTANILLA,
COUNCIL MEMBER

Cc: Kyle Ginoza, Munekiyo & Hiraga, Inc.



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

MARK ALEXANDER ROY

September 12, 2011

Councilmember Joseph Pontanilla
Maui County Council
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

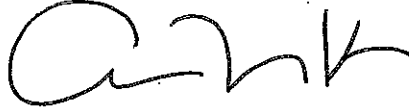
Dear Councilmember Pontanilla:

Thank you for your letter dated April 21, 2008, providing us with your comment on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following response to the comment. As you are aware, since receiving your letter in 2008, the Council approved Ordinance No. 3818 amending Section 14.12.030 of the Maui County Code relating to exemptions from the County's water availability policy. This ordinance exempts "Residential development projects with one hundred percent affordable housing units and are within the service area of the department's central or west Maui water system". As such, we believe the project is exempt from providing a long term reliable supply of water. Nevertheless, WMLC will continue coordination with the Department of Water Supply personnel during the planning of the proposed affordable housing project.

Councilmember Joseph Pontanilla
September 12, 2011
Page 2

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS), review process. A copy of the Final 201H-38, HRS, application will be submitted to you in the future. Should you have any additional questions on the project, please feel free to contact me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Erin Mukai', written in a cursive style.

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

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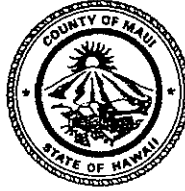
MAY 09 2008

TAMARA HORCAJO
Director

ZACHARY Z. HELM
Deputy Director

(808) 270-7230
Fax (808) 270-7934

CHARMAINE TAVARES
Mayor



DEPARTMENT OF PARKS & RECREATION

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

April 21, 2008

Vanessa Medeiros
County of Maui
Department of Housing and Human Concerns
200 South High Street, Suite 400
Wailuku, Hawaii 96793-2155

Dear Ms. Medeiros:

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND PRELIMINARY
201H REVIEW
PROPOSED KAHOMA RESIDENTIAL SUBDIVISION
LAHAINA, MAUI, HAWAII, TMK: (2) 4-5-010:005**

Thank you for the opportunity to review and comment on the subject project. We would like to receive confirmation from your Department that this project meets the criteria of an affordable housing project under Section 201H-38, HRS.

The exemption from Section 18.16.320, Maui County Code, will then be provided once the Maui County Council has approved the subject 201H-38 application.

Should there be any questions, please contact Karla Peters, of our Parks Planning and Development Division, at 270-7981.

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

c: Patrick Matsui, Chief of Parks Planning and Development
Kyle Ginoza, Munekiyo & Hiraga Inc
Project File

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

MARK ALEXANDER ROY

September 12, 2011

Glenn Correa, Director
County of Maui
Department of Parks and Recreation
700 Halia Nakoia Street, Unit 2
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Correa:

Thank you for your department's letter dated April 21, 2008, providing us with comments on the subject project. On behalf of our client, West Maui Land Company, Inc., we would like to offer the following response to the comment. It is our understanding that the proposed Kahoma Residential project meets the current requirements of the County of Maui to qualify as a 201H-38, Hawaii Revised Statutes (HRS), project. As such, the Department of Housing and Human Concerns has agreed to sponsor the 201H-38, HRS, application and is the Approving Agency for the Environmental Assessment (EA). An exemption from Section 18.16.320 of the Maui County Code will be sought through the 201H-38, HRS, application.

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA. Should you have any additional questions on the project, please feel free to contact me at 244-2015.

Very truly yours,

A handwritten signature in black ink, appearing to read "Erin Mukai". The signature is fluid and cursive, with a large initial "E" and "M".

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

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DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

CHARMAINE TAVARES
Mayor

VANESSA A. MEDEIROS
Director

LORI TSUHAKO
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165 • EMAIL director.hhc@mauicounty.gov

April 22, 2008

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza:

**SUBJECT: KAHOMA RESIDENTIAL SUBDIVISION
DRAFT ENVIRONMENTAL ASSESSMENT
PRELIMINARY SECTION 201H-38, HRS, APPLICATION**

Thank you for the opportunity to review and comment on the Draft Environmental Assessment and Preliminary Section 201H-38, HRS, application for the Kula Ridge Residential Workforce Housing Subdivision.

Based on our review, we would like to offer the following comment:

- The County's standard housing unit for a family of four is three bedroom/two bath. Lot only prices should be based on 50% of the sales price for a three bedroom/two bath housing unit.

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

Sincerely,

VANESSA A. MEDEIROS
Director of Housing and Human Concerns

xc: Housing Division



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

MARK ALEXANDER ROY

August 29, 2011

Jo-Ann Ridao, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, Hawaii 96793


SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comments For Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Ridao:

Thank you for your department's letter dated April 22, 2008, providing us with your comment on the subject project, as well as your time in meeting with the project team on July 19, 2011. We would like to thank you for serving as the approving agency for the EA. As indicated in our meeting, a draft of the Final EA will be provided to you for review.

Thank you for your comments. Should you have any additional questions on the project, please feel free to contact me at 244-2015.

Very truly yours,

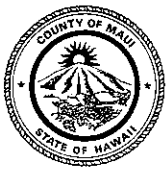


Erin Mukai, Associate

EM:tn

cc: Heidi Bigelow, West Maui Land, LLC

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CHARMAINE TAVARES
MAYOR

OUR REFERENCE
YOUR REFERENCE

POLICE DEPARTMENT

COUNTY OF MAUI

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

MAY 12 2008



THOMAS M. PHILLIPS
CHIEF OF POLICE

GARY A. YABUTA
DEPUTY CHIEF OF POLICE

May 5, 2008

Mr. Kyle Ginoza
Project Manager
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, HI 96793

Dear Mr. Ginoza:

SUBJECT: DEA and Preliminary 201H Review for Proposed Kahoma Residential Subdivision, Lahaina: TMK (2) 4-5-010:005

This is in response to your letter of March 19, 2008, requesting comments on the above subject.

We have reviewed the information for the above mentioned subject and offer the enclosed comment.

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, Maui County Planning Department
Vanessa Medeiros, Maui County Department of Housing
and Human Concerns

COPY

TO: Thomas PHILLIPS, CHIEF OF POLICE, COUNTY OF MAUI
VIA: CHANNELS *OL* 4(28)(28)
FROM: Lawrence N. KAUHA'AHA'A, POLICE OFFICER, DISTRICT IV
SUBJECT: PROPOSED KAHOMA RESIDENTIAL SUBDIVIION (TMK 4-5-010:005)

*CONCERN:
AC W. DUTTA
04/29/08*

The following to/from transmittal is being submitted in response to this proposed project.

The main area of concern would be the additional traffic to the already over burdened Lahainaluna Road/Honoapiilani Highway intersection. Having three public schools already located above the Highway has created a major grid lock during normal school days.

The use of Keawe Street to ease the burden of the Lahainaluna Road traffic heading north bound hopefully will lesson the severity of the impact on traffic.

The route designated by this proposal for the traffic utilizing the Keawe Street access will be sharing the same route as the Kaanapali Railroad and will also be sharing the "old cane haul" bridge that crossed Kahoma Stream. A traffic mitigation plan should be prepared for that area especially where the train and the flow of traffic will cross each other on Keawe Street.

With the addition of several major outlet stores at the Lahaina Gateway Plaza traffic on Keawe Street, as well as at the intersection of Keawe Street and Honoapiilani Highway has already been adversely impacted.

Submitted for your perusal,

[Signature]
Lawrence N. KAUHA'AHA'A, E-8851
POLICE OFFICER, DISTRICT IV
04.21.08 @ 1700 HOURS



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

MARK ALEXANDER ROY

September 12, 2011

Chief Gary Yabuta
Maui Police Department
55 Mahalani Street
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Chief Yabuta:

Thank you for your department's memorandum dated May 5, 2008, providing us with your comments on the subject project. On behalf of our client, West Maui Land Company, Inc. (WMLC), we would like to offer the following responses to the comments.

We note your comment regarding the Lahainaluna Road and Honoapiilani Highway intersection. The State Department of Transportation is moving forward with the first phase of the Lahaina Bypass Highway. Once implemented, the improvements are anticipated to significantly improve the traffic flow at the intersection. Also, the project is providing for a second ingress and egress point for the subdivision at Keawe Street. Secondly, we note your comment regarding the preparation of a traffic mitigation plan for the "old cane haul" bridge. Road improvement plans are being prepared to implement mitigation measures, ensuring the safety of any crossing of vehicle traffic in the area. The sugar cane train will not cross the cane haul road, but will instead run parallel to the cane haul road to the west. Lastly, we note your comment regarding the Keawe Street and Honoapiilani Highway intersection. It is our understanding that the State has since made improvements to Keawe Street as part of the overall Lahaina Bypass project. These improvements have helped to alleviate traffic flows at the Keawe Street/Honoapiilani Highway intersection. Further, we note that the project's Traffic Impact Assessment Report concluded that the proposed project is anticipated to generate less than a two percent (2%) increase in traffic during the AM and PM peak hours of traffic.

Chief Gary Yabuta
September 12, 2011
Page 2

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS), review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,

A handwritten signature in black ink, appearing to read "Erin Mukai". The signature is fluid and cursive, with a large initial "E" and "M".

Erin Mukai, Associate

EM:tn

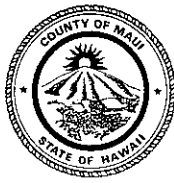
cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Keith Niiya, Austin Tsutsumi & Associates, Inc.
Kirk Tanaka, Tanaka Engineers, Inc.

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CHARMAINE TAVARES
Mayor

JEFFREY S. HUNT
Director

COLLEEN M. SUYAMA
Deputy Director



MAY 28 2008

COUNTY OF MAUI
DEPARTMENT OF PLANNING

May 22, 2008

Mr. Kyle Ginoza
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Ms. Vanessa Medeiros
County of Maui
Dept. of Housing and Human Concerns
2200 Main Street, Suite 546
Wailuku, Hawaii 96793

Dear Mr. Ginoza and Ms. Medeiros:

**SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE PROPOSED KAHOMA RESIDENTIAL
SUBDIVISION LOCATED AT LAHAINA, MAUI, HAWAII
TMK: 4-5-010:005 (EAC 2008/0011)**

The Department of Planning (Department) is in receipt of the above-referenced document for the proposed Kahoma Residential Subdivision. The Department understands the proposed action includes the following:

- West Maui Land Company proposes the development of 88 residential units on approximately 16.7 acres of land.
- The project will be comprised of 63 single-family residential units and 25 multi-family units as well as a neighborhood park.
- Of the 63 single-family units, four will be self-help parcels under the direction of Habitat for Humanity, 24 will be built by Lokahi Pacific, and the remaining 35 will be sold as lots for flexible building design.

Mr. Kyle Ginoza and Ms Vanessa Medeiros
May 22, 2008
Page 2

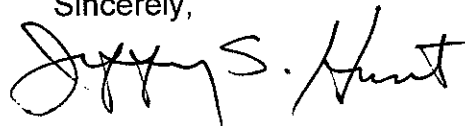
- All of the 25 multi-family units will be affordable and will be developed by Lokahi Pacific and Habitat for Humanity.

Based on the foregoing, the Department provides the following comments on the Draft EA:

1. The Maui County Department of Housing and Human Concerns will be the accepting authority for the Environmental Assessment.
2. Please provide a thorough discussion of the relationship of the proposed project with the Lahaina Town Village Drainage Master Plan developed by Maui County.
3. Please include a discussion on Environment from the West Maui Community Plan.
4. With the ongoing update of the Maui General Plan and subsequent Community Plan updates, the Department may not support the proposed Community Plan Amendment from Open Space and Bikeway at this time pending the outcome of the West Maui Community Plan Update currently scheduled for 2008.
5. County of Maui Police Department provided comments (see attached).

Thank you for the opportunity to comment. Should you require further clarification, please contact Staff Planner Joseph Prutch by email at joseph.prutch@mauicounty.gov or by phone at 270-7512.

Sincerely,



JEFFREY S. HUNT, AICP
Planning Director

Attachment

xc: Clayton I. Yoshida, AICP, Planning Program Administrator
Joseph M. Prutch, Staff Planner
EA Project File
General File

JSH:JMP:vb

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

MARK ALEXANDER ROY

September 12, 2011

William Spence, Director
County of Maui
Department of Planning
250 South High Street
Wailuku, Hawaii 96793

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Spence:

Thank you for your department's letter dated May 22, 2008, providing us with comments on the subject project, as well as your time in meeting with the project team on August 11, 2011. On behalf of our client, West Maui Land Company, Inc (WMLC), we would like to offer the following responses to the comments.

1. As discussed at our August 11, 2011 meeting, the 25 affordable multi-family units which were to be developed by Lokahi Pacific are no longer proposed. The revised project includes 68 single-family residential lots.
2. The proposed project does not involve the Lahaina Town Village Drainage Master Plan. Surface runoff in the vicinity of the project site flows to the Kahoma Stream Flood Control Channel.
3. We note your comment to include a discussion in the Final Environmental Assessment (EA) regarding the "Environment" section of the West Maui Community Plan. The Final EA includes a discussion on how the project conforms with the goals and objectives of the "Environment" section of the community plan.
4. We acknowledge your comment regarding the Department's position on the project's possible exemption from the Community Plan Amendment (CPA) requirements. A CPA will not be processed for the project, however, a 201H-38, Hawaii Revised Statutes (HRS), application has been prepared for the project as 100 percent of the units in the Kahoma Residential Subdivision meet the

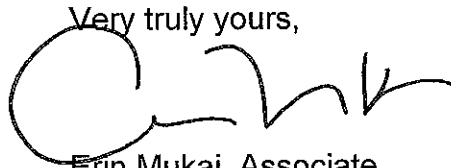
William Spence, Director
September 12, 2011
Page 2

“affordable housing” definition by the County of Maui. The Department of Housing and Human Concerns, the accepting authority for the EA, is supportive of the project and has agreed to sponsor the 201H-38, HRS, application. The 201H-38, HRS process allows for exemptions from County ordinances, rules and charter provisions to “fast-track” affordable housing projects. As such, an exemption from Chapter 2.80B of the Maui County Code will be sought.

5. Thank you for providing us with the Maui Police Department (MPD) comments on the project. We have provided the MPD with a response to their comments.

Thank you again for your participation in the Chapter 343, HRS review process. A copy of your letter will be included in the Final EA.

Very truly yours,



Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.
Kirk Tanaka, Tanaka Engineers, Inc.

K:\DATA\Kahoma\EmpeeHsg\Planningresponse.ltr.doc

APR 04 2008



January 10, 2008

Mr. Kyle Ginoza, Project Manager
Munekiyō & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Mr. Ginoza,

Subject: Draft Environmental Assessment for Proposed Kahoma Residential Subdivision
Lahaina, Maui, Hawaii
TMK: (2) 4-5-010:005

Thank you for allowing us to comment on the Draft Environmental Assessment for the proposed above subject project, which was received on March 24, 2007.

In reviewing our records and the information received, Maui Electric Company (MECO) has no objection to the project at this time. However, we continue to encourage the developer's electrical consultant to submit the electrical demand requirements and project time schedule as soon as practical so that any upgrades to our system and service can be carried out on a timely basis.

In addition, may we suggest that the developer and/or their consultant make contact with Sage Kiyonaga of our Demand Side Management (DSM) group at 872-3283 to review potential energy conservation and efficiency opportunities for their project.

Should you have any other questions or concerns, please call Kimberly Kawahara at 871-2345.

Sincerely,

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

Gregorysenn Kauhi
Customer Operations Manager

GK/kk:lh

cc: Vanessa Medeiros
Sage Kiyonaga – MECO DSM



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

MARK ALEXANDER ROY

September 12, 2011

Dan Takahata, Manager – Engineering
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733

SUBJECT: Response to Draft Environmental Assessment and Preliminary
201H-38, Hawaii Revised Statutes Application Comment Letter
Regarding Proposed Kahoma Residential Subdivision, Located at
TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Mr. Takahata:

Thank you for your company's letter dated January 10, 2008, providing us with comments on the proposed project. On behalf of our client, West Maui Land Company, Inc., we would like to offer the following response to the comment. The project's electrical consultant, when selected, will submit the electrical demand requirements and estimated project time frame to your division for review and comment. Further, your suggestion to contact the Demand Side Management Group for review of potential energy conservation and efficiency opportunities for the project has been forwarded to the applicant for consideration.

Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS), review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,

Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

K:\DATA\Kahoma\EmpeeHsg\meccoresponso.ltr.doc

Mr. Peter Martin
West Maui Land Company
33 Lono Ave., Ste 450
Kahului, HI 96732

April 20, 2008

Dear Mr. Martin,

RE: Proposed Kahoma Residential Subdivision

As direct descendants of the Pali and Puholopu families of Kahoma, we are disturbed by the proposed sub-division and especially the fast track approval of this project.

There are too many unanswered questions as to the locations of the iwi that are scattered throughout this cultural and historical site. How was ownership obtained? Was it by quitclaim or was the property sold by its descendents? As stewards of these lands, we are entrusted to protect and preserve this scared area for future generations.

The proposed development being so close to Kahoma Stream may cause serious muddy runoffs during construction resulting in grave consequences to the ocean and reefs at the mouth of the stream. The sewer system will be so close to the stream, that accidental overflows may cause disastrous results.

We are not against affordable housing, only the proposed site. A more feasible location, if you really want to help people in need, would be the Launiupoko area. They could get their water from the Launiupoko Water Co. which would relieve our water system in Lahaina.

Sincerely,



Lillian Suter
Letitia II
22 Kekai Rd.
Lahaina, HI 96761

cc: Office of Environmental Quality Control
cc: Department of Housing & Human Concerns
cc: Munekiyo & Hiraga, Inc.
cc: Office of Conservation and Coastal Lands



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

MARK ALEXANDER ROY

September 12, 2011

Ms. Lilian Suter
22 Kekai Road
Lahaina, Hawaii 96761

SUBJECT: Response to Draft Environmental Assessment and Preliminary 201H-38, Hawaii Revised Statutes, Application Comment Letter Regarding Proposed Kahoma Residential Subdivision, Located at TMK 4-5-010:005, Lahaina, Maui, Hawaii

Dear Ms. Suter:

Thank you for your letter of April 20, 2008, providing comments on the subject project. We offer the following information to address the comments raised.

1. Cultural Resources

The potential for iwi being found at the site was considered as part of the project planning phase. In this regard, an archaeological assessment for the 16.7-acre parcel was prepared and accepted by the State Historic Preservation Division (SHPD). The SHPD also determined that the development of the project will have "no effect" on significant historic sites. The assessment included a total of 15 backhoe test trenches. The results of the archaeological investigations indicate that the project area has been previously disturbed with negative findings with regard to archaeological resources. However, in the event unanticipated archaeological finds are encountered during construction, appropriate mitigative measures, including the stoppage of work, will be implemented in accordance with protocols established by the SHPD.

2. Land Acquisition Background

The subject property was acquired by Kahoma Land LLC in 2000. The property was acquired from Pioneer Mill Company, Limited, as reflected in two (2) recorded deed documents dated August 28, 2000, document numbers 2000-118777 (Deed) and 2000-118776 (Deed and Reservation of Rights and Easements). Subsequently, Kahoma Residential LLC acquired the parcel from Kahoma Land LLC, as reflected in a warranty deed dated March 15, 2011, document number 2011-048539.

3. Impacts to Kahoma Stream

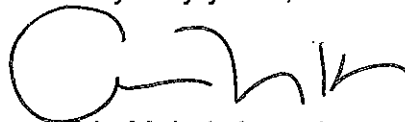
The proposed project will incorporate Best Management Practices to ensure that adverse drainage-related impacts to Kahoma Stream do not occur. A National Pollutant Discharge Elimination System Permit will also be obtained, as applicable, from the State Department of Health to further protect the stream during the construction phase of work. The project's sewer system will be designed and constructed to meet County of Maui standards to eliminate the potential for wastewater discharge into the stream.

4. Alternative Site Locations

The project site is considered ideal as an urban infill location which is in close proximity to infrastructure systems. As an affordable housing project, proximity to infrastructure is considered an important factor in keeping system extension costs manageable. The project site is also suitable from a land use compatibility standpoint, with proximity to employment centers and urban service.

We very much appreciate the comments provided. Thank you again for your participation in the Chapter 343, Hawaii Revised Statutes (HRS), review process. A copy of your letter will be included in the Final Environmental Assessment.

Very truly yours,



Erin Mukai, Associate

EM:tn

cc: Jo-Ann Ridao, Director, Department of Housing and Human Concerns
Heidi Bigelow, West Maui Land Company, Inc.

K:\DATA\Kahoma\EmpeeHsg\suterresponse.ltr.doc

XI. REFERENCES

XI. REFERENCES

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APPENDIX A.

Preliminary Development Plans

(Subd Layout) Z:\2005\05-105 EXHIBIT MAPS\11-2010_MMLC1_SUBD_EXHIBIT_MAPS.mwg - Rev. Date: 05-MAR-2011 - BY: JOY E.

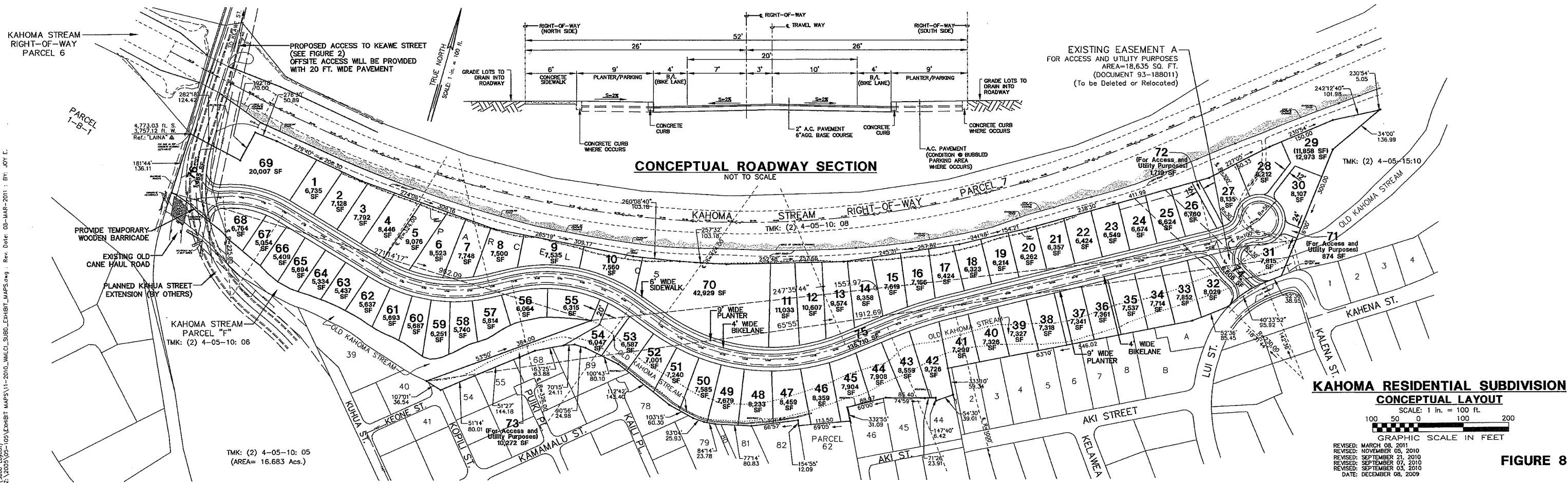
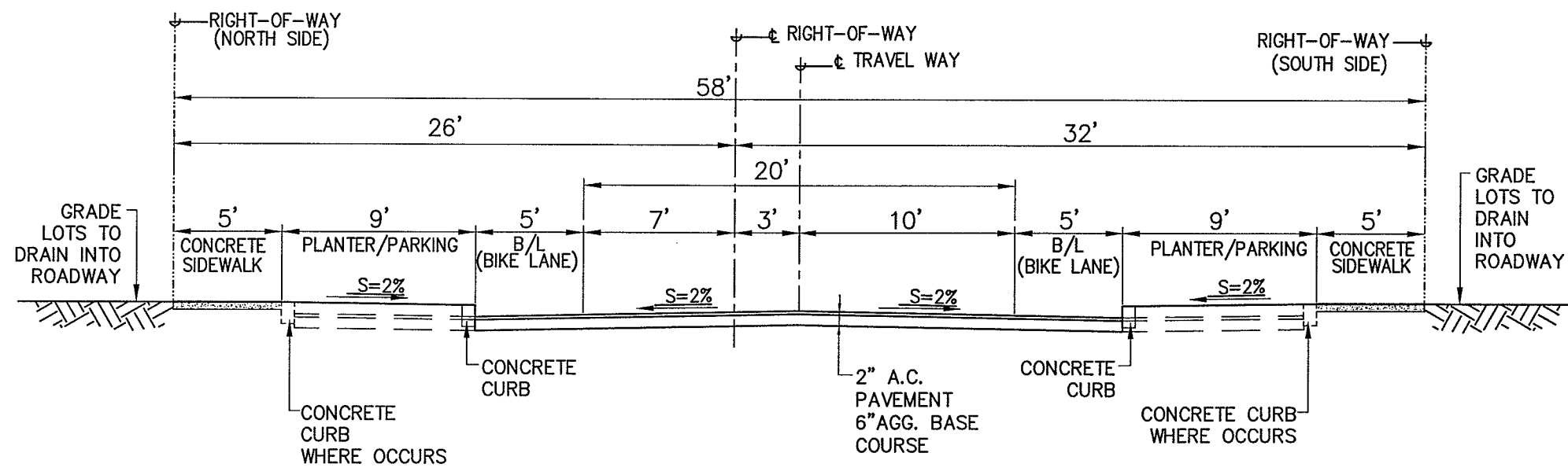


FIGURE 8



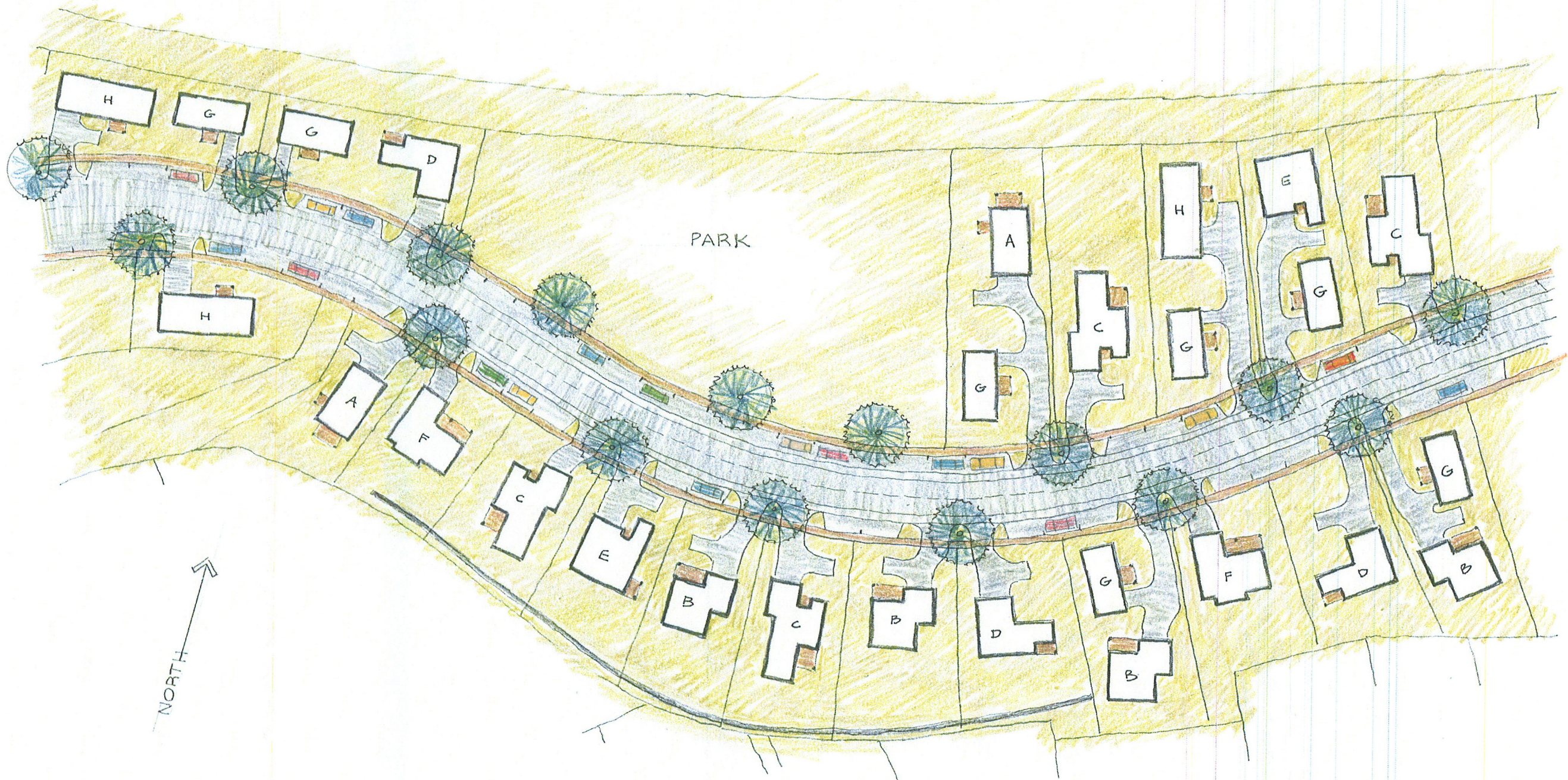
58' RIGHT-OF-WAY CONCEPTUAL ROADWAY SECTION

KAHOMA STREAM

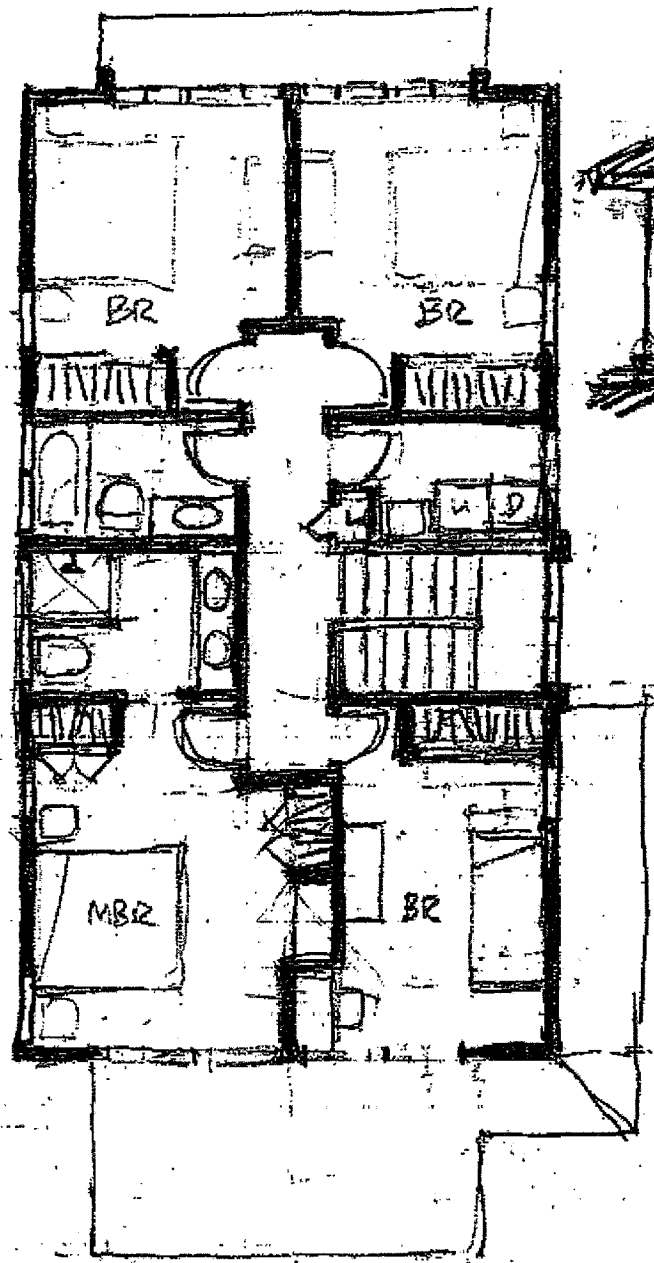
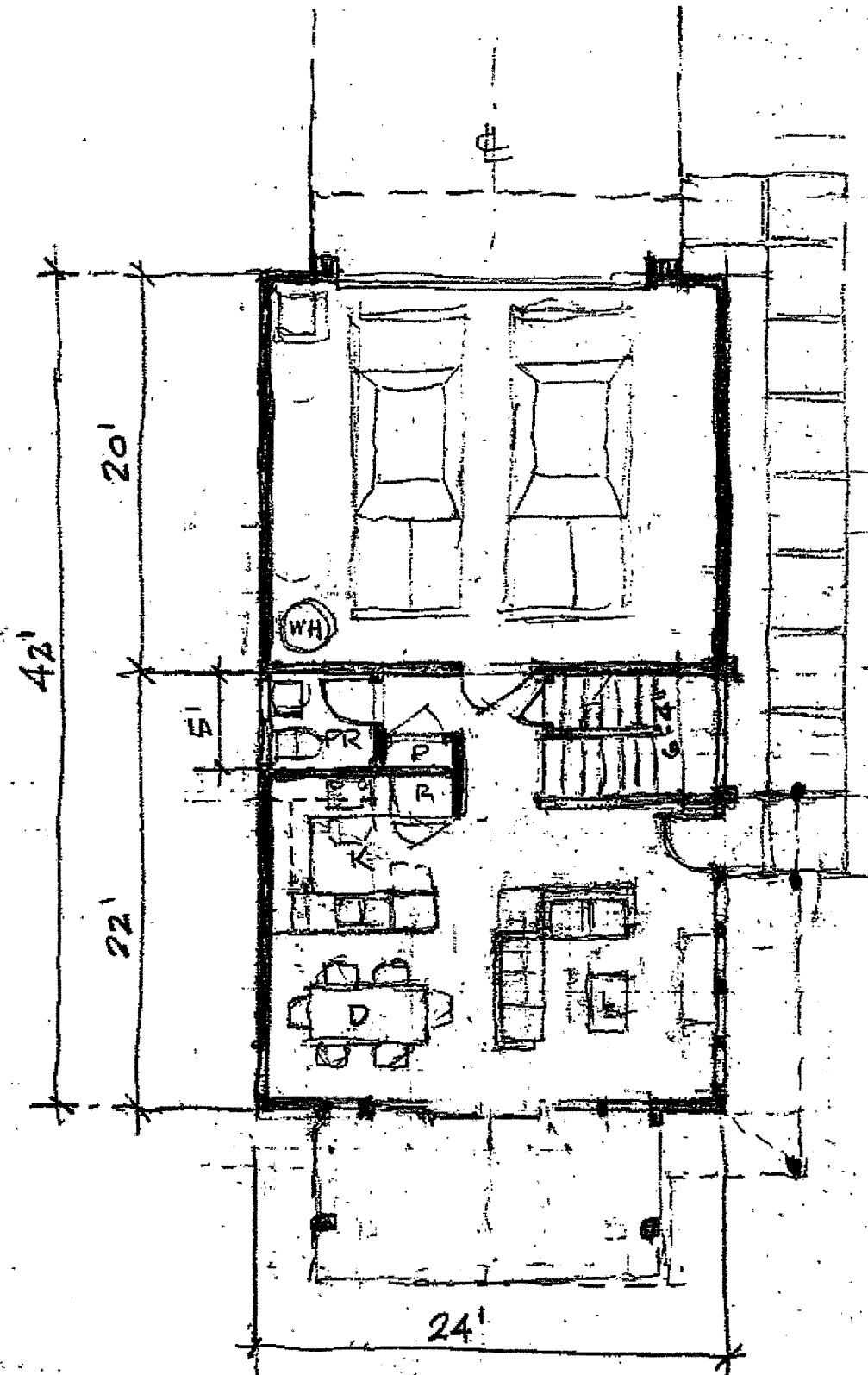
PARK

NORTH

KAHOMA RESIDENTIAL SUBDIVISION
PARTIAL PRELIMINARY SITE PLAN 1"=40' 8/12/11 WJ

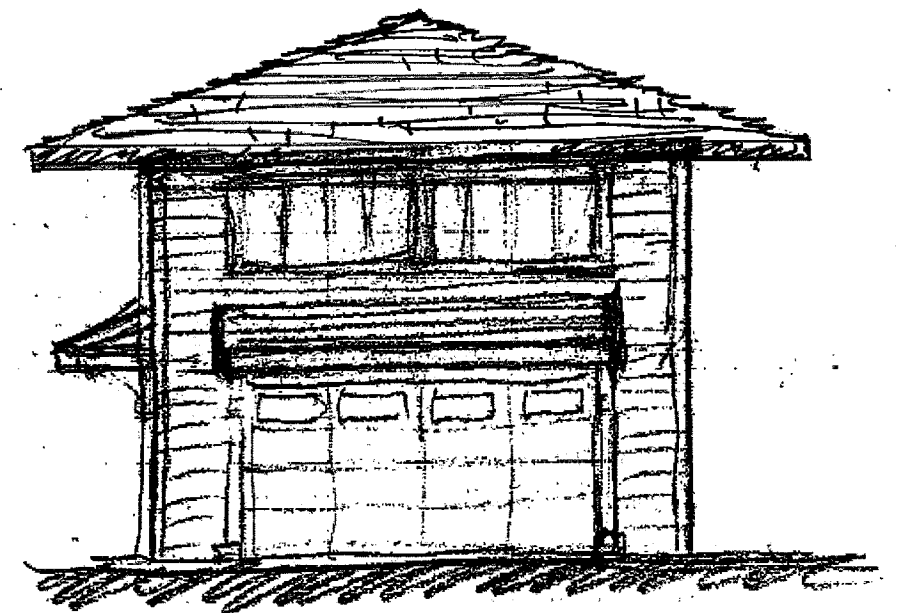


**WEST MAUI LAND COMPANY
PRELIMINARY DEVELOPMENT PLANS**



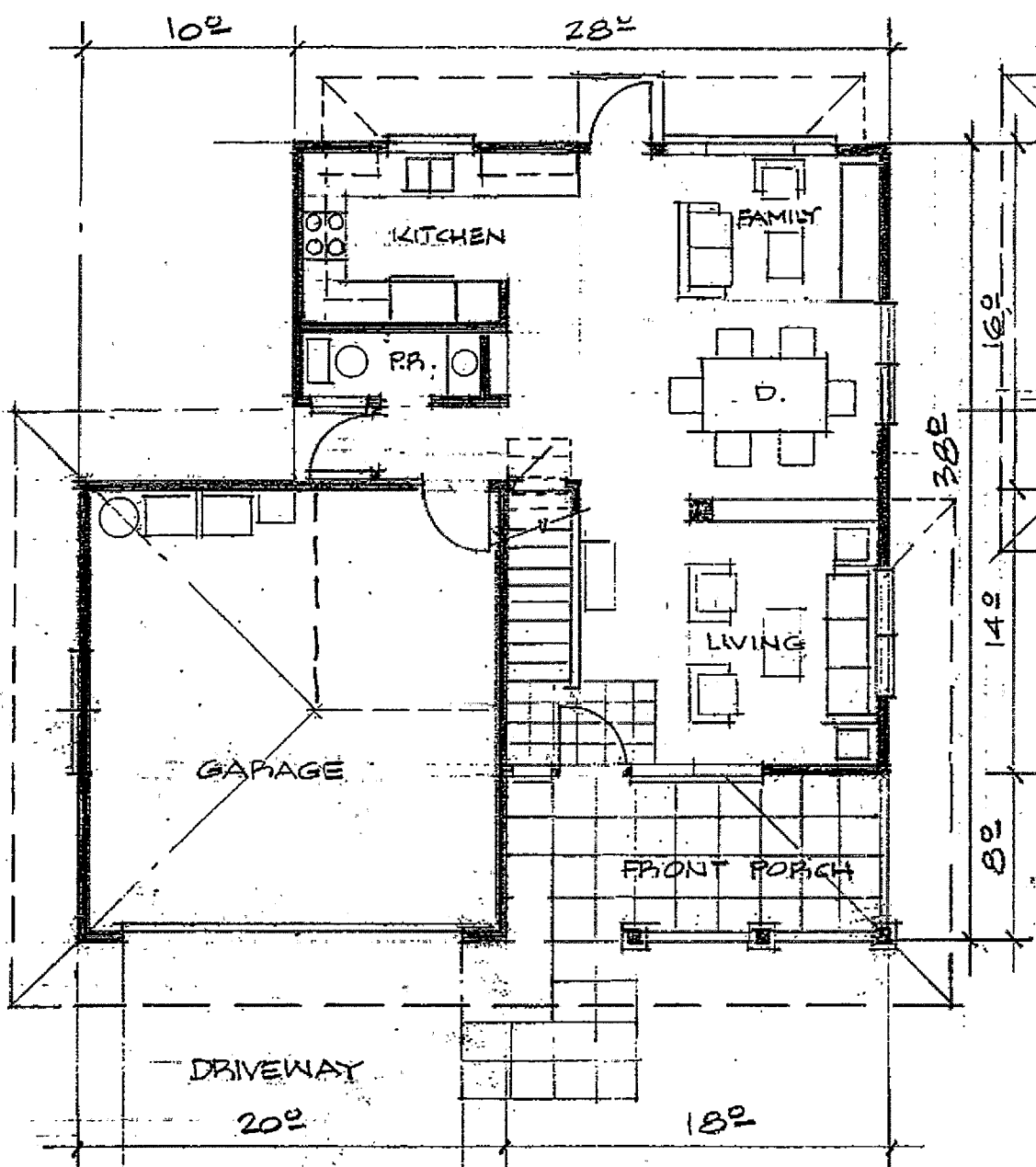
FLOOR AREAS

LOWER FLOOR:	528 SF
UPPER FLOOR:	948 SF
COVERED LANAI:	108 SF
GARAGE:	480 SF
TOTAL:	2,064 SF

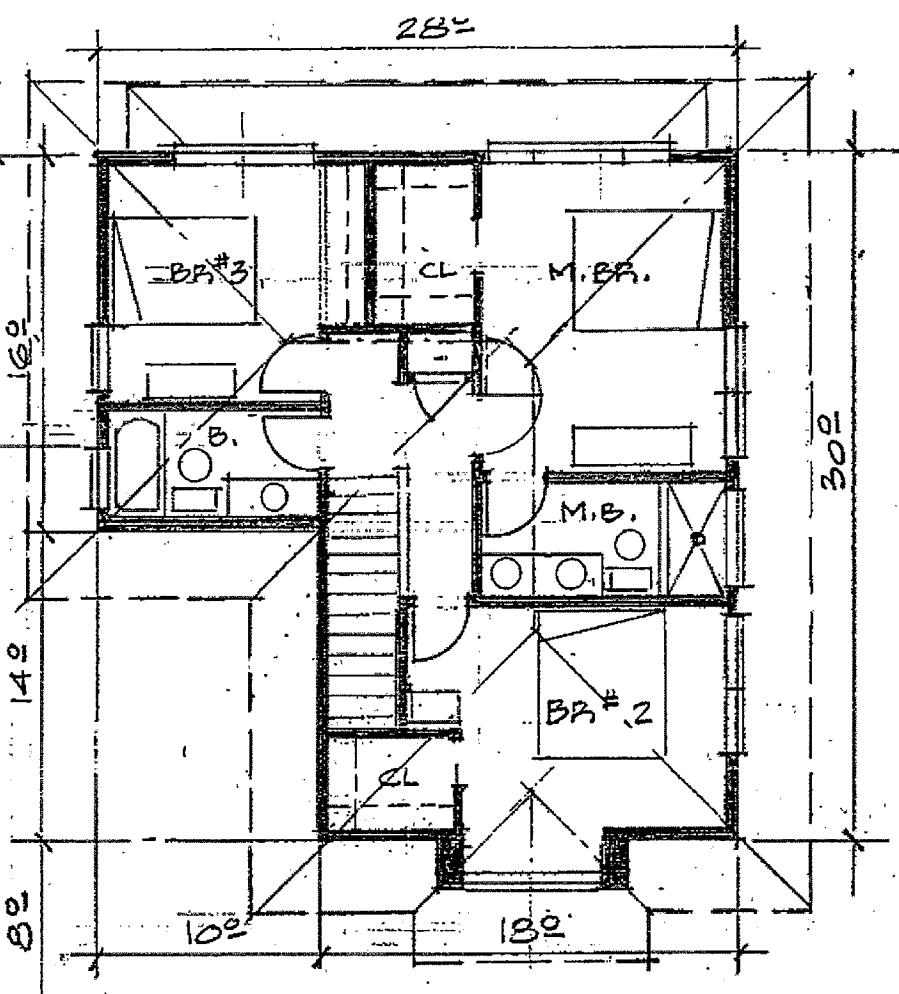


KAHOMA RESIDENTIAL (WML) A

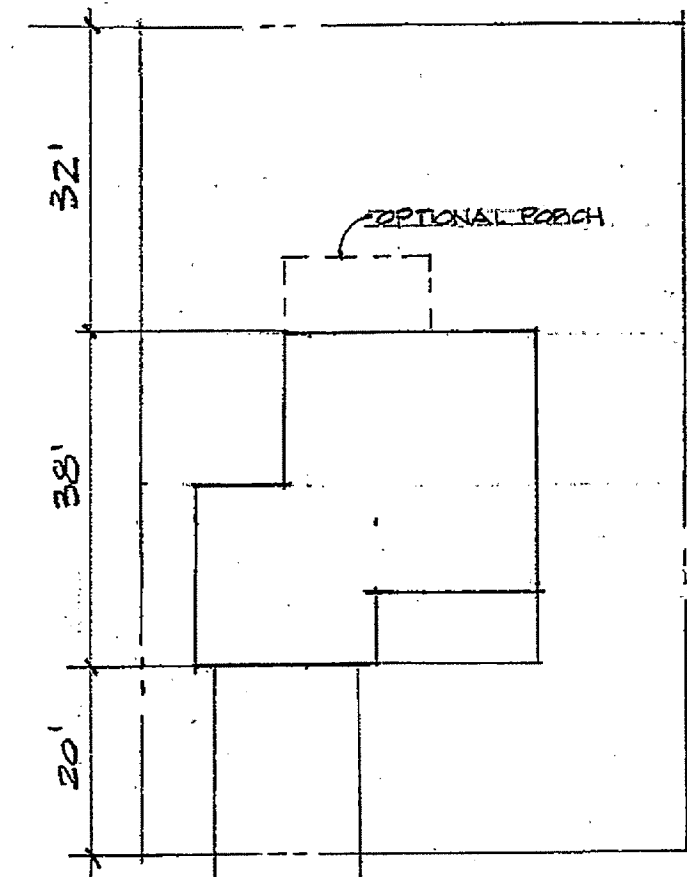
4 BEDROOM 2 STORIES
 1/8" = 1'-0" 11/04/09 KD



LOWER FLOOR PLAN
700 SF

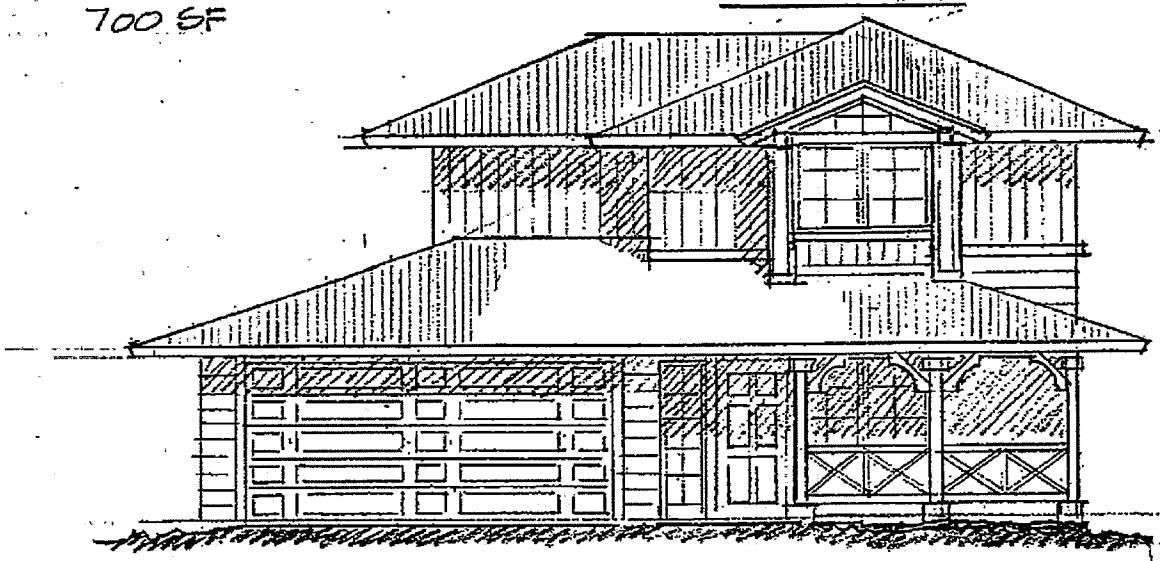


UPPER FLOOR PLAN
700 SF



PLOT PLAN

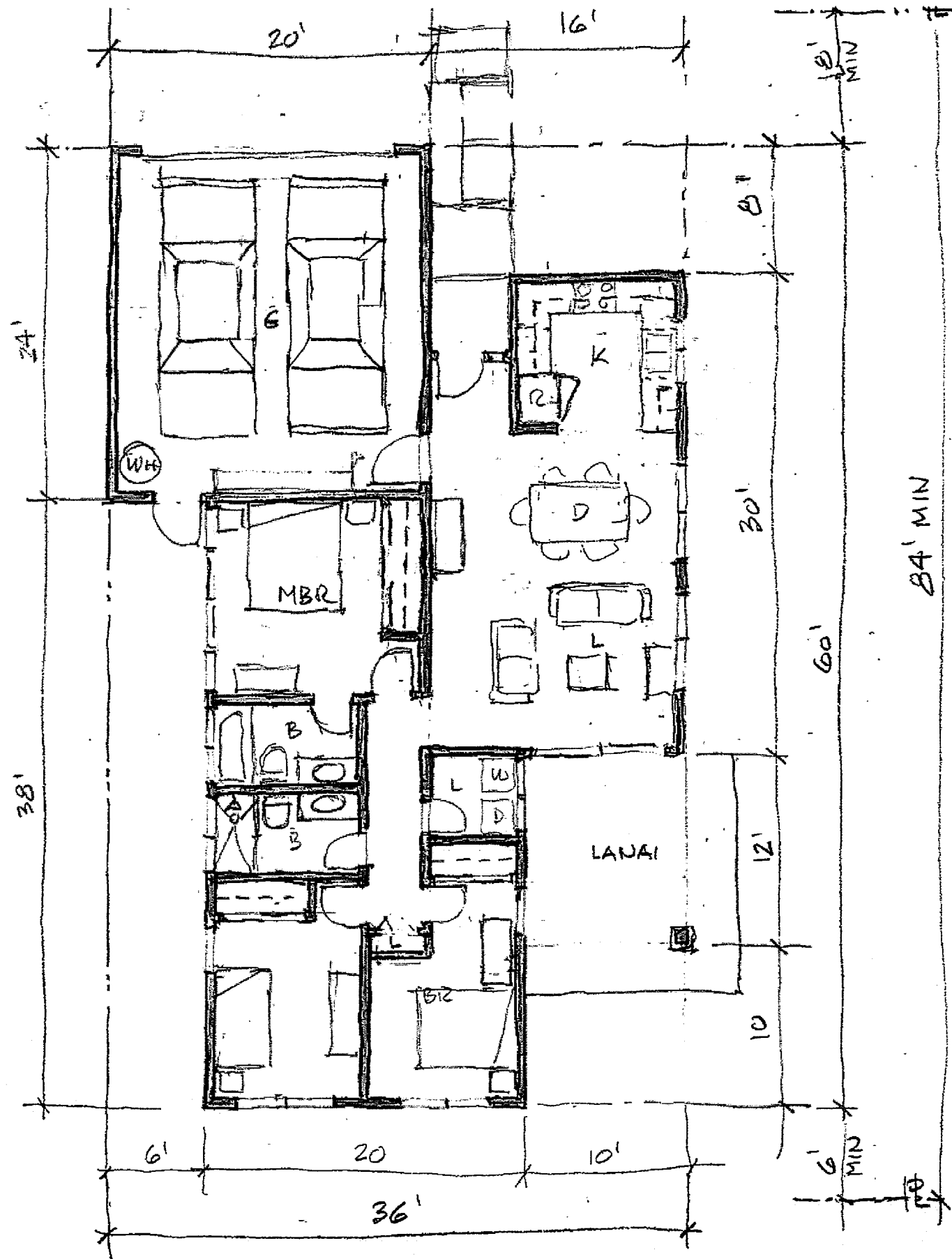
<u>FLOOR AREAS</u>	
ENCLOSED	1400 SF
PORCH (COVERED)	144 SF
GARAGE	440 SF
TOTAL	1,984 SF



FRONT ELEVATION

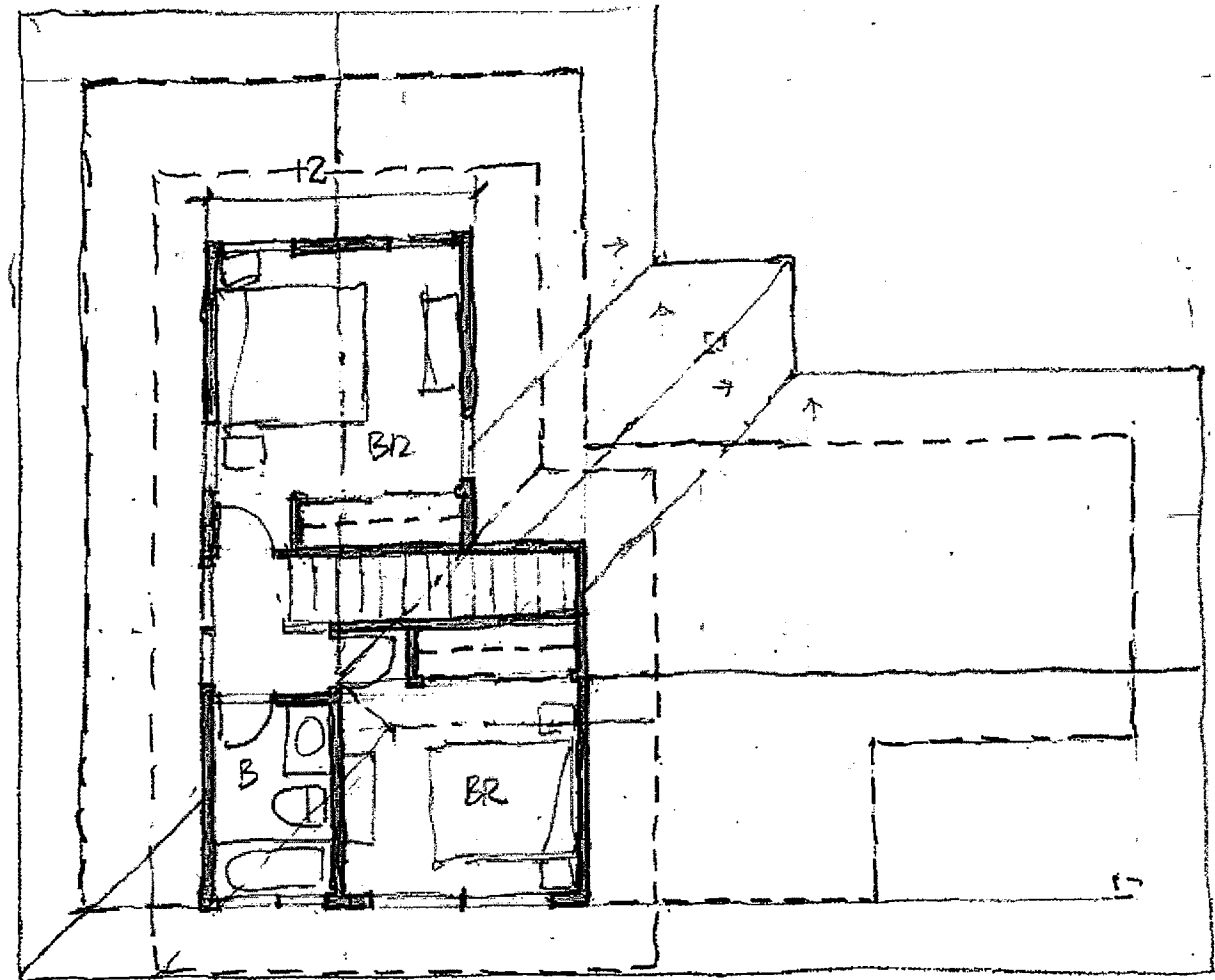
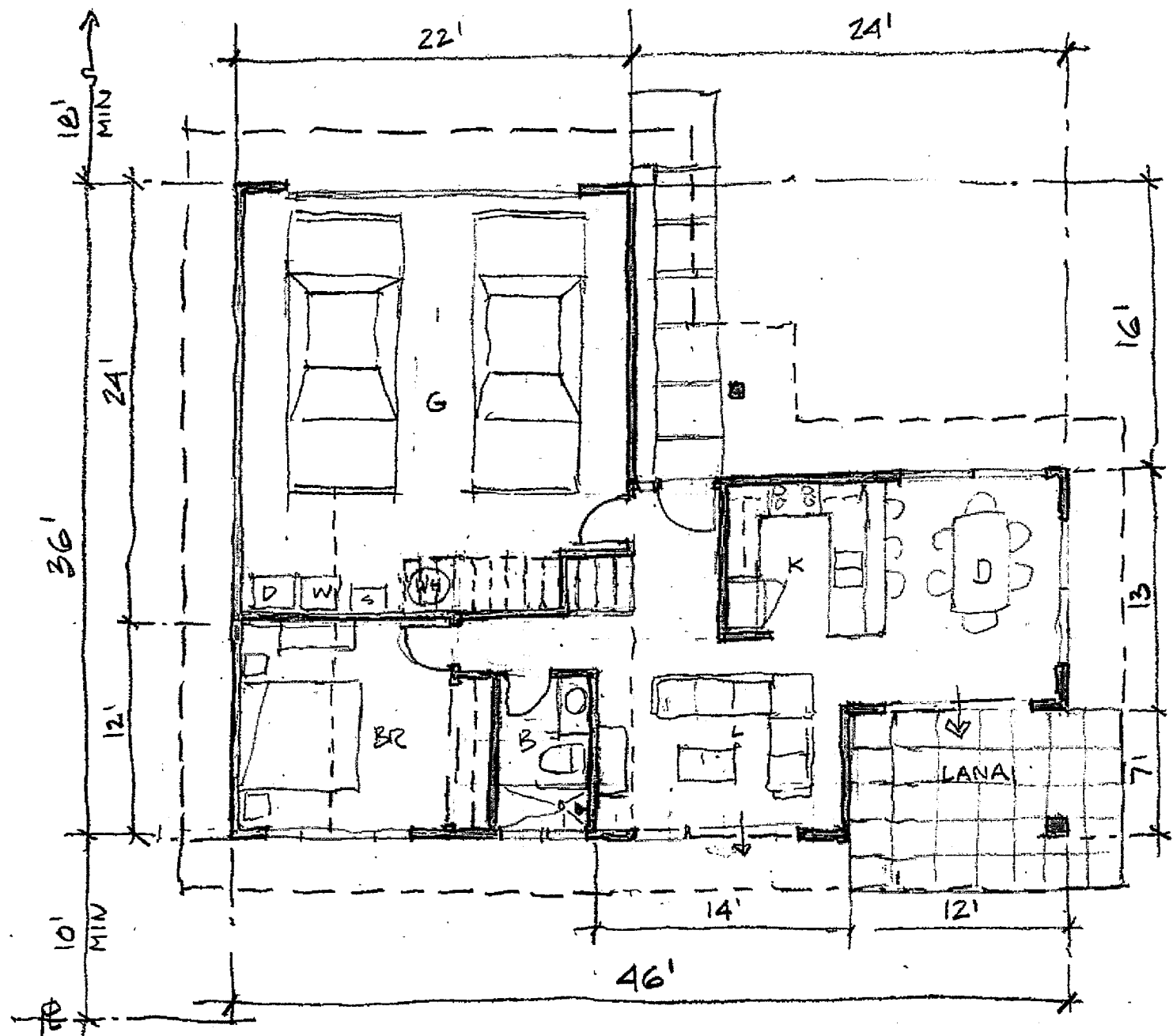
KAHOMA RESIDENTIAL (WML)
3 BEDROOM - TWO STORIES
1/8" = 1'-0" 11/04/09 HZ

B



FLOOR AREAS	
ENCLOSED:	1,119 SF
COVERED LANAI/ENTRY:	149 SF
GARAGE:	480 SF
TOTAL	1,744 SF

KAHOMA RESIDENTIAL (WML) C
 3 BEDROOM SINGLE STORY
 1/8" = 1'-0" 11/04/09 AR



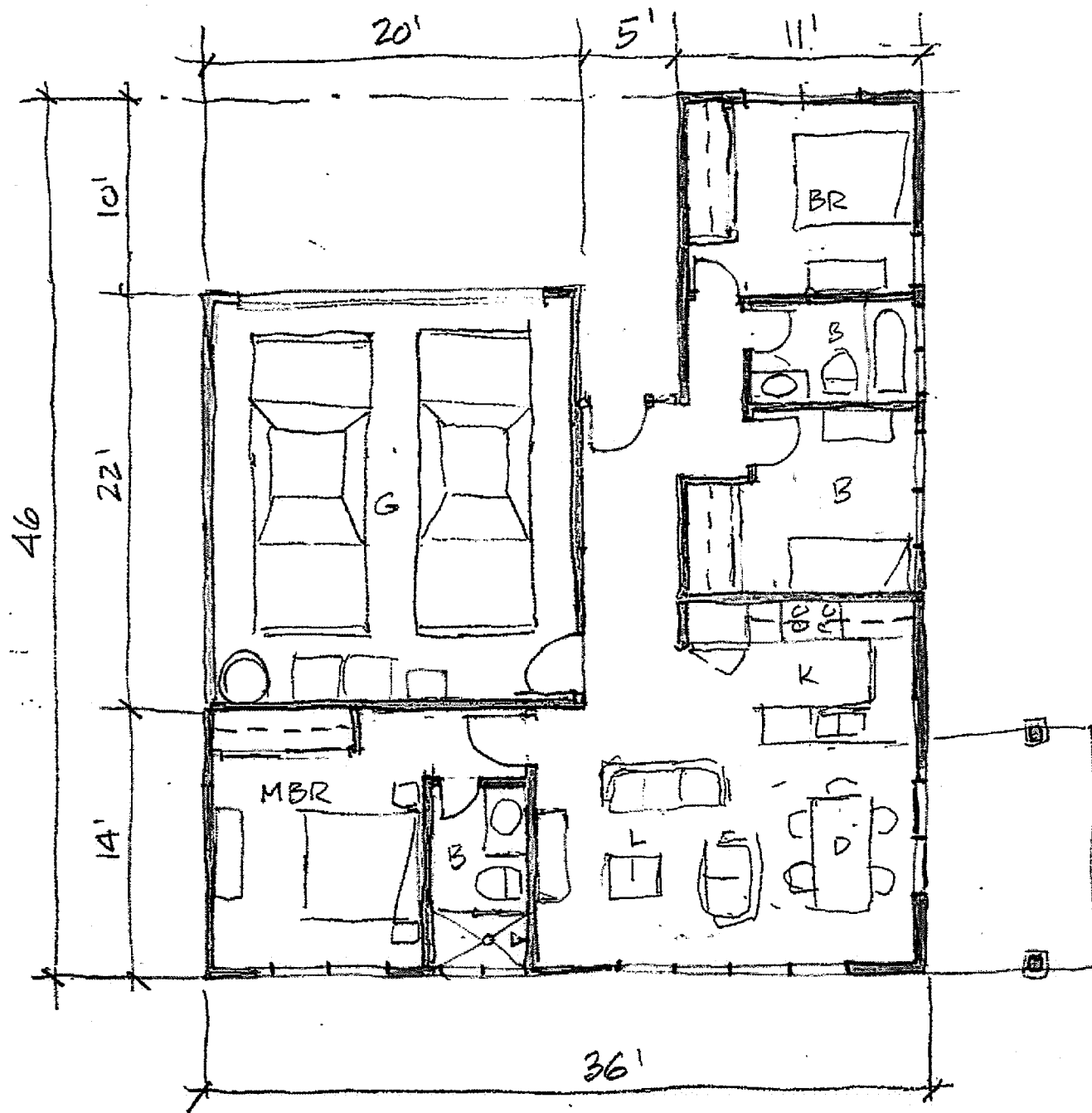
FLOOR AREAS

LOWER FLOOR	674 SF
UPPER FLOOR	440 SF
COVERED LANAI/ENTRY	114 SF
GARAGE	528 SF
TOTAL	1,756 SF

D

KAHOMA RESIDENTIAL (WML)

3 BEDROOM 2 STORIES
 1/8" = 1'-0" 11/04/09 WJ



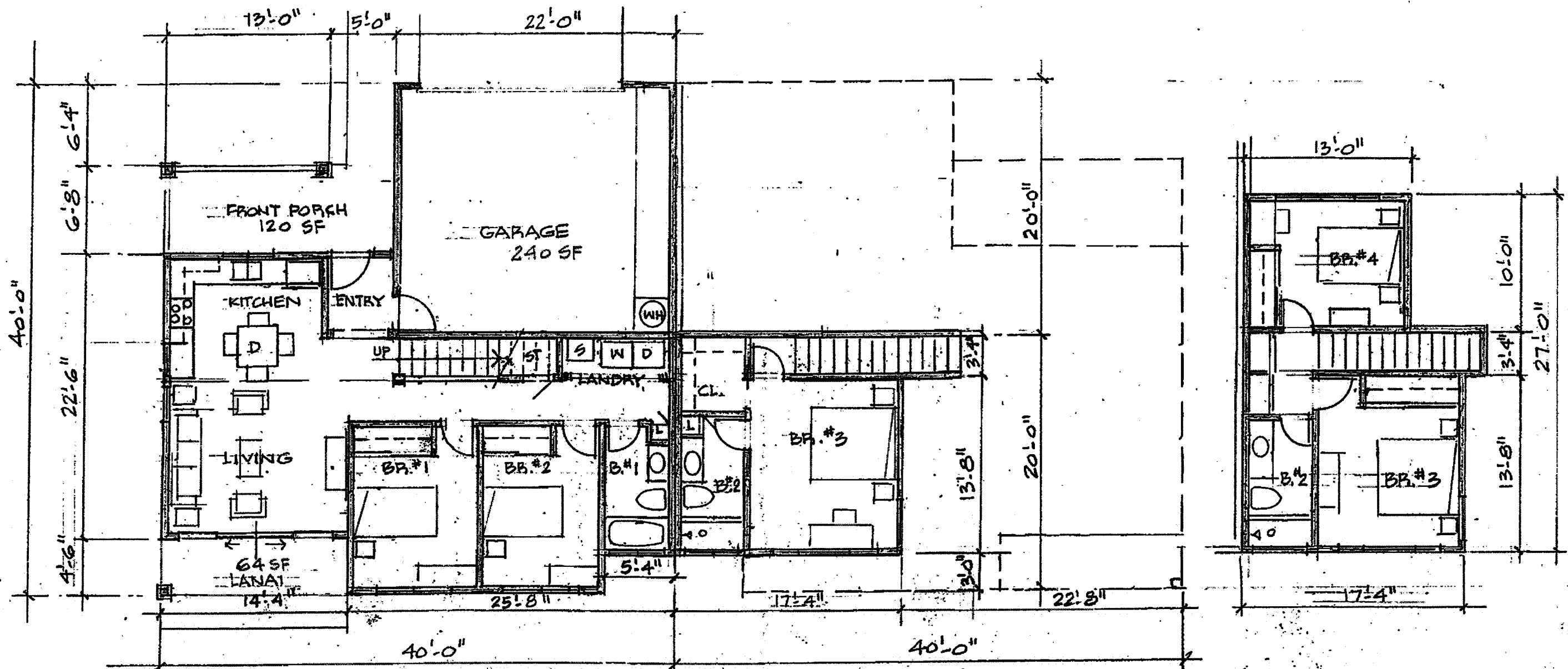
FLOOR AREAS

ENCLOSED	936 SF
COVERED LANAI/ENTRY	102 SF
GARAGE	440 SF
TOTAL	1,478 SF

KAHOMA RESIDENTIAL (WML)

3 BEDROOM 1 STORY
 1/8" = 1'-0" 11/05/09 KLR

E



LOWER FLOOR 826 SF (LIVING PORCH, COVERED LANAI 184 SF AREA)
 GARAGE 440 SF
 1450 SF

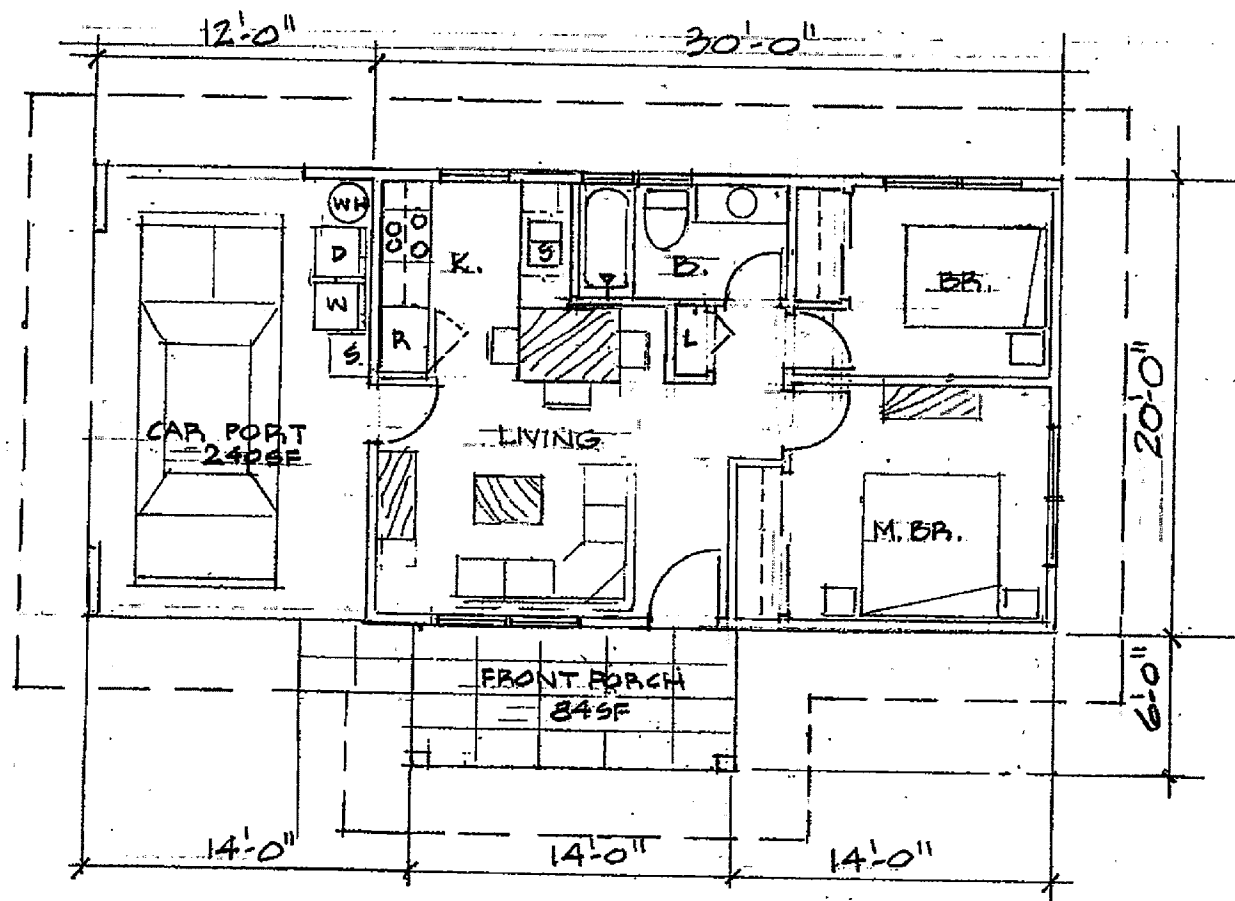
UPPER FLOOR 267 SF
 3 BEDROOM UNIT

UPPER FLOOR 397 SF
 4 BEDROOM UNIT

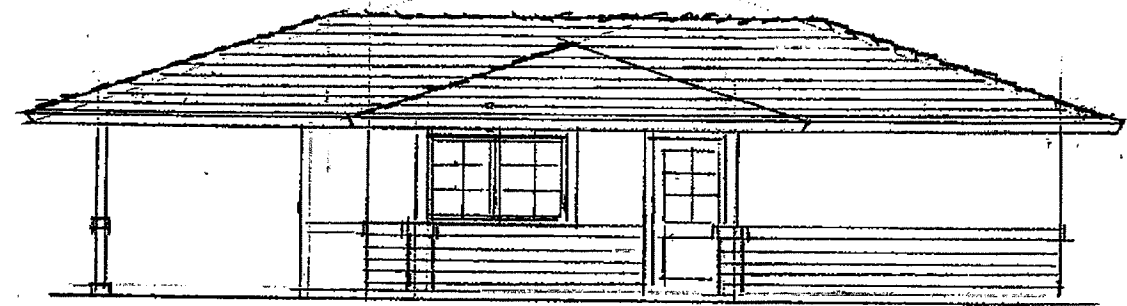
KAHOMA RESIDENTIAL (WML)

1/8" = 1'-0" AUG. 13, 2007 K12

F.



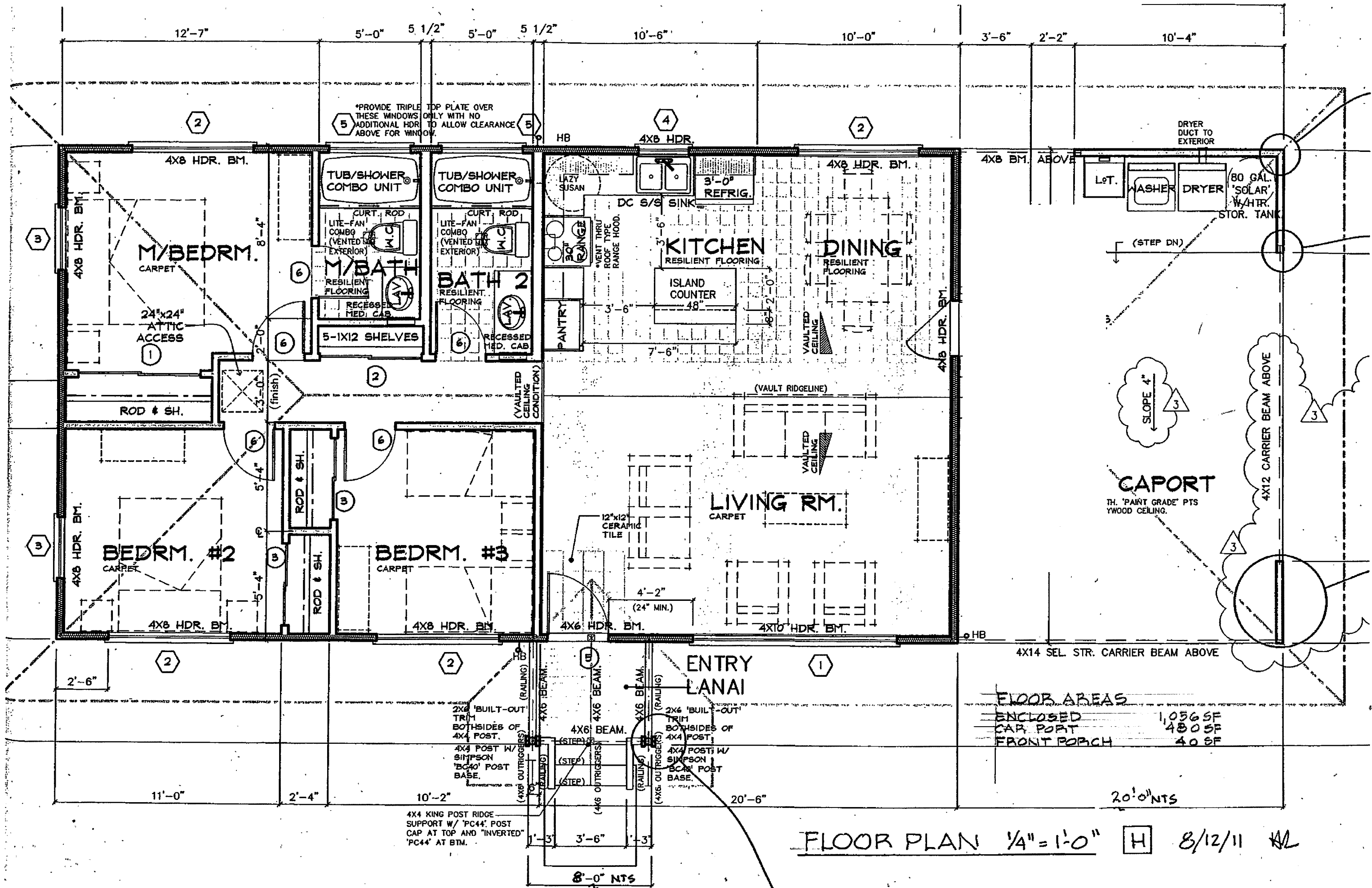
FLOOR PLAN 1/8" = 1'-0"



FRONT ELEVATION 1/8" = 1'-0"

FLOOR AREAS	
ENCLOSED	600 SF
CAR PORT	280 SF
FRONT PORCH	84 SF

600 SF OHANA G
 KAHOMA RESIDENTIAL SUBDIVISION
 8/6/11 K2



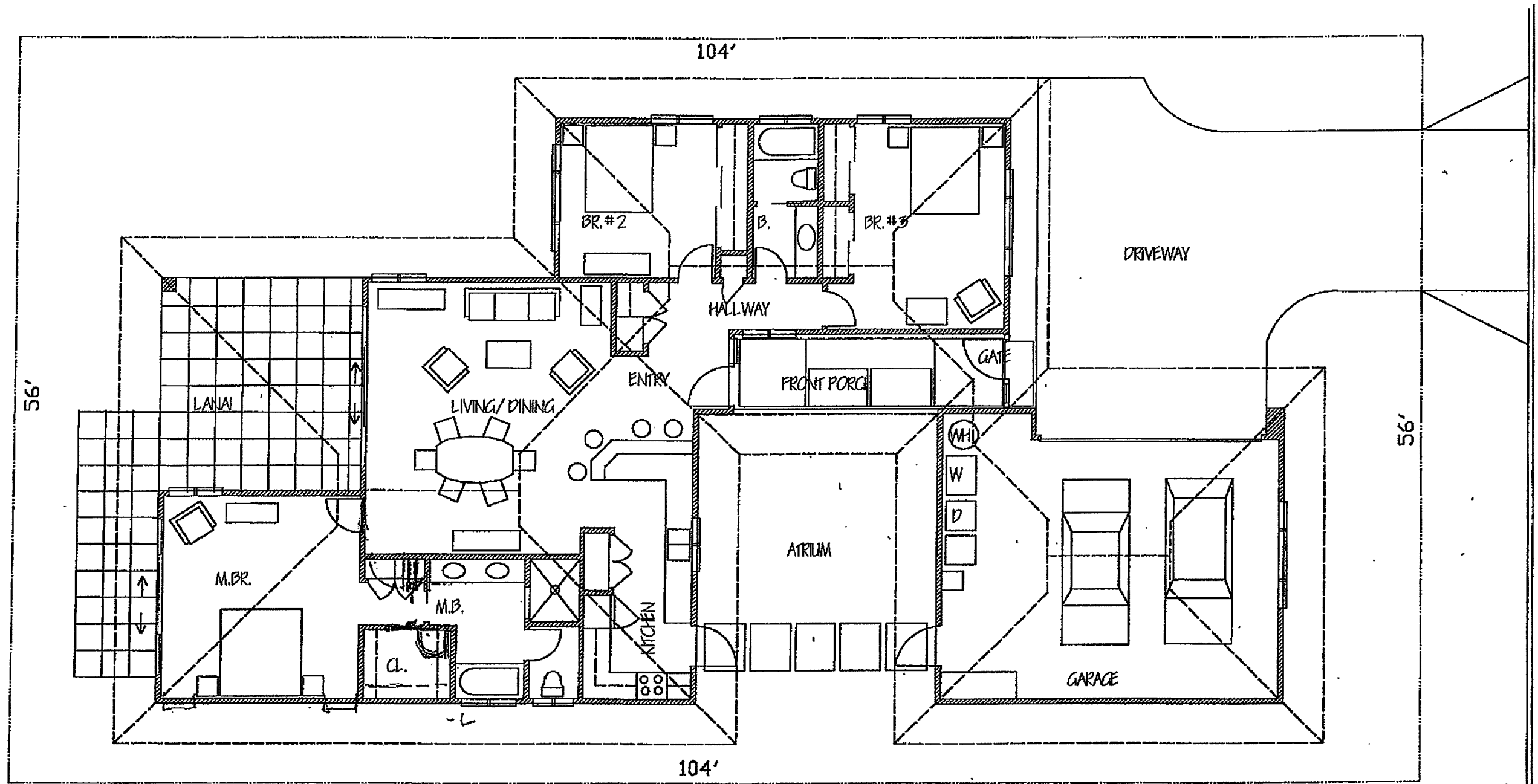
*PROVIDE TRIPLE TOP PLATE OVER THESE WINDOWS ONLY WITH NO ADDITIONAL HDR. TO ALLOW CLEARANCE ABOVE FOR WINDOW.

FLOOR AREAS

ENCLOSED	1,056 SF
CAP. PORT	480 SF
FRONT PORCH	40 SF

4X4 KING POST RIDGE SUPPORT W/ 'PC44' POST CAP AT TOP AND "INVERTED" 'PC44' AT BTM.

FLOOR PLAN 1/4" = 1'-0" H 8/12/11 AL



KAHOMA RESIDENTIAL (WML)

FLOOR PLAN I
 1/8" = 1'-0"

2,038 SF ENCL. LIVING SPACE

KRZ

architect inc.

Hans Riecke, FAIA

77 Apalapani Lane, Maui, Hawaii 96708

Telephone (808) 575-2029, Facsimile (808) 575-2077

7/20/00



KAHOMA RESIDENTIAL (WML)
Plan 'I' Front

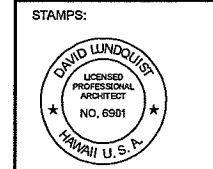
I

**HABITAT FOR HUMANITY
PRELIMINARY DEVELOPMENT PLANS**



Habitat for Humanity
Maui
P.O. BOX 5034
Kahului, HI 96733
Phone: (808) 893-0334
FAX: (808) 877-9462
maui_habitat@habitat-hawaii.org

DRAWINGS PREPARED & DONATED BY:
CASTLE AND COOKE
MAUI ARCHITECTURAL GROUP
LARRY GLAUM AND ASSOCIATES



THIS WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ARCHITECT IN THE STATE OF HAWAII. I HAVE CONDUCTED A VISUAL GENERAL VERIFICATION OF THE CONSTRUCTION OF THIS PROJECT AND I AM NOT PROVIDING ANY OBSERVATION OR INSPECTION OF THE CONSTRUCTION. I AM NOT PROVIDING ANY INSPECTION OF THE CONSTRUCTION. I AM NOT PROVIDING ANY INSPECTION OF THE CONSTRUCTION.

3 Bedroom / 2 Bath
Habitat for Humanity, Maui, Inc.
P.O. Box 5034
Kahului, HI 96735

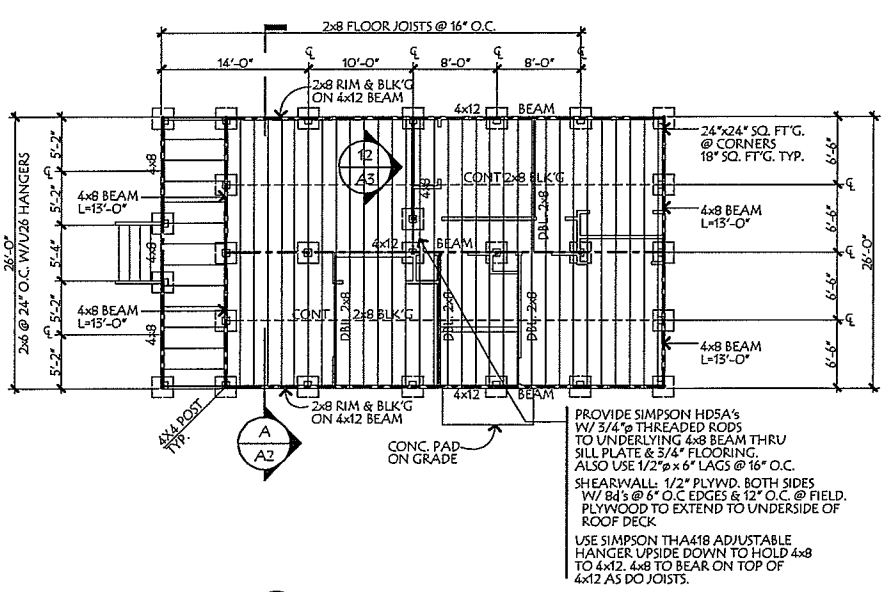
Revisions:	By:
GENERAL REVISION 11-18-03	LY
STRUCT. CLARIF. 3-18-04	LY

Floor Plan
Exterior Elevations
Roof Framing Plan
Door & Window Schedule
Date: 10 JUN 03
Scale: As Noted
File Name: A1 Floor Plan CE.LLAY
Job:
Sheet Number:
A1
Sheet: Of:

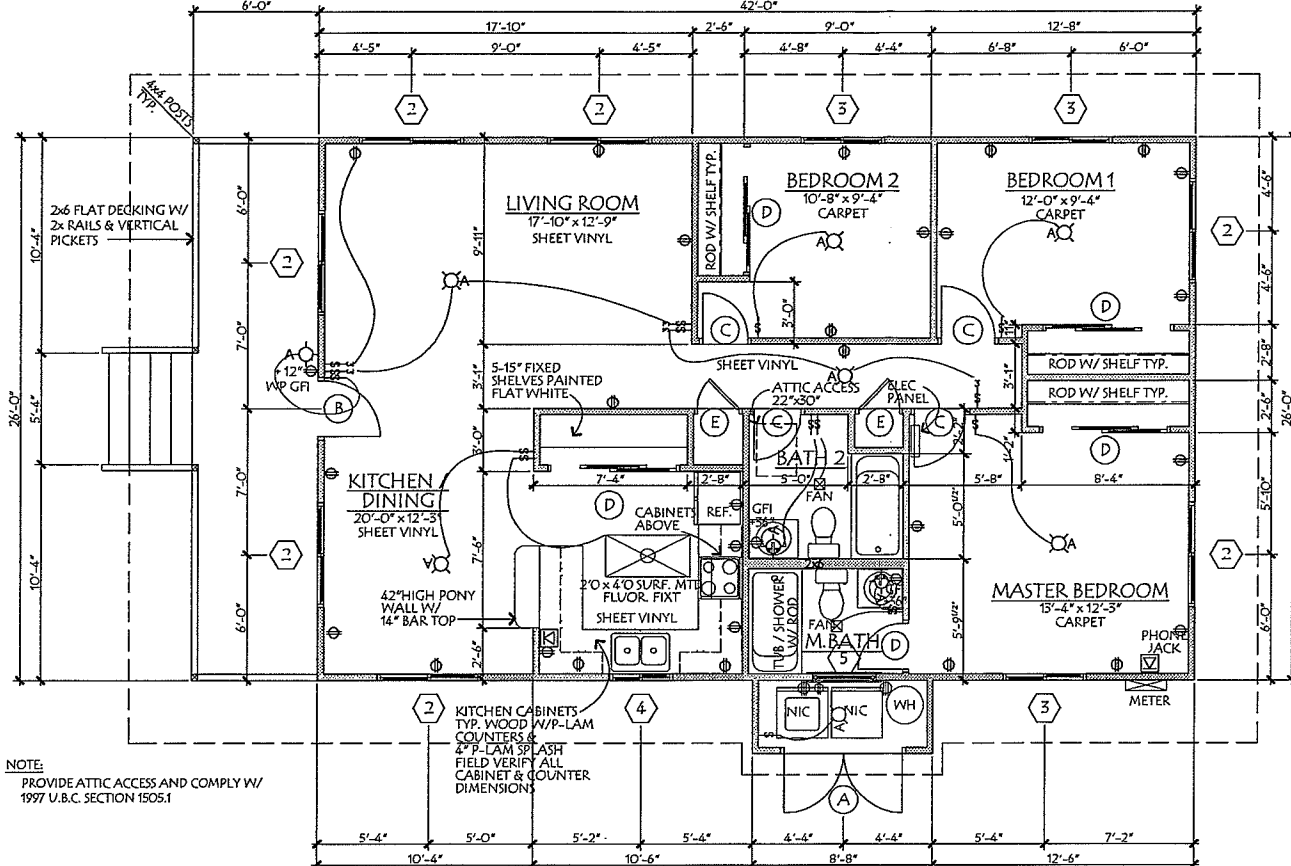
NOTES

- ALL WORK SHALL CONFORM TO CURRENT EDITIONS OF THE U.B.C., I.N.C., U.P.C., U.F.C. AND ALL OTHER APPLICABLE CODES AND ORDINANCES ADOPTED BY THE LOCAL BUILDING DEPARTMENT.
- ALL RECEPTICALS SHOWN ON PLANS ARE 110V 15A A.F.F. BATH SAME AS KITCHEN. GFI RECEPTICALS PER N.E.C.
- ALL STAIRS, HANDRAILS & GUARDRAILS TO COMPLY W/VBC SECTION 10.
- FLOOR DIAPHRAM: 5/4" T&G STRUCTURAL PLYWOOD SHEATHING ON WOOD JOISTS TO BE GLUED & NAILED W/8d @ 6" O.C. EDGE / 12" O.C. @ FIELD
- LANAI FLOOR DECK TO BE: 2x6 TREATED LUMBER FLAT ON 2x6 JOISTS @ 24" O.C.
- FOOTING TO BE MIN. 2500 PSI CONC. SEE DETAIL 4/A2
- PROVIDE INSECT SCREEN @ ALL ROOF VENT LOCATIONS
- ROOF: ASPHALT SHINGLES W/ #30 FELT ON 5/8" PLYWOOD NAILED W/8d BOX @ 6" O.C. EDGES & 12" O.C. @ FIELD ON 2 X 4 WD TRUSSES @ 24" O.C.
- EXTERIOR WALLS: 5/4" T&G STRUCTURAL PLYWOOD SHEATHING ON 2x4 STUDS @ 16" O.C. ON ASPHALTIC BLD'G PAPER ON 2x4 STUDS @ 16" O.C. ALL EXTERIOR WALLS NAIL W/8d'S BOX @ 6" O.C. EDGE / 12" O.C. @ FIELD. USE 18 GA. STRAPPING SEE DETAIL 8/A1 ON FULL HEIGHT STUDS ADJACENT TO ALL DOOR & WINDOW OPENINGS

PROVIDE SIMPSON HD5A'S W/ 3/4" THREADED RODS TO UNDERLYING 4x8 BEAM THRU SILL PLATE & 3/4" FLOORING. ALSO USE 1/2"x6" LAGS @ 16" O.C. SHEARWALL. 1/2" PLYWD. BOTH SIDES W/ 8d'S @ 6" O.C. EDGES & 12" O.C. @ FIELD. PLYWOOD TO EXTEND TO UNDERSIDE OF ROOF DECK
USE SIMPSON THA418 ADJUSTABLE HANGER UP SIDE DOWN TO HOLD 4x8 TO 4x12. 4x8 TO BEAR ON TOP OF 4x12 AS DO JOISTS.

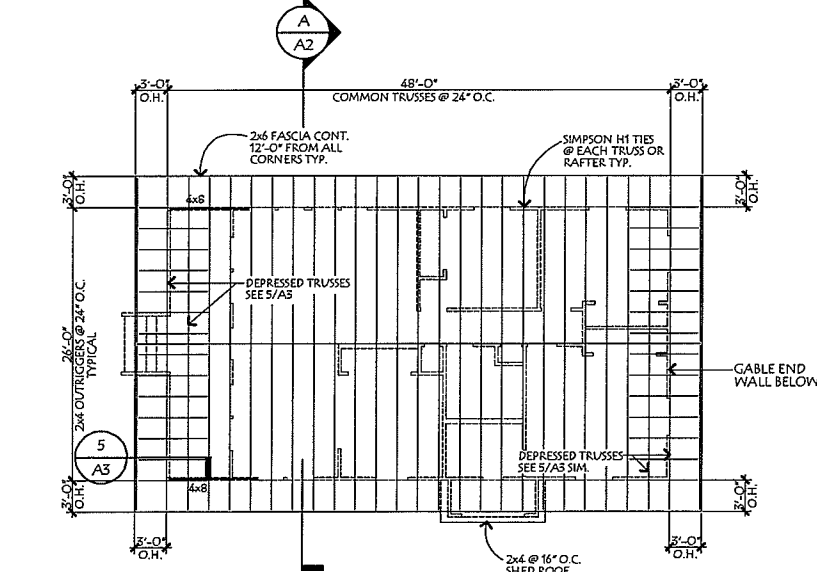


4 FOUNDATION & FLOOR FRAMING PLAN
Scale: 1/4" = 1'-0"

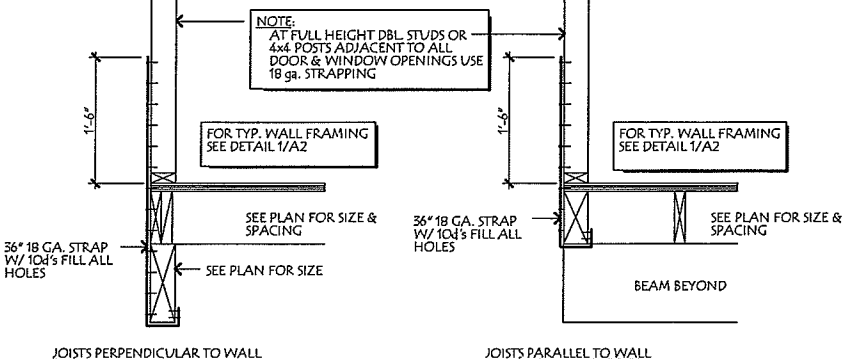


2 FLOOR PLAN
Scale: 1/4" = 1'-0"

NOTE: PROVIDE ATTIC ACCESS AND COMPLY W/ 1997 U.B.C. SECTION 1505.1



3 ROOF FRAMING PLAN
Scale: 1/8" = 1'-0"



8 FLOOR TO BEAM CONN. (@ SHEARWALL)
Scale: 1" = 1'-0"

DOOR & WINDOW SCHEDULE

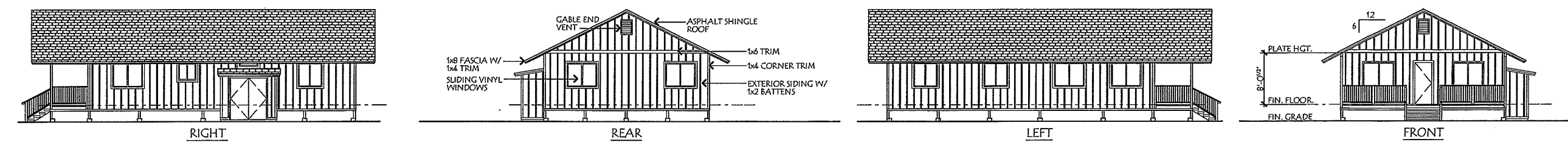
WINDOWS TO BE: CERTAINTEED SLIMLINE SERIES WHITE VINYL, NAIL ON FRAMES SINGLE GLAZE, CLEAR GLASS

NOTE: INSTALL WINDOWS PER DETAIL 7 / A2
INTERIOR / EXTERIOR WINDOWS SUBJECT TO HUMAN IMPACT SHALL COMPLY W/ 1997 U.B.C. CHAPTER 24.

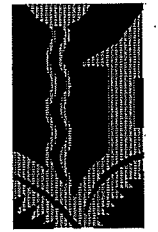
Window	Description
WINDOW 1	4'-0" x 4'-0" HORIZ. SLIDER
WINDOW 2	5'-0" x 4'-0" HORIZ. SLIDER
WINDOW 3	4'-0" x 4'-0" HORIZ. SLIDER
WINDOW 4	3'-0" x 3'-0" HORIZ. SLIDER
WINDOW 5	3'-0" x 1'-6" FULL AWNING

COORD. W/ TOP OF EXTERIOR CLOSET

DOORS:
DOOR A - 6'-0" x 6'-8" EXT. PAIR.
DOOR B - 3'-0" x 6'-8" EXT.
DOOR C - 2'-6" x 6'-8" INT., HC
DOOR D - 6'-0" x 6'-8" BI-PASS, HC
DOOR E - 2'-0" x 6'-8" INT., HC



1 EXTERIOR ELEVATIONS
Scale: 1/8" = 1'-0"



**PHILIP
WHITE
ARCHITECTS**



License Expires 4-30-08
This work was prepared by me or under my supervision, and construction of this project will be under my observation. Classification of construction as defined in Hawaii Administrative Rules Title 16 Chapter 115.

Project Name:
**PROJECT NAME
SUB-PROJECT NAME**

T.M.K. Number:
1-23-45 : 678

Address:
123 ANY STREET,
CITY HI 96123

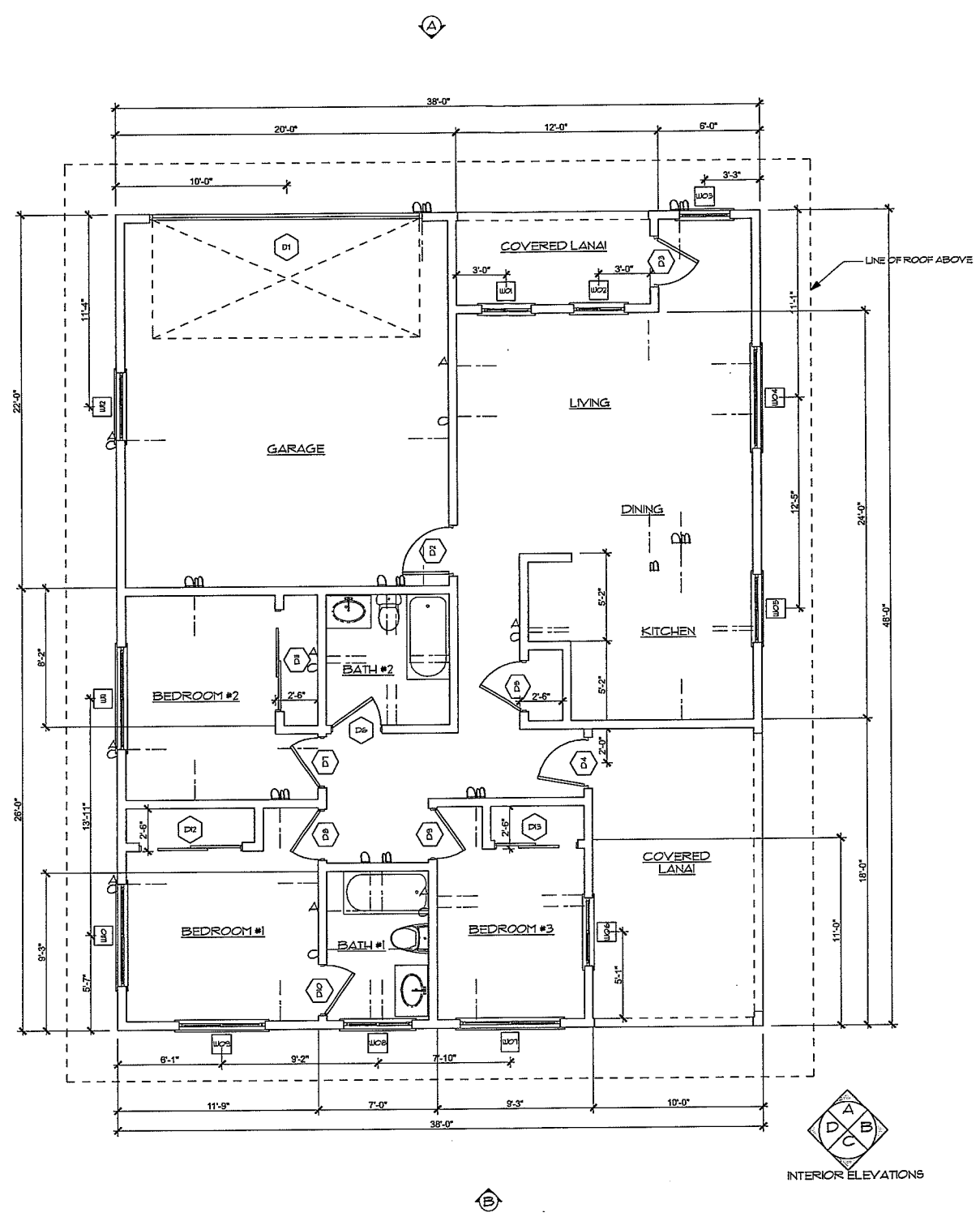
Sheet Content:
FLOOR PLAN

Project Number: ##-XXX

PHILIP K. WHITE ASSOCIATES, LTD.
ARCHITECTS AND PLANNERS
851 POHUKAINA STREET, SUITE C-1
HONOLULU, HAWAII 96813-5327
TEL: 808-696-0260
FAX: 808-591-6661

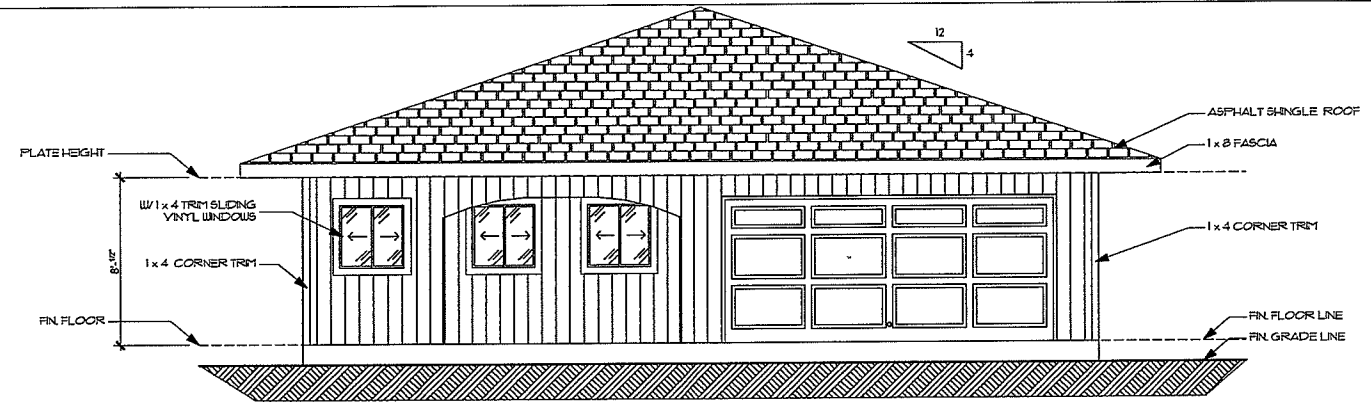
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Phase: xxxxxxxxxxxx
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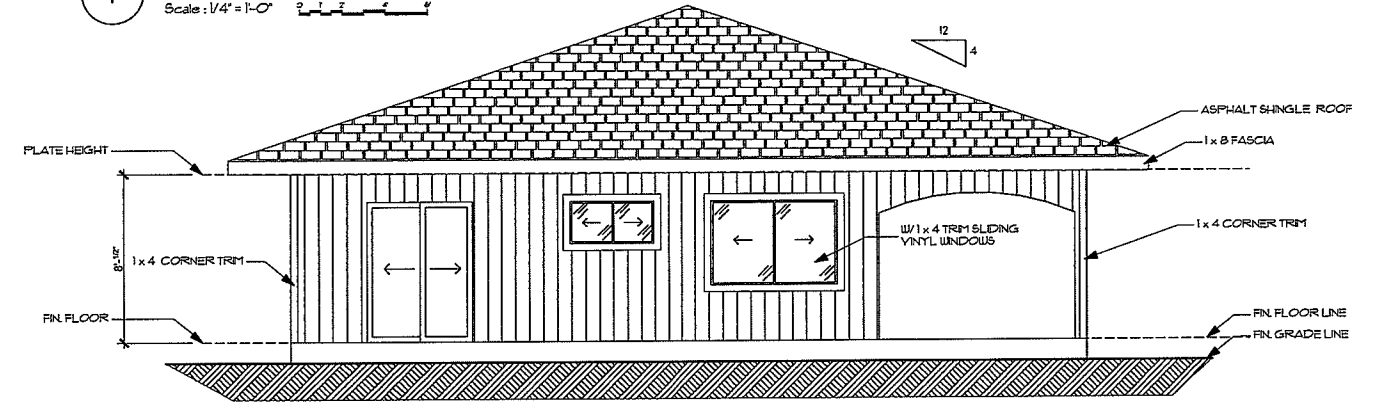


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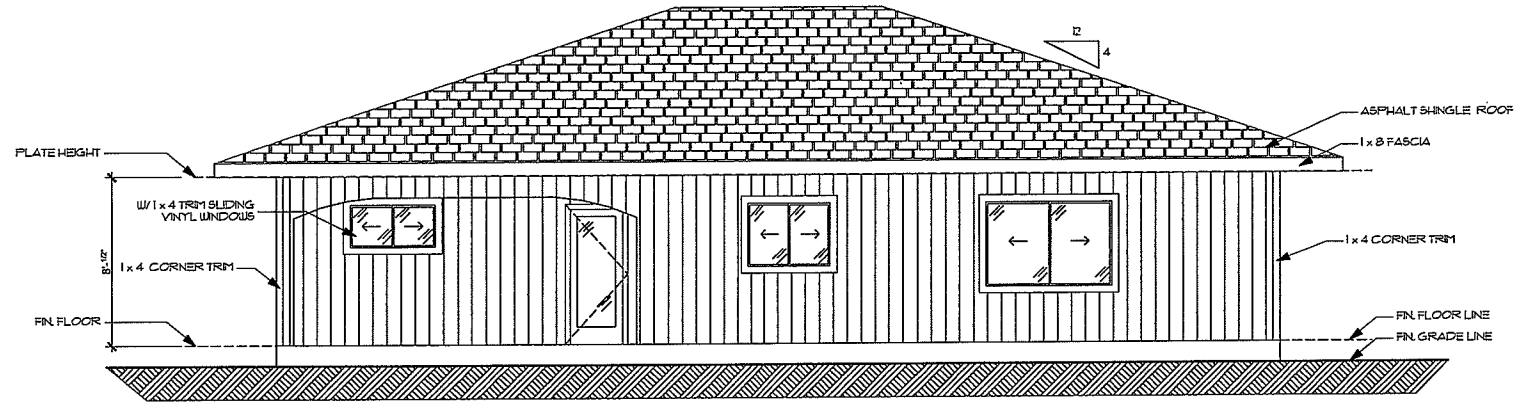




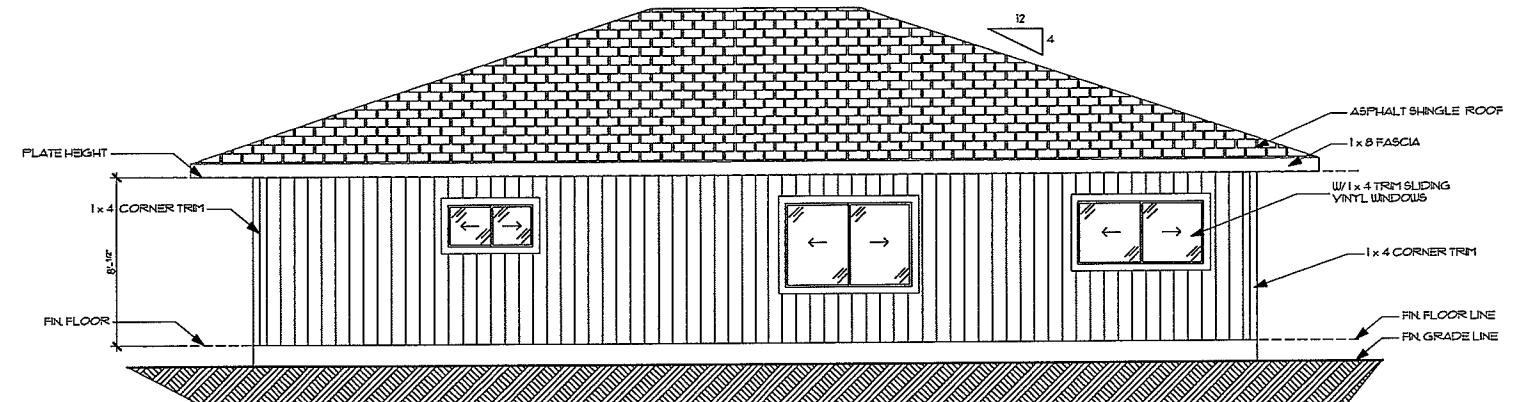
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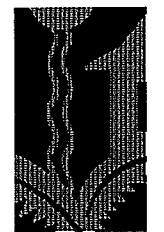
2 REAR ELEVATION
Scale: 1/4" = 1'-0"



3 LEFT ELEVATION
Scale: 1/4" = 1'-0"



4 RIGHT ELEVATION
Scale: 1/4" = 1'-0"



**PHILIP
WHITE
ARCHITECTS**



License Expires 4-30-08
This work was prepared by me or under my supervision, and construction of this project will be under my observation. Observation of construction as defined in Hawaii Administrative Rules Title 16 Chapter 115.

Project Name:
PROJECT NAME
SUB-PROJECT NAME

TMK Number:
1-23-45 : 6-1B
Address:
123 ANY STREET,
CITY HI 96123

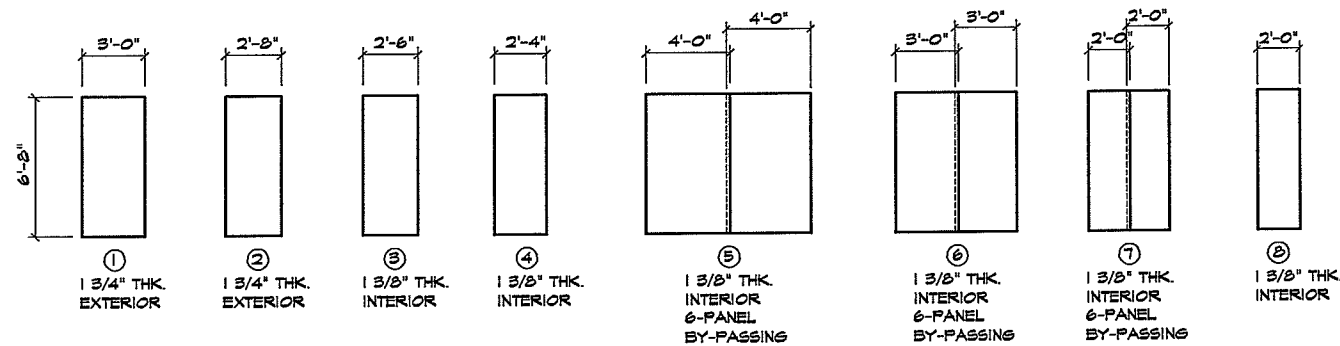
Sheet Content
**EXTERIOR
ELEVATIONS**

Project Number: ##-XXX

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ARCHITECTS AND PLANNERS
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HONOLULU, HAWAII 96813-5327
TEL: 808-596-0260
FAX: 808-591-6661

Sheet Number

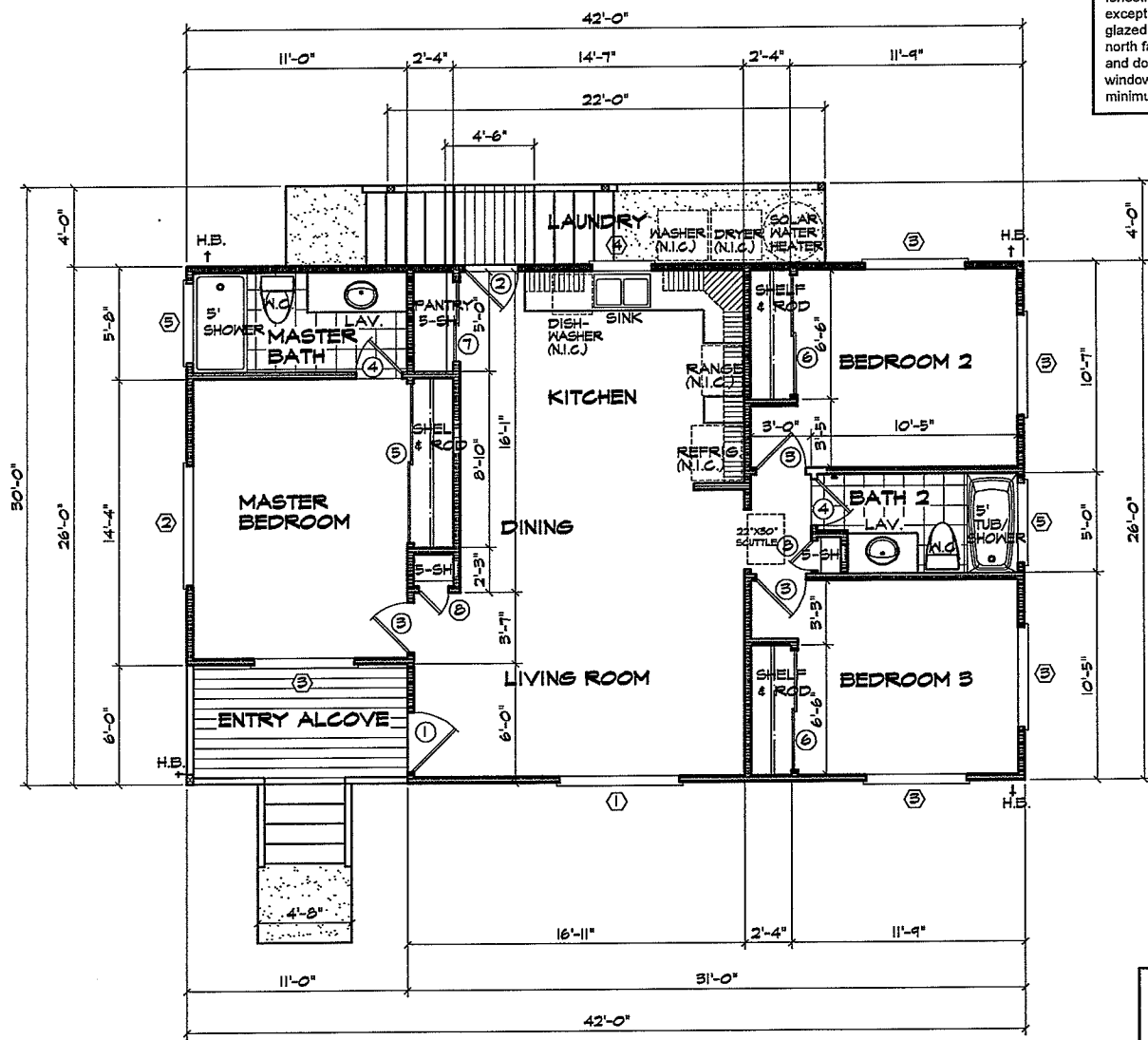
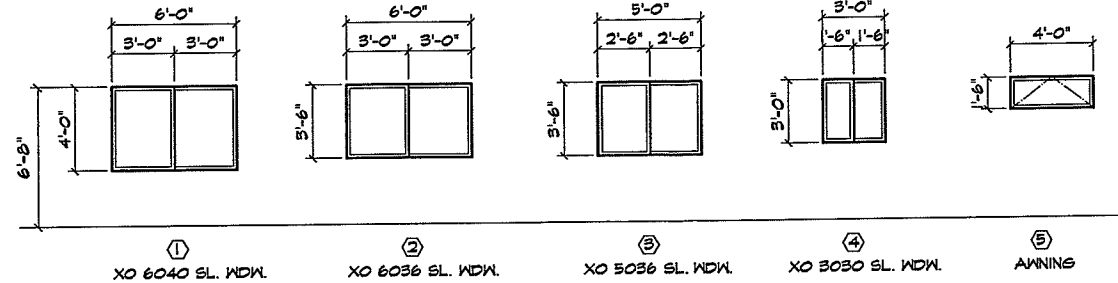
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Phase: xxxxxxxxxxxx
Total Sheets: ##



DOOR & WINDOW SCHEDULES

NOTE: SEE SPEC/MATERIAL LIST FOR DOOR TYPE

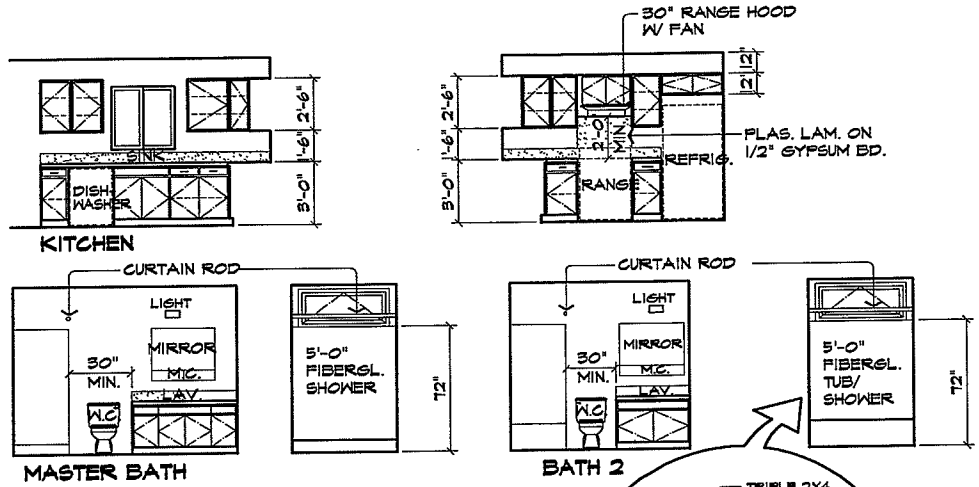
All exterior sliding glass doors and windows shall have a glazed fenestration maximum SHGC=0.40, except; up to 15 square feet of glazed fenestration per dwelling, north facing sliding glass windows and doors and sliding glass windows and doors with a minimum projection factor of 1.0.



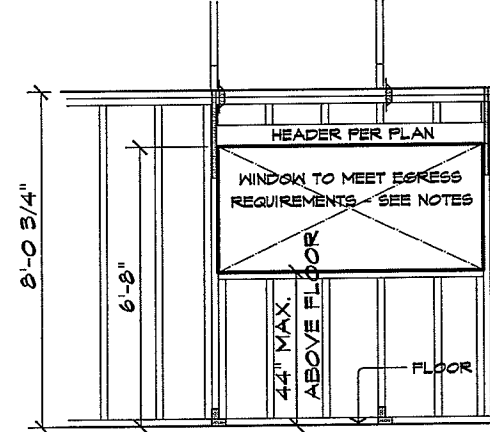
FLOOR PLAN
SCALE: 1/4"=1'-0"

AREA TABULATIONS

LIVING	1026 SQ. FT.
ENTRY ALCOVE	66 SQ. FT.
COVERED LANAI	88 SQ. FT.
TOTAL AREA	1180 SQ. FT.



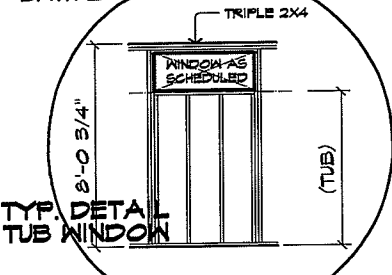
INTERIOR ELEVATIONS
SCALE: 1/4"=1'-0"



EGRESS WINDOW DETAIL

BASEMENTS IN DWELLING UNITS AND EVERY SLEEPING ROOM BELOW THE FOURTH STORY SHALL HAVE AT LEAST ONE OPERABLE WINDOW OR DOOR APPROVED FOR EMERGENCY ESCAPE OR RESCUE WHICH SHALL OPEN DIRECTLY INTO A PUBLIC STREET, PUBLIC ALLEY, YARD OR EXIT COURT. THE UNITS SHALL BE OPERABLE FROM THE INSIDE TO PROVIDE A FULL CLEAR OPENING WITHOUT THE USE OF SEPARATE TOOLS.

ALL ESCAPE OR RESCUE WINDOWS SHALL HAVE A MINIMUM NET CLEAR OPENABLE AREA OF 5.7 SQUARE FEET. THE MINIMUM NET CLEAR OPENABLE HEIGHT DIMENSION SHALL BE 24 INCHES. THE MINIMUM NET CLEAR OPENABLE WIDTH DIMENSION SHALL BE 20 INCHES. WHEN WINDOWS ARE PROVIDED AS A MEANS OF ESCAPE OR RESCUE THEY SHALL HAVE A FINISHED SILL HEIGHT NOT MORE THAN 44 INCHES ABOVE THE FLOOR.



TYP. DETAIL TUB WINDOW

COUNTY OF MAUI
MAUI COUNTY CODE, CHAPTER 18.18A ENERGY CODE

To the best of my knowledge, this projects design substantially conforms to the Energy Code for:

- Building Component Systems
- Electrical Component Systems
- Mechanical Component Systems

Signature: _____ Date: _____
Name: _____
Title: _____
License No. _____



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MODI 1000 OHANA HABITAT



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SIGNATURE _____

PROPOSED NEW DWELLING FOR:

SHEET NO.
1
OF FIVE

REVISIONS

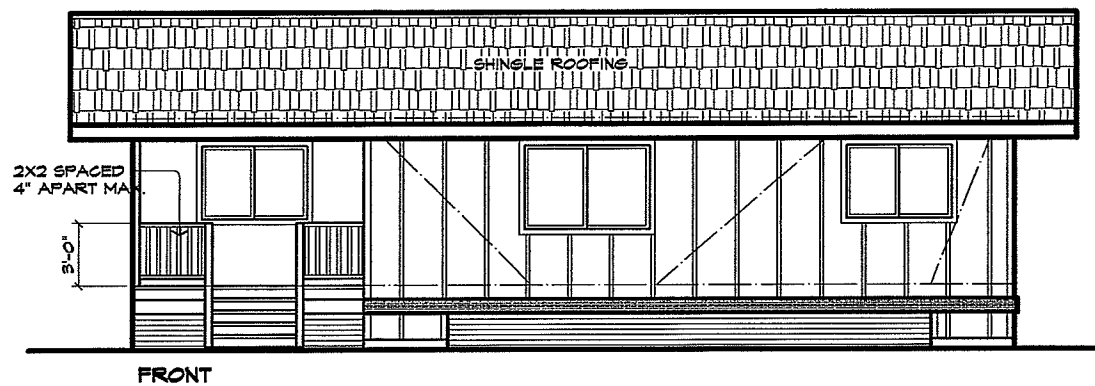
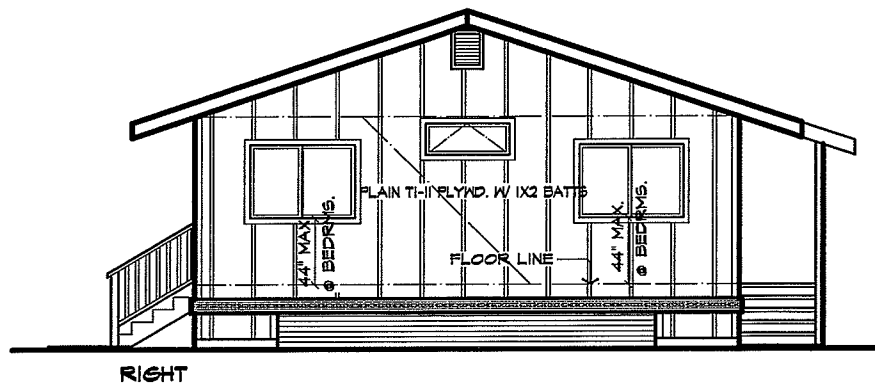
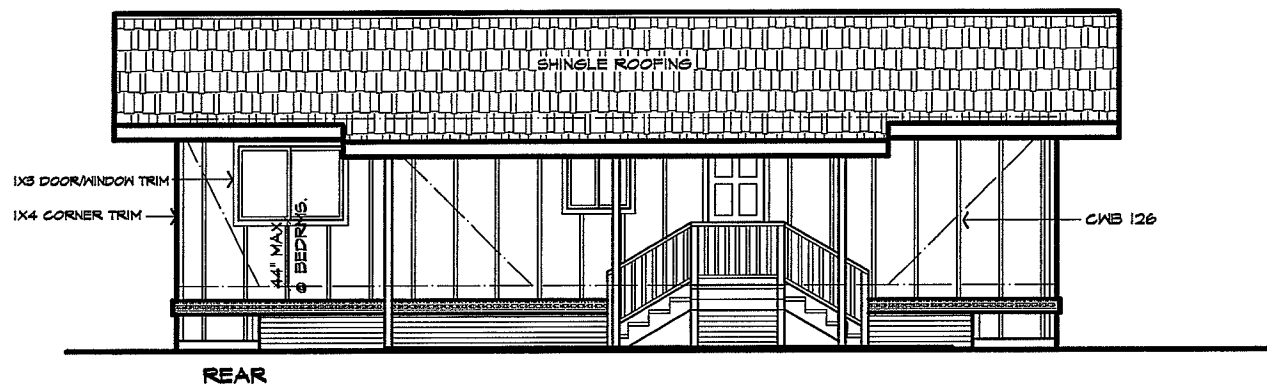
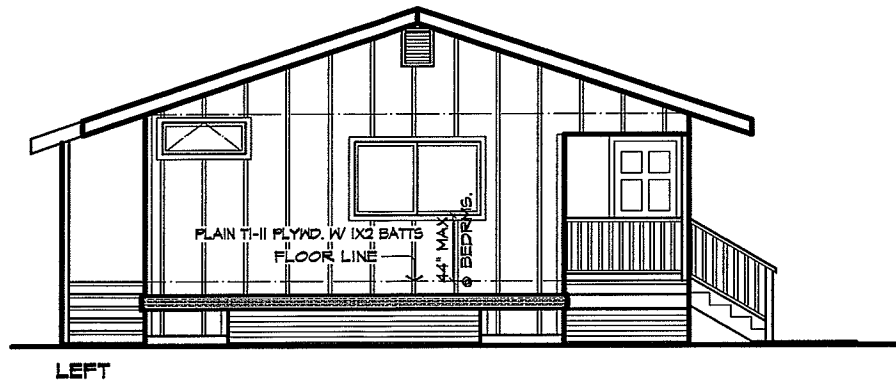
DATE
APRIL 2011



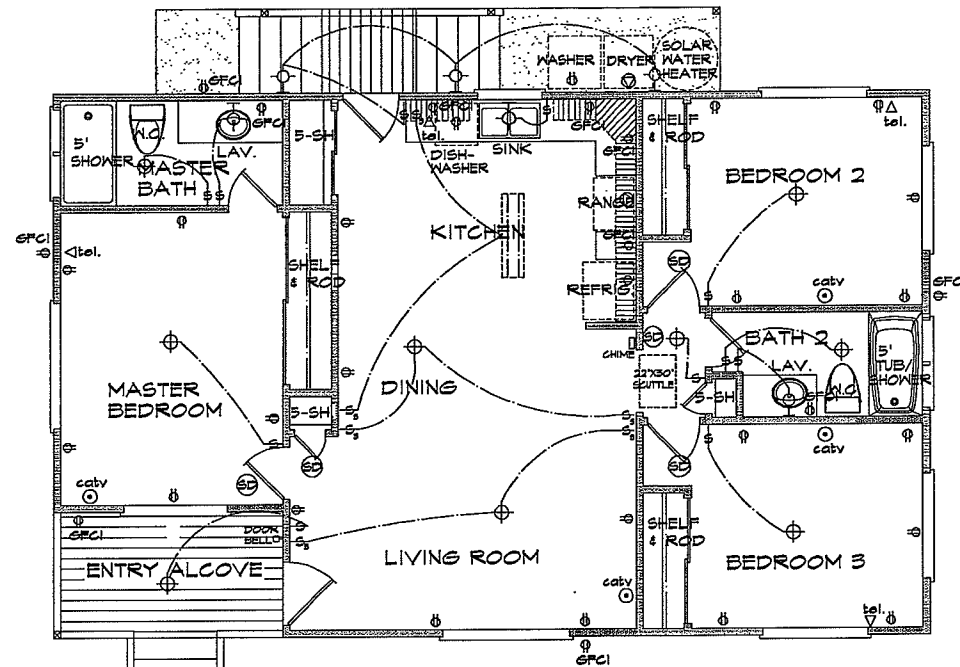
250 Lalo Place
Kahului, Hawaii 96732

Building Solutions for Hawaii

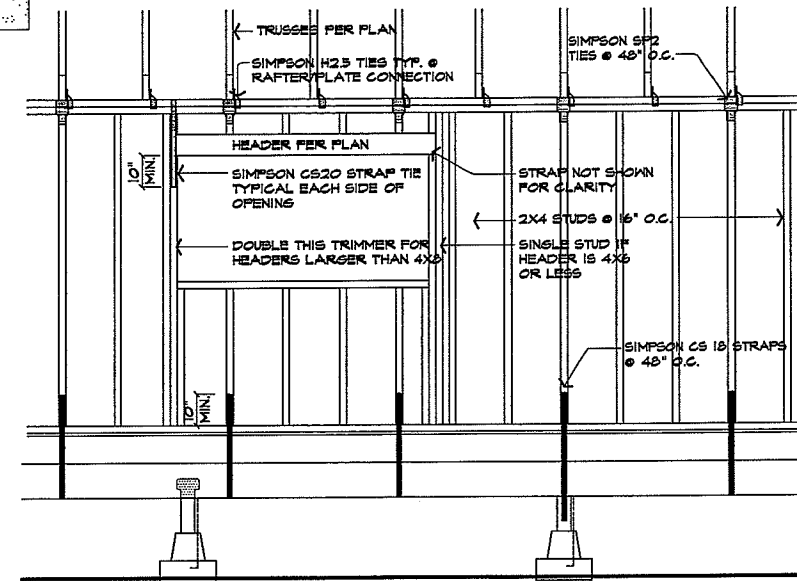
MODI 1000 OHANA HABITAT



EXTERIOR ELEVATIONS
SCALE: 1/4"=1'-0"



ELECTRICAL PLAN
SCALE: 1/4"=1'-0"



LOAD PATH DETAIL

Island Homes
*Collection*TM
by **HONSADOR**

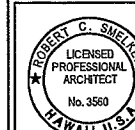
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SIGNATURE

Honsador Lumber
Building Solutions for Hawaii
250 Lalo Place
Kahului, Hawaii 96732

REVISIONS

DATE
APRIL 2011

SHEET NO.
2
OF FIVE

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APPENDIX B.

Soils Investigation Report

REPORT
SOILS INVESTIGATION

KAHOMA RESIDENTIAL SUBDIVISION

LAHAINA, MAUI, HAWAII
TMK: (2) 4-5-10: 5

for

WEST MAUI LAND COMPANY, INC.

Project No. 101386-FM
May 5, 2010

ISLAND GEOTECHNICAL ENGINEERING, INC.

Geotechnical Consultants

330 Ohukai Road, Suite 119
Kihei, Maui, Hawaii 96753
Phone: (808) 875-7355
Fax: (808) 875-7122

May 5, 2010
Project No. 101386-FM

West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, Hawaii 96732

The attached report presents the results of a soils investigation at the site of the proposed Kahoma Residential Subdivision to be located in Lahaina, Maui, Hawaii.

A summary of the findings is as follows:

- 1) The subsurface conditions at the site were explored by excavating nineteen (19) test pits to depths of 2 to 8 feet below existing grade and drilling three (3) test borings to depths of 13.75 to 17.75 feet below existing grade.

In general, the explorations disclosed the site to be overlain with moderately dense to very dense GRANULAR SOILS which rest on top of moderately hard to hard BASALT ROCK. The GRANULAR SOILS generally consist of GRAVELS, SANDS, COBBLES and BOULDERS in varying proportions. Low plasticity fine-grained soils (silts and clays) were encountered in 10 of the 22 explorations and when encountered, were usually mixed with some granular soils. Loose material was encountered in 2 of the explorations; TP-3 and TP-6 at 0 to 2.5' and 0 to 3' below existing grade, respectively.

- 2) No groundwater was encountered in any of the explorations at the time of the investigation.
- 3) Based on the findings and observations, it is concluded that the site may be developed for the intended use.
- 4) BASALT ROCK was encountered in 18 of the 22 explorations at depths of 1.5 to 8.5 feet below existing grade. Heavy equipment or hoerammung will likely be required for removal of the ROCK.
- 5) The existing moisture content of some of the on-site soils was found to be dry to moderately moist. Dust control measures will be required during clearing, grubbing and grading of the site. In addition, use of the on-site soil as fill will require moisture conditioning in order to obtain optimum moisture content (ASTM D 1557) for compaction purposes.

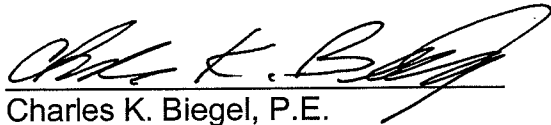
West Maui Land Company, Inc.
May 5, 2010
Page Two

Details of the findings and recommendations are presented in the attached report.

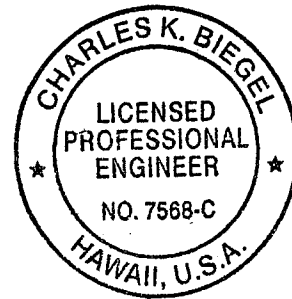
This investigation was made in accordance with generally accepted engineering procedures and included such field and laboratory tests considered necessary for the project. In the opinion of the undersigned, the accompanying report has been substantiated by mathematical data in conformity with generally accepted engineering principles and presents fairly the design information requested by your organization. No other warranty is either expressed or given.

Respectfully submitted,

ISLAND GEOTECHNICAL ENGINEERING, INC.



Charles K. Biegel, P.E.
President



This work was prepared by
me or under my supervision.

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INTRODUCTION

This investigation was made for the purpose of obtaining information on the subsurface conditions from which to base recommendations for site development for the proposed Kahoma Residential Subdivision to be located in Lahaina, Maui, Hawaii. The location of the site, relative to the existing streets and landmarks, is shown on the Vicinity Map, Plate 1.

SCOPE OF WORK

The services included excavating 19 test pits to depths of 2 to 8 feet below existing grade, drilling 3 test borings to depths of 13.75 to 17.75 feet below existing grade, obtaining samples of the underlying soils, performing laboratory tests on the samples, and performing an engineering analysis from the data gathered. In general, the following information is provided for use by the Architect and/or Engineer:

1. General subsurface conditions, as disclosed by the explorations.
2. Physical characteristics of the soils encountered.
3. Recommendations for foundation design, including bearing values, embedment depth and estimated settlement.
4. Recommendations for placement of fill and backfill.
5. Special considerations.

PLANNED DEVELOPMENT

From the information provided, the proposed development will include subdividing the 16.683 acre site into a 65 lot residential subdivision. One of the lots will be a 25 unit multi-family project. Footing loads were not available at the time this report was written.

SITE CONDITIONS

Surface

The property, designated by Tax Map Key (2) 4-5-10: 5, is located on the south side of the Kahoma Stream in Lahaina, Maui, Hawaii. At the time of the field investigation, no permanent structures were present on the site. The ground cover at the site consisted of weeds, boulders, bare soil and some occasional man-made debris.

Subsurface

Nine-teen (19) test pits were excavated to depths of 2 to 8 feet below existing grade and three (3) test borings were drilled to depths of 13.75 to 17.75 feet below existing grade to determine the subsurface conditions at the site. The locations of the explorations are shown on the Plot Plan, Plate 2. Detailed logs of the explorations are presented in the Appendix to this report.

In general, the explorations disclosed the site to be overlain with moderately dense to very dense GRANULAR SOILS which rest on top of moderately hard to hard BASALT

ROCK. The GRANULAR SOILS generally consist of GRAVELS, SANDS, COBBLES and BOULDERS in varying proportions. Low plasticity fine-grained soils (silts and clays) were encountered in 10 of the 22 explorations and when encountered, were usually mixed with some granular soils. Loose material was encountered in 2 of the explorations; TP-3 and TP-6 at 0 to 2.5' and 0 to 3' below existing grade, respectively.

No groundwater was encountered in any of the explorations.

From the USDA Soil Conservation Service "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", the site is located in an area designated as Wahikuli silty clay, 3 to 7 percent slopes (WdB) and Ewa silty clay loam, 0 to 3 percent slopes (EaA) and Rock land (rRK).

The Wahikuli series consist of well-drained soils on uplands on the island of Maui. These soils developed in material weathered from basic igneous rock. Elevations range from nearly sea level to 600 feet. Shrink-swell potential is low. Depth to bedrock is 1.5 to 3.5 feet. Unified soil classification is ML-CL (USDA, 1972, pp. 125-126, 166-167 and Plate 94).

The Ewa series consist of well-drained soils in basins and on alluvial fans on the islands of Maui and Oahu. These soils developed in alluvium derived from basic igneous rock.

Elevations range from near sea level to 150 feet. The depth to bedrock is greater than 5 feet. Unified soil classification is ML-CL (USDA, 1972, Plate 94 and pp. 29-30, 156-157, 168-169).

Rock land is made up of areas where exposed rock covers 25 to 90 percent of the surface. It occurs on all 5 islands. The rock outcrops and very shallow soils are the main characteristics. Elevations range from nearly sea level to more than 6,000 feet. (USDA, 1972, pg. 119 and Plate 94).

Geology

The site is located on the west flank of the West Maui Mountains. The island of Maui is a volcanic doublet believed to have formed during the late Tertiary (between 1 and 12 million years ago).

The West Maui Mountains were built by lavas flowing from rift zones trending north and south and a central vent. The lava flows which form the mountain have been separated into three groups: Wailuku, Honolua, and Lahaina Volcanic Series (Stearns and MacDonald, 1942). The main lava mass that makes up the West Maui Mountains is known as the Wailuku Volcanic Series which consist of primitive olivine basalts and associated pyroclastic and intrusive rock.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the findings and observations of this investigation, it is concluded that the proposed structures may be supported on spread footings bearing on firm on-site soil or properly compacted fill.

Special Considerations

- 1) Some of the near-surface soils were found to be loose at Test Pit 3 and Test Pit 6 at 0 to 2.5' & 0 to 3' respectively. These loose soils should be removed and replaced in structural areas.

In addition, the old route of the Kahoma Stream is said to have passed through a portion of this site and loose soils may be present on the site from that old stream route or the filling of that old stream route. In structural areas (and to 1' beyond the edge of the structure), it is recommended that following clearing and grubbing, each house pad should be moisture conditioned and compacted with a roller weighing not less than 20,000 pounds. Compaction shall continue until a firm/unyielding surface has been achieved as determined by the project geotechnical engineer. If soft or loose spots are encountered that cannot be properly compacted, the loose/soft areas shall be removed to firm material and the resulting depression shall be filled with properly compacted structural fill. Following

compaction of the exposed ground, in areas to receive fill, fill the building pad with properly compacted fill in accordance with the site preparation and grading section of this report.

- 2) The existing moisture content of some of the on-site soils was found to be dry to moderately moist. Dust control measures will be required during clearing, grubbing and grading of the site. In addition, use of the on-site soil as fill will require moisture conditioning in order to obtain optimum moisture content (ASTM D 1557) for compaction purposes.

- 3) BASALT ROCK was encountered in 18 of the 22 explorations at depths of 1.5 to 8.5 feet below existing grade. Heavy equipment or hoerammimg will likely be required for removal of the ROCK. It should be noted that often times in this geographical area large boulders are encountered that "pose" as rock. These large boulders can be excavated in large open areas but require hoe-ramming in confined areas such as utility trench excavation.

Foundations

An allowable bearing value of 2,000 pounds per square foot may be used for footings bearing on firm on-site soil or properly compacted fill and embedded at least 18 inches below the lowest adjacent finished grade.

For footings located adjacent to new or existing utility trenches, the bottom of the footing shall be deepened below a 1 horizontal to 1 vertical plane projected upwards from the edge of the utility trench.

For footings located on or adjacent to slopes, the footing shall be deepened such that there is a minimum horizontal distance of 5 feet from the edge of the footing to the slope face.

The bearing values are for dead plus live loads and may be increased by one-third for momentary loads due to wind or seismic forces. If any footing is eccentrically loaded, the maximum edge pressure shall not exceed the bearing pressure for permanent or for momentary loads.

All loose and disturbed soil at the bottom of footing excavations shall be removed to firm soil or the disturbed soil shall be compacted prior to laying of steel or placing of concrete.

The bottom of all footings should be mechanically compacted to produce a firm/unyielding surface.

Backfill around the perimeter of all foundations should be mechanically compacted to produce a firm/unyielding surface.

Site grading should be designed to prevent ponding of water adjacent to slab and footing areas.

Settlement

Under the fully applied recommended bearing pressure, it is estimated that settlement of square or continuous footings bearing on firm on-site soils or properly compacted fill will be less than 3/4 inch.

Differential settlement between footings will vary according to the size, bearing pressure and bearing material of the footing.

Lateral Resistance

For resistance of lateral loads, such as wind or seismic forces, an allowable passive resistance equivalent to that exerted by a fluid weighing 250 pounds per cubic foot may be used for footings, or other structural elements, provided the vertical surface is in direct contact with undisturbed soil or properly compacted fill.

Frictional resistance between footings and the underlying materials may be assumed as 0.4 times the dead load for the CLAY/SILT soils. Frictional resistance between footings and the onsite granular soils may be assumed as 0.5 times the dead load. Lateral resistance and friction may be combined.

Retaining Walls

Foundations for retaining walls shall be designed as per the foundation section of this report.

Depending on the type of backfill material within a 1H:2V plane projected upwards from the bottom edge of the retaining wall footing, the following active earth pressures may be used for design of free-standing retaining walls:

3" minus on-site or imported granular soil (less than 25% fines) as retaining wall backfill material:

<u>Backfill Slope</u>	<u>Horizontal Component</u>	<u>Vertical Component</u>
Level Backfill	30 pcf	0
3H:1V Backfill	35 pcf	10 pcf
2H:1V Backfill	40 pcf	20 pcf

Free-standing walls are defined as walls that are allowed to rotate between 0.005 to 0.01 times the wall height. The rotation of the wall away from the backfill develops "active earth pressures". If the wall is not allowed to move as in the case of basement walls or walls that are restrained at the top, the soil pressure that will develop is known as an "at rest" pressure; for restrained walls, the above active earth pressures shall be increased by 50 percent for "at-rest" conditions.

For granular retaining wall backfill, the top 1 foot of the backfill shall be "capped" with fine-grained clay or silt type soil, or capped by an impervious surface such as concrete or asphaltic concrete.

Drainage for the retaining wall backfill shall be accomplished by providing 4-inch diameter weepholes spaced 8-feet on-center (horizontally as well as vertically) or by using a minimum 4-inch diameter perforated PVC footing drain pipe. A 2-foot thick layer of crushed gravel, which is wrapped with geotextile filter fabric, shall be placed above the pipe; the crushed gravel shall be continuous from weephole to weephole, or in the case of a footing drain pipe, laid throughout the full length of the pipe. Geotextile fabric shall be Propex Geotex 601 or similar.

The backfill for the retaining wall shall be properly compacted in accordance with the Site Preparation and Grading section to this report. Site grading should be designed to drain surface water away from the backfill area.

The above active pressures do not include surcharge loads such as footings located within a 45 degree plane projected upwards from the heel of the footing, fine-grained soil as backfill and/or from hydrostatic pressures. If such conditions occur, the active pressure shall be increased accordingly.

Slab-on-Grade

Slab-on-grade construction shall be in accordance with Plate A of this report. The subgrade soil shall be moisture conditioned to within 0 & 3 percent of optimum moisture content and compacted to a minimum of 90% of the maximum dry density (as determined by the ASTM D 1557 test procedure) if the material is fine-grained or 95% of the maximum dry density (as determined by the ASTM D 1557 test procedure) if the material is granular.

Site grading should be designed to prevent ponding of water adjacent to slab and footing areas.

Slopes

Cut and fill slopes into soil materials shall not exceed 2 horizontal to 1 vertical. Fill slopes shall be constructed by overfilling and cutting back to compacted soil. Exposed slopes shall be covered as soon as practical after construction to minimize erosion.

Pavement Design

For the subdivision roadways, it is recommended that flexible pavements consist of one of the following two pavement sections depending on the type of subgrade soil:

<u>Subgrade Soil</u>	<u>A.C.</u>	<u>Base Course (UTB)</u>	<u>Select Borrow</u>
On-site silt/clay	2"	6"	6"
On-site granular soil	2"	6"	none

Prior to placing the select borrow or base course gravel, the subgrade soil should be observed and compaction tested by the project geotechnical engineer.

The subgrade soil shall be moisture conditioned to between 0 & 3 percent of the wet side of optimum moisture content and compacted to at least 95 percent of the maximum dry density as determined by the ASTM D 1557 test procedure.

The base course gravel shall be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D 1557 test procedure.

Site Preparation and Grading

It is recommended that the site be prepared in the following manner:

1. All vegetation, weeds, brush, roots, stumps, rubbish, debris, and other deleterious material shall be removed and disposed of off-site. See Special Considerations section of this report for more information on Site Preparation and Grading.
2. In areas to receive fill and at finished subgrade in cut areas, the exposed surface

shall then be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture and then compacted with a roller weighing not less than 20,000 pounds to at least 90 percent of the maximum dry density (ASTM D1557). If soft or loose spots are encountered that cannot be re-compacted, the loose/soft areas shall be removed to firm material and the resulting depression shall be filled with properly compacted fill.

3. Where fill is placed on existing ground that is steeper than 5 horizontal to 1 vertical, the existing ground surface shall be benched into firm soil as the fill is placed.

4. Mass Fill for the Subdivision Soils used in the mass fills should be in accordance with the following: From Finished Grade to 3' Below Finished Grade Material shall be 3 inch minus, non-expansive material. Placed in 6" thick (or less) compacted lifts and compacted to 95 percent of the maximum dry density (ASTM D1557). From 3' Below Finished Grade to 6' Below Finished Grade Material shall be 6 inch minus material. Placed in 9" thick (or less) compacted lifts and compacted to 90 percent of the maximum dry density (ASTM D1557). Below 6' From Finished Grade Material shall be 12 inch minus material. Placed in 15" thick (or less) compacted lifts and compacted to 90 percent of the maximum dry density (ASTM D1557).

Note A) All material should be well blended (no gap-graded material) in the mass

fill.

Note B) The above lift thicknesses assume the compaction equipment being used can achieve the minimum degree of compaction at those thicknesses; in the event the compaction equipment cannot achieve the minimum degree of compaction, the lift thicknesses should be reduced accordingly.

5. Fill and Backfill in Non-Structural Areas Non-structural areas shall be defined as A) areas beyond 3 feet from the edge of any building and B) non-pavement areas.

Non-structural fill and backfill material shall consist of material which is free of organics and debris. In the upper 3 feet from finished grade, the material shall be less than 6 inches in greatest dimension. Below 3 feet from finished grade, the material shall be less than 24 inches in greatest dimension, provided there are sufficient fines to fill the interstices.

Each layer shall be placed in lifts not exceeding the maximum particle size contained within the lift. Prior to compacting the soil, the soil's moisture content shall be adjusted to near optimum moisture content. Each layer shall be thoroughly compacted prior to placing of any subsequent lifts to at least 85 percent of the maximum dry density as determined by the ASTM D 1557 test procedure.

6. Backfill Behind Retaining Walls Retaining wall backfill shall be defined as backfill that extends from the stem of the retaining wall to 6 inches beyond the heel of the wall footing or the footing excavation line, whichever is greater.

All retaining wall backfill material shall consist of material that is in accordance with the project plans and specifications and meets the design criteria of the structural engineer. Granular backfill is recommended.

Each layer of backfill shall be placed in layers not exceeding 6 inches in compacted thickness. Each layer of backfill shall be thoroughly compacted prior to placing of any subsequent lifts. All retaining wall backfill shall be compacted to at least 90 percent of the maximum dry density as determined by the ASTM D 1557 test procedure.

7. During construction, drainage shall be provided to prevent ponding of water adjacent to or on foundation and pavement areas. Poned areas shall be drained immediately or water pumped out without damaging adjacent structures and property. If water accumulation softens the subgrade materials, the affected soils shall be removed and replaced with properly compacted fill.

It is particularly important to see that all fill and backfill soils are properly compacted in

order to maintain the recommended design parameters provided in this report.

ON-SITE OBSERVATION

During the progress of construction, so as to evaluate general compliance with the design concepts, specifications and recommendations contained herein, a representative from this office should be present to observe the following operations:

1. Site preparation.
2. Placement of fill and backfill.
3. Footing excavations and slab subgrade moisture conditioning and compaction.

REMARKS

The conclusions and recommendations contained herein are based on the findings and observations made at the exploration locations. If conditions are encountered during construction which appear to differ from those disclosed by the explorations, this office shall be notified so as to consider the need for modifications.

This report has been prepared for the exclusive use of West Maui Land Company, Inc. and their respective design consultants. It shall not be used by or transferred to any other party or to another project without the consent and/or thorough review by this facility. Should the project be delayed beyond the period of one year from the date of this report,

the report shall be reviewed relative to possible changed conditions.

Samples obtained in this investigation will deteriorate with time and will be unsuitable for further laboratory tests within one (1) month from the date of this report. Unless otherwise advised, the samples will be discarded at that time.

The following are included and complete this report:

Slab-On-Grade Detail ----- Plate A

Vicinity Map ----- Plate 1

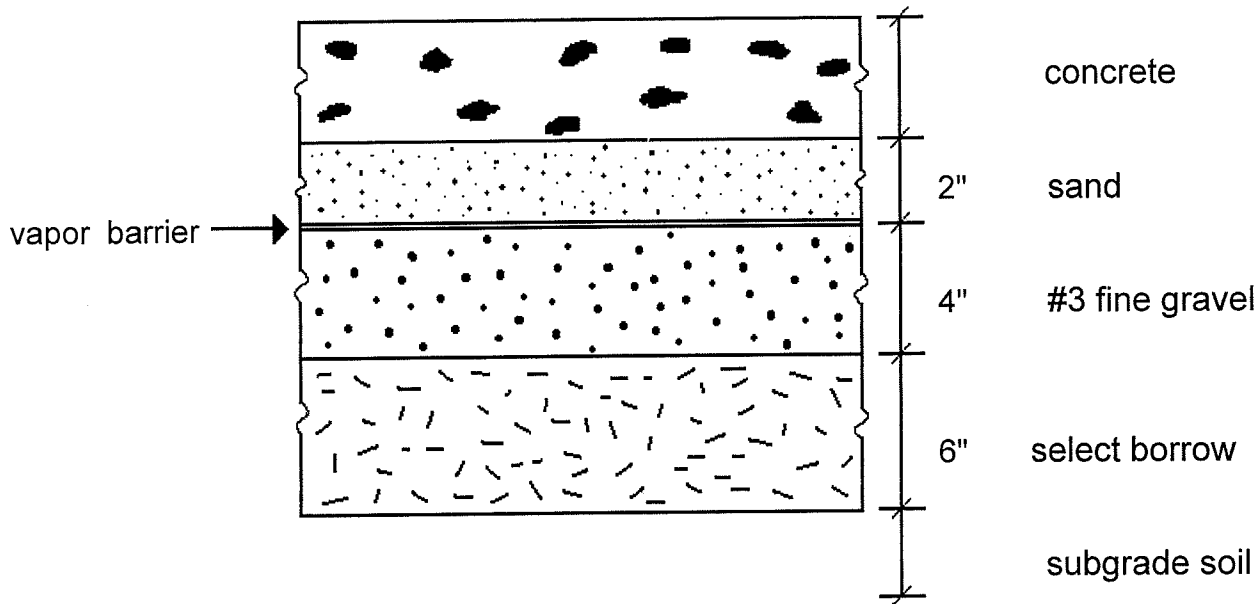
Plot Plan ----- Plate 2

Appendix: Field Investigation and Laboratory Testing

Logs of Test Pits and Test Borings

Laboratory Test Results

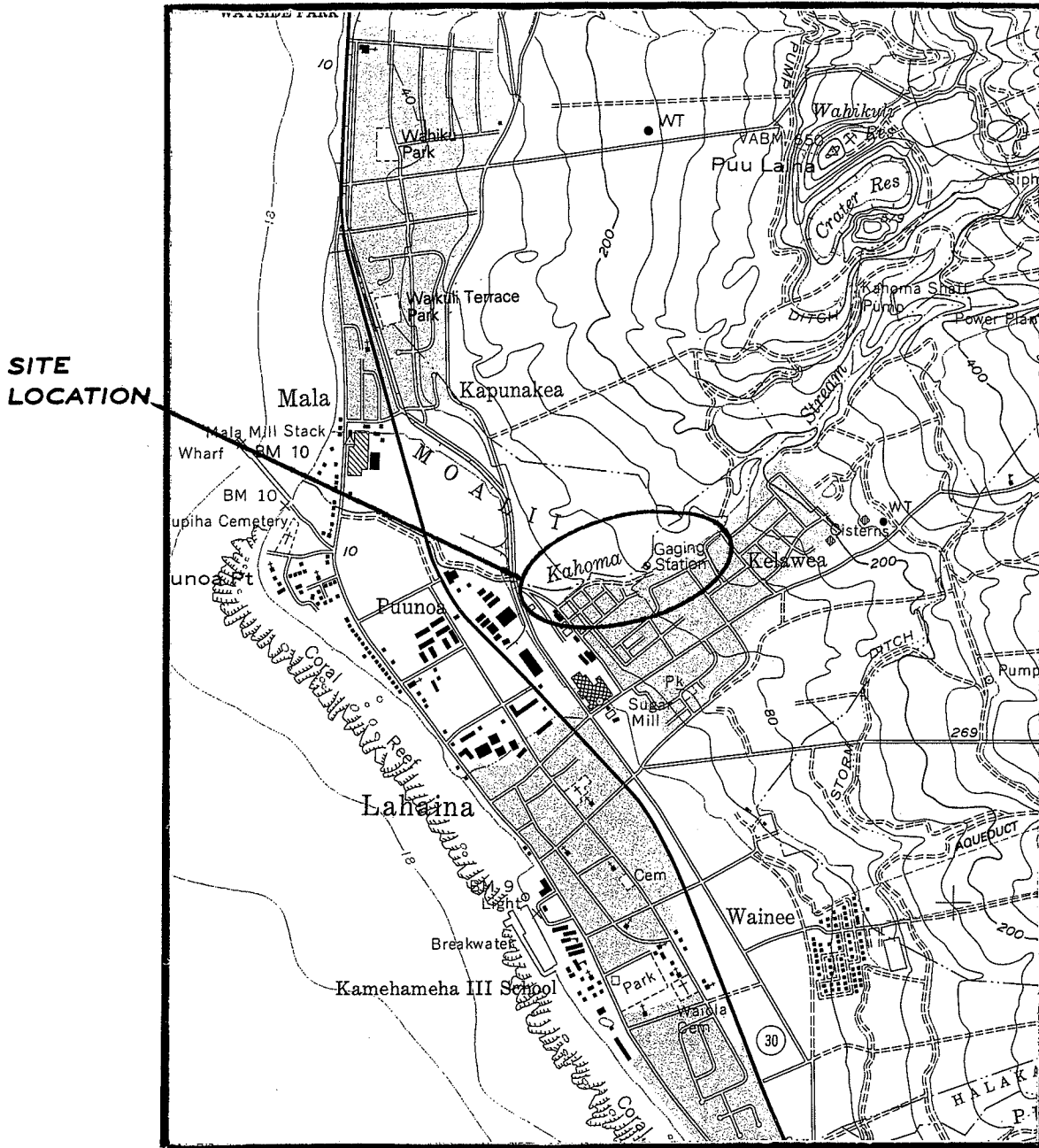
SLAB-ON-GRADE DETAIL



Notes:

1. The subgrade soil should be moisture conditioned to within 3 percent of optimum moisture content, and compacted to a minimum of 95% of the maximum dry density as determined by the ASTM D 1557 test procedure if the material is granular or a minimum of 90% of the maximum dry density as determined by the ASTM D 1557 test procedure if the material is fine-grained.
2. The select borrow shall be compacted to a minimum of 95% of the maximum dry density as determined by the ASTM D 1557 test procedure.
3. The #3 fine gravel shall be compacted by means of a vibratory plate compactor making a minimum of 4 passes.
4. The SAND shown above is for concrete curing purposes and should be moist prior to placement of the concrete. If the slab designer chooses to eliminate the 2 inches of SAND, it is recommended that the select borrow thickness be increased to 8 inches.
5. The concrete thickness, reinforcing and curing compound recommendations are to be provided by others.
6. Exterior slabs may eliminate the #3 fine gravel, vapor barrier and sand; concrete may be placed on 6 inches of select borrow.

VICINITY MAP



**SITE
LOCATION**

REFERENCE:

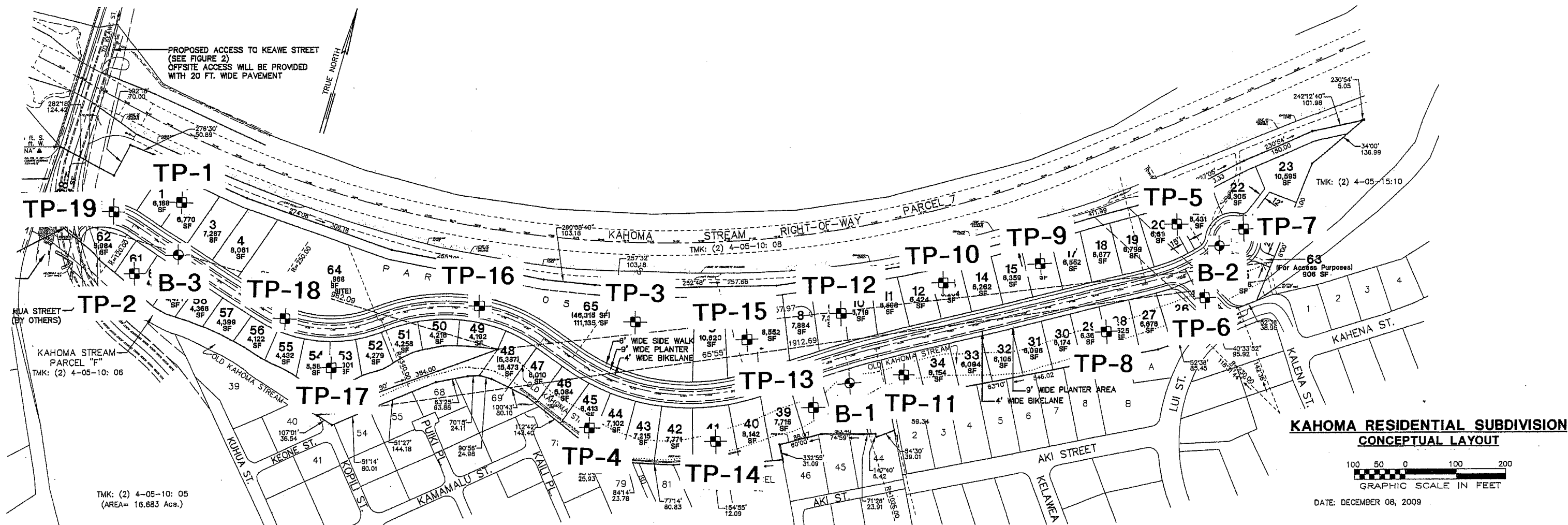
USGS TOPOGRAPHIC MAP
LAHAINA QUADRANGLE

Dated: 1983

KAHOMA RESIDENTIAL SUBDIVISION

ISLAND GEOTECHNICAL ENGINEERING, INC.
Geotechnical Consultants

PROJECT NO.	101386-FM
DATE	May. 2010
SCALE	1" = 2000'
PLATE	1



PLOT PLAN		
SCALE:	APPROVED BY:	DRAWN BY
DATE: APRIL, 2010		REVISED
KAHOMA RESIDENTIAL SUBDIVISION		
ISLAND GEOTECHNICAL PROJECT # 101386-FM		PLATE 2

APPENDIX

FIELD INVESTIGATION AND LABORATORY TESTING

FIELD INVESTIGATION

General

The field investigation consisted of performing explorations at the locations shown on the Plot Plan. The method used for the exploratory work on this project is shown on the respective exploration log. A description of the various methods are presented below.

Test Borings Using Truck-Mounted Drilling Equipment

Truck-mounted borings are drilled using a gas-powered drilling rig. The hole is advanced using continuous flight augers, wash boring and/or NX coring.

Auger drilling is used in soils where caving does not occur. The augers are 4-1/2 inch diameter continuous helical flight augers with the lead auger having a head equipped with changeable cutting teeth. Soil cuttings are brought to the surface by the continuous flights. After the bore hole is advanced to the required depth and cleaned of cuttings by additional rotation of the augers, the augers are retracted for soil sampling or in-situ testing.

In soils where caving of the bore hole occurs, the hole is advanced by wash boring or hollow-stem augering. Wash boring consists of advancing steel casing by rotary action and water pressure to flush the soil from the casing. The lead section of the casing is equipped with a carbide or diamond casing bit. After the casing has been advanced to the required depth, soil samples are obtained through the inside of the casing. Hollow-stem drilling consists of advancing the hole with 7-5/8 inch outside diameter and 4-1/4 inch inside diameter augers. The leading drill bit is connected to drilling rods through the central portion of the auger. At the required sampling depth, the interior drill rods and lead bit are removed, and the soil sample is taken by driving a sampler through the "hollow"

section of the augers.

Coring is used for hard formations such as rock, coral or boulders. The core barrel, consisting of a 5-foot long double tube, hardened steel barrel with either a carbide or diamond bit, is attached to drilling rods and set on the hard formation. The core barrel is advanced through the formation by rotation of the core barrel. Water is used to flush out the cuttings. Upon completion of the core run, the sample is removed from the core barrel and inspected. The total core recovery length and the sum of all intact pieces over 4-inches in length are measured. The length of core recovery divided by the length of the core run is the recovery ratio. The combined length of the 4-inch or longer pieces divided by the length of core run is the Rock Quality Designation (RQD). The values provide an indication of the quality of the formation.

Test Borings Using Portable Drilling Equipment

In areas inaccessible to truck-mounted equipment, portable drilling equipment is used to drill the test boring. The boring is advanced by either (1) continuous drive sampling, or by (2) using a small gas-powered drill rig with continuous flight augers, wash boring or NX coring.

Soil samples are obtained with a tripod and cathead assembly using soil sampling methods described below.

Test Pits Using Excavators / Backhoes

Test pits are excavated using an excavator or backhoe. Material excavated from the pit and the sides and bottom of the pit are visually inspected and a continuous log of the hole is kept.

Explorations Using Hand Tools

In inaccessible areas requiring only shallow explorations, borings and test pits are made using hand equipment. Borings are drilled using hand augers. Test pits are excavated using hand tools. Cuttings from the boring and/or pit are inspected and visually classified.

Soil Sampling

Relatively undisturbed samples of the underlying soils are obtained from borings by driving a sampling tube into the subsurface material using a 140-pound safety hammer falling from a height of 30 inches. Ring samples are obtained using a 3-inch outside diameter, 2.5-inch inside diameter steel sampling tube with an interior lining of one-inch long, thin brass rings. The tube is driven approximately 18 inches into the soil and a section of the central portion is placed in a close fitting waterproof container in order to retain field conditions until completion of the laboratory tests. Standard Penetration Test (SPT) values and disturbed soil samples are obtained with a 2-inch (outside diameter) split-barrel sampler instead of the 3-inch sampler. The number of blows required to drive the sampler into the ground is recorded at 6-inch intervals. The blow count for the last 12 inches is shown on the boring logs.

From test pit excavations, relatively undisturbed soil samples are obtained by pushing the 3-inch outside diameter sampling tube (mentioned above) into the ground with the backhoe bucket. In addition, undisturbed bulk samples are retained from cohesive type soil formations and disturbed bulk samples are retained from friable and cohesionless soil formations.

The soil samples are visually classified in the field using the Unified Soil Classification System.

Samples are packed in moisture-proof containers and transported to the laboratory for testing.

Dynamic Cone Penetrometer (DCP)

There are two types of DCP tests used in the field. One test is generally used for pavement design and the other test is generally used for foundation design.

The DCP test for pavement design is an in-place test generally performed on the near surface soils. The DCP consists of a steel rod with a steel cone attached to one end which is driven into the soil by means of a sliding hammer. The angle of the cone is 60 degrees. The depth of the cone penetration is recorded at selected penetration or hammer drop intervals. The standard DCP test is designed to penetrate soils to a total depth of 1 meter (39.4 inches), however, extension rods may be used to reach greater depths. The recorded data from the DCP test can be converted to CBR values for use in pavement design.

The DCP test for foundation design (aka Wildcat DCP) is used to evaluate the consistency of the subsurface soils to depths of 25 feet. The test is performed by driving a 1.4-inch diameter (10 square centimeter area) steel cone (cone is connected to 1.1-inch diameter steel rods) into the ground using a 35-pound slide hammer that is dropped from a height of 15 inches. The number of blows required to drive the steel cone 10 centimeters is recorded and the process is continued until the desired depth is reached. Blowcounts from this test can be converted to Standard Penetration Test (SPT) values.

LABORATORY TESTING

General

Laboratory tests are performed on various soil samples to determine their engineering properties. Laboratory tests results performed for this project are generally shown on the exploration logs or attached as stand alone documents. Descriptions of some of the various tests (that may or may not have been performed for this project) are listed below.

Unit Weight and Moisture Content

The in-place moisture content and unit weight of the samples are used to correlate similar soils at various depths. The sample is weighed, the volume determined, and a portion of the sample is placed in the oven. After oven-drying, the sample is again weighed to determine the moisture loss. The data is used to determine the wet-density, dry-density and in-place moisture content.

Direct Shear

Direct shear tests are performed to determine the strength characteristics of the representative soil samples. The test consists of placing the sample into a shear box, applying a normal load and then shearing the sample at a constant rate of strain. The shearing resistance is recorded at various rates of strain. By varying the normal load, the angle of internal friction and cohesion can be determined.

Consolidation Test

Consolidation tests are performed to obtain data from which time rates of consolidation and amounts of settlement may be estimated. The test is performed by placing a specimen in a

consolidation apparatus. Loads are applied in increments to the circular face of a one-inch (1") high sample. Deformation or changes in thickness of the specimen are recorded at selected time intervals. Water is introduced to or allowed to drain from the sample through porous disks placed against the top and bottom faces of the specimen. The data is then used to plot a stress-volume strain curve which is used in estimating settlement.

Expansion Index Test

Expansion Index of fine-grained soils is determined in accordance with ASTM D 4829 test procedure. The soil specimen is compacted into a metal ring so that the degree of saturation is between 40 and 60 percent. The specimen and the ring are placed in a consolidometer. A vertical confining pressure of 1 psi is applied to the specimen and then the specimen is inundated with water. The deformation of the specimen is recorded for 24 hours. The data is used to determine the expansion potential of the soil.

One-Dimensional Swell Test

Another procedure for determining the expansion of fine-grained soils is ASTM D 4546 (Method B) test procedure. The soil specimen is compacted into a 2.5-inch diameter (1-inch height) metal ring using a 10-pound hammer. The specimen and the ring are placed in an expansion apparatus. A vertical pressure of 155 psi is applied to the specimen and then the specimen is inundated with water. The deformation of the specimen is recorded for 24 hours.

The test is similar in principle to the Expansion Index Test (see above) with the primary difference being the soil specimen in the One-Dimensional Swell Test is usually compacted to a higher dry

density than the Expansion Index and, therefore, generally produces a higher degree of expansion.

Classification Tests

The soil samples are classified using the Unified Soil Classification System. Classification tests include sieve and hydrometer analysis to determine grain size distribution, and Atterberg Limits to determine the liquid limit, plastic limit and plasticity index.

California Bearing Ratio Test

California Bearing Ratio (CBR) tests are performed on materials to determine the bearing strength of the soil for determination of pavement sections. The sample is compacted into a 6-inch diameter mold in 5 equal layers. Each layer is compacted with a 10-pound hammer falling from a height of 18 inches, with each layer receiving 56 blows. The mold is then placed in a water bath for 4 days and the vertical swell is measured under a surcharge weight of 10 pounds. After the soaking period, the sample is placed in a CBR apparatus that has a 3-square inch penetrometer. The penetrometer is pressed vertically into the soil at constant strain and the loads required to press the penetrometer are recorded. A plot of the load-strain relationship is made to determine the CBR value.

Maximum Dry Density / Optimum Moisture Content

The maximum dry density and optimum moisture content of the material is determined in accordance with the ASTM D1557 test procedure. The sample is compacted into a mold in 5 equal layers using a 10-pound hammer falling from a height of 18 inches. The diameter of the mold is either 4 inches or 6 inches, depending on the proportion of gravel in the sample. The sample is

compacted at various moisture contents to develop a compaction curve for the soil. The curve is usually bell-shaped with a peak indicating the maximum dry density and optimum moisture content.

Penetrometer Test

Penetrometer tests are performed on clayey soils to determine the consistency of the material and an approximate value of the unconfined compressive strength.

Torvane

Torvane tests are used to determine the approximate undrained shear strength of clayey soils. The torvane apparatus consists of a torque device with a small diameter plate that has vanes situated perpendicular to the plate. The vanes are pushed into the soil and torque is applied until failure occurs. The torque required to cause failure is converted to approximate undrained strength of the soil.

LOG OF TEST PIT NO. 1

ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 4.75

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		ML	sandy SILT with gravel, few cobbles		dark yellowish brown	dry to mod. moist	stiff to very stiff	119.1	8.8 10.0	4.5			
2.5		ML	SILT		brown		very stiff		10.4	4.5			
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
7.5													
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 2

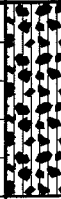
ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 2.5

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand and cobbles		dark yellowish brown	dry to mod. moist	mod. dense to dense	102.9	8.3 8.6				
2.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
5													
7.5													
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 3

ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 3.5

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		cob	COBBLES with boulders (to 1.5' dia.) and gravel ---with metal debris & black plastic		reddish brown	dry to mod. moist	loose to mod. dense	72.4	14.7 12.5				
2.5		GP-GM	GRAVEL with silt and sand		brown		dense to very dense		7.2				
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
7.5													
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 4

ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 6

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand, cobbles and boulders (to 1.5' diameter)		dark yellowish brown	dry to mod. moist	dense to very dense	107.0	6.9 7.8				
2.5		bldr	silty BOULDERS (to 2' diameter) ---some metal debris ---one 3' diameter boulder										
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
7.5													
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 5





ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 8

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		CL	sandy CLAY with gravel, with cobbles and boulders (to 1.5' diameter)		brown	dry to mod. moist	mod. stiff to stiff	106.4	7.9 12.9				
2.5		bldr	silty BOULDERS (to 2.5' diameter) with gravel and cobbles				dense to very dense						
5		GM	silty GRAVEL sand and cobbles (to 12" diameter)				mod. dense to dense						
7.5									7.3				
			END OF TEST PIT										
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 6

ELEVATION: see Plate 2

EQUIPMENT USED: Backhoe: CAT 420 D

DEPTH OF TEST PIT (FT.): 6

DATE EXCAVATED: February 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GP-GM	GRAVEL with silt, sand, cobbles and boulders (to 3' diameter)		pale brown	dry to mod. moist	loose to mod. dense	88.6	6.1 12.7				
2.5					reddish brown to brown								
5		cob	silty COBBLES with gravel		brown		dense to very dense		9.2				
7.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 7


ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 3.25

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GP-GM	GRAVEL with silt and sand, cobbles and boulders (to 2' diameter)		brown	dry	dense to very dense		7.1 5.7				
2.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
5													
7.5													
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 8


ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 2.5

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand, cobbles and boulders (to 2' diameter)		brown	dry	dense to very dense		7.9				
2.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
5													
7.5													
10													
12.5													
15													
17.5													

LOG OF TEST PIT NO. 9

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 6.5

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		ML	sandy SILT with gravel		brown	dry to mod. moist	very stiff		6.7	4.5			
2.5		GP-GM	GRAVEL with silt, sand, cobbles and boulders (to 1.5' diameter)				dense to very dense		8.5	4.5			
5													
7.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
10													
12.5													
15													
17.5													

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LOG OF TEST PIT NO. 10




ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 5.5

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS			
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		SM-ML	sandy SILT with gravel		brown	dry to mod. moist	very stiff		6.3					
2.5		GM	silty GRAVEL with sand, cobbles and boulders (to 1.5' diameter)				dense to very dense		7.5					
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock							
7.5														
10														
12.5														
15														
17.5														

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LOG OF TEST PIT NO. 11

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 3.5

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		ML	sandy SILT with gravel	-	brown	dry to mod. moist	stiff		6.8				
		GM	silty GRAVEL with sand										
2.5								9.4					
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
7.5													
10													
12.5													
15													
17.5													

LOG OF TEST PIT NO. 12

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 3.5

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand		reddish brown to brown	dry to mod. moist	mod. dense to dense		7.0				
2.5		GP-GM	GRAVEL with silt and sand		dark brown		dense to very dense		12.3				
5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
7.5													
10													
12.5													
15													
17.5													

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISION

ISLAND GEOTECHNICAL ENGINEERING, INC.

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LOG OF TEST PIT NO. 13

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 2.25

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand, cobbles and boulders (to 1.5' diameter)		brown	dry to mod. moist	dense to very dense		6.9				
		GP-GM	GRAVEL with silt, sand, cobbles & boulders (to 1.5' diameter)										
2.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
5													
7.5													
10													
12.5													
15													
17.5													

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISION	ISLAND GEOTECHNICAL ENGINEERING, INC. <i>Geotechnical Consultants</i>	PLATE
PROJECT NO.: 101386-FM		15

LOG OF TEST PIT NO. 14


ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 2

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS			
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		GM	silty GRAVEL with sand, cobbles and boulders (to 1.5' diameter)		dark yellowish brown	dry to mod. moist	dense to very dense		5.5					
2.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock							
5														
7.5														
10														
12.5														
15														
17.5														

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISION	ISLAND GEOTECHNICAL ENGINEERING, INC. <i>Geotechnical Consultants</i>	PLATE
PROJECT NO.: 101386-FM		16

LOG OF TEST PIT NO. 15



ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 3

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		ML	sandy SILT with gravel, few cobbles (to 1' diameter)		dark yellowish brown	dry to mod. moist	stiff to very stiff		19.0	4.5			
2.5		GP-GM	GRAVEL with silt, sand and cobbles (to 1' diameter)				dense to very dense		11.5				
		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
5													
7.5													
10													
12.5													
15													
17.5													

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISION

ISLAND GEOTECHNICAL ENGINEERING, INC.

PLATE

PROJECT NO.: 101386-FM

Geotechnical Consultants

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LOG OF TEST PIT NO. 16

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 8

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		GM	silty GRAVEL with sand, cobbles and boulders (to 1.5' diameter)	-	brown	dry to mod. moist	dense to very dense		12.1				
2.5													
5					dark brown	mod. moist to moist		14.3					
7.5													
10			END OF TEST PIT										
12.5													
15													
17.5													

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISION	ISLAND GEOTECHNICAL ENGINEERING, INC. <i>Geotechnical Consultants</i>	PLATE
PROJECT NO.: 101386-FM		18

LOG OF TEST PIT NO. 17

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 8

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		SM-ML	sandy SILT with gravel, cobbles and boulders (to 2' diameter)		dark yellowish brown	dry to mod. moist	very stiff		11.3	4.5			
2.5		GM	silty GRAVEL with sand, cobbles and boulders (to 2' diameter)				dense to very dense						
5			---3' diameter boulder										
7.5							very dense						
10			END OF TEST PIT										
12.5													
15													
17.5													

LOG OF TEST PIT NO. 18

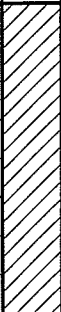

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 6.25

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS		
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
0		CL	sandy CLAY with gravel		dark yellowish brown	dry to mod. moist	very stiff		12.4	4.5			
2.5													
5		GM	silty GRAVEL with sand, cobbles & boulders (to 2' diameter)				dense to very dense						
7.5		rock	END OF TEST PIT BASALT ROCK: REFUSAL				mod. hard to hard rock						
10													
12.5													
15													
17.5													

LOG OF TEST PIT NO. 19

ELEVATION: see Plate 2

EQUIPMENT USED: Excavator: CAT 312 C

DEPTH OF TEST PIT (FT.): 8

DATE EXCAVATED: March 16, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	ATTERBERG LIMITS			
											LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0		GM	silty GRAVEL with sand, cobbles & boulders (to 1.5' diameter)		dark yellowish brown	dry to mod. moist	dense to very dense		7.3					
2.5		ML	sandy SILT with gravel				very stiff			4.5				
5		SM	silty SAND with gravel, with cobbles and boulders (to 2' diameter)		brown		dense to very dense		14.9	4.5				
7.5			END OF TEST PIT						15.1					
10														
12.5														
15														
17.5														

LOG OF BORING NO. 1

ELEVATION: see Plate 2

EQUIPMENT USED: B-53 Drill Rig

DEPTH OF BORING (feet): 17.75

DATE DRILLED: April 12, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0		GM	silty GRAVEL with sand	58	brown	dry to mod. moist	dense to very dense		5.6	
			refusal----->	29/3"						
2.5		rock	BASALT ROCK		gray		mod. hard to hard rock			
			Core Run #1: 2.5' to 7.5' Rec. = 42% RQD = 35%							
5										
7.5			refusal----->	26/4"						
			Core Run #2: 8.33' to 12.67' Rec. = 65% RQD = 45%							
10										
12.5			refusal----->	34/3"						
			Core Run #3: 12.75' to 17.75' Rec. = 55% RQD = 52%							
15										
17.5			END OF TEST BORING							

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISIONS

ISLAND GEOTECHNICAL ENGINEERING, INC.

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LOG OF BORING NO. 2

ELEVATION: see Plate 2

EQUIPMENT USED: B-53 Drill Rig

DEPTH OF BORING (feet): 16

DATE DRILLED: April 13, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0		GM	silty GRAVEL with sand	37	brown	dry to mod. moist	mod. dense		5.2	
				30/4"			very dense		3.6	
2.5		rock	BASALT ROCK with seams of gravel/sand/silt Core Run #1: 2' to 6' Rec. = 19% RQD = 0		gray		mod. hard rock			
5			refusal----->	20/1"						
7.5		rock	BASALT ROCK Core Run #2: 7' to 11' Rec. = 85% RQD = 81%				mod. hard to hard rock			
12.5			Core Run #3: 11' to 16' Rec. = 48% RQD = 28%							
15										
17.5			END OF TEST BORING							

LOG OF BORING NO. 3

ELEVATION: see Plate 2

EQUIPMENT USED: B-53 Drill Rig

DEPTH OF BORING (feet): 13.75

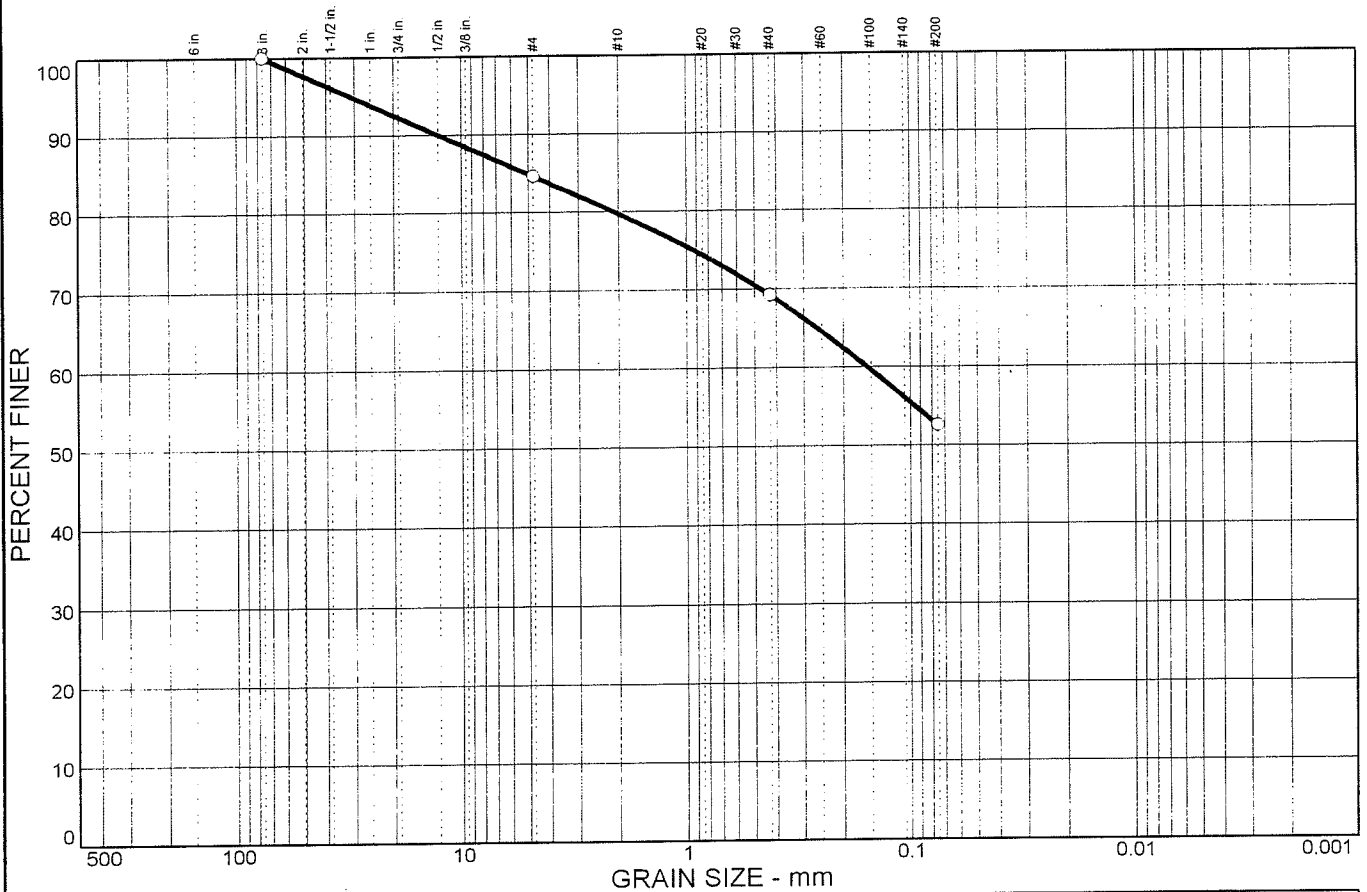
DATE DRILLED: April 13, 2010

DEPTH OF GROUNDWATER: unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	BLOWS/FOOT	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)
0		ML	sandy SILT with gravel and cobbles ---12" diameter boulder	-	15	brown	dry to mod. moist	mod. stiff to stiff		5.3	
						reddish brown				16.9	
2.5						brown				10.9	
5										11.1	
7.5		GM	silty GRAVEL with sand	-	64	light gray to gray		very dense		3.2	
10		rock	BASALT ROCK Core Run #1: 9.25' to 13.75' Rec. = 43% RQD = 0	-	18/ 1"			mod. hard to hard rock		2.4	
12.5			END OF TEST BORING								
15											
17.5											

PROJECT NAME: KAHOMA RESIDENTIAL SUBDIVISIONS	ISLAND GEOTECHNICAL ENGINEERING, INC. <i>Geotechnical Consultants</i>	PLATE
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SIEVE ANALYSIS



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	7.7	7.7	4.8	10.6	16.6	52.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3 in.	100.0		
#4	84.6		
#40	69.2		
#200	52.6		

Material Description

brown sandy CLAY with gravel

Atterberg Limits

PL= 25 LL= 39 PI= 14

Coefficients

D₈₅= 5.11 D₆₀= 0.156 D₅₀=
D₃₀= D₁₅= D₁₀=
C_u= C_c=

Classification

USCS= CL AASHTO=

Remarks

F.M.=0.15

* (no specification provided)

Sample No.: 1
Location: TP-5

Source of Sample: TP-5

Date: March, 2010
Elev./Depth: 0.5'-1.0'

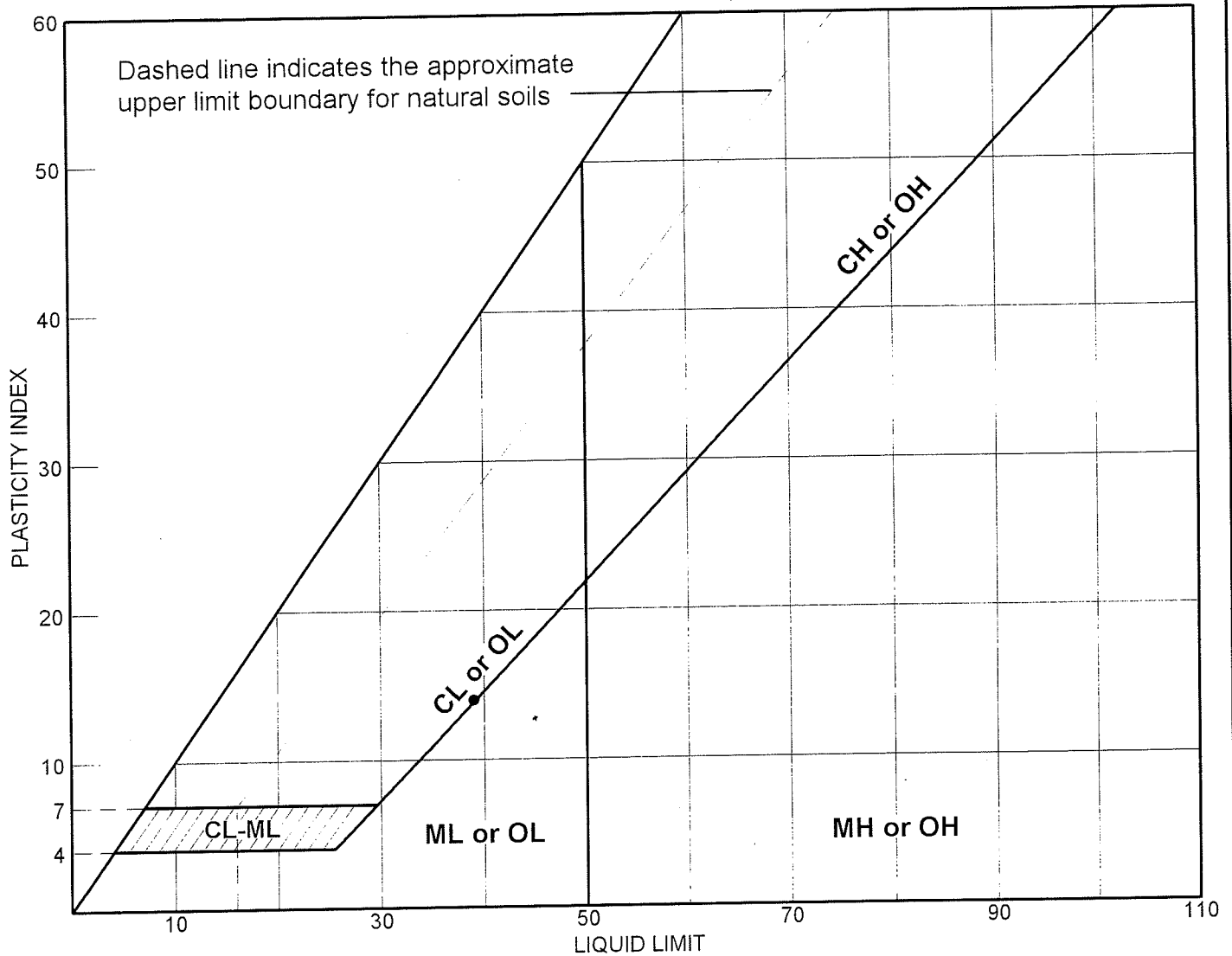
**Island Geotechnical
Engineering, Inc.
Wailuku, Hawaii**

Client:
Project: Kahoma Residential Subdivision

Project No: 101386-FM

Plate 25

LIQUID AND PLASTIC LIMITS TEST REPORT



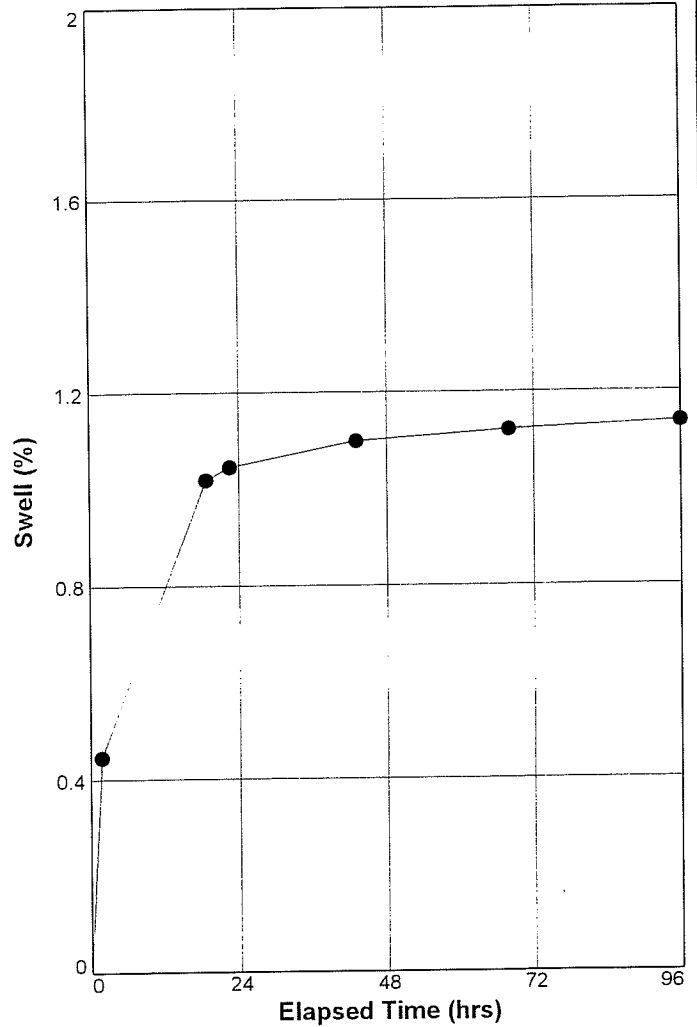
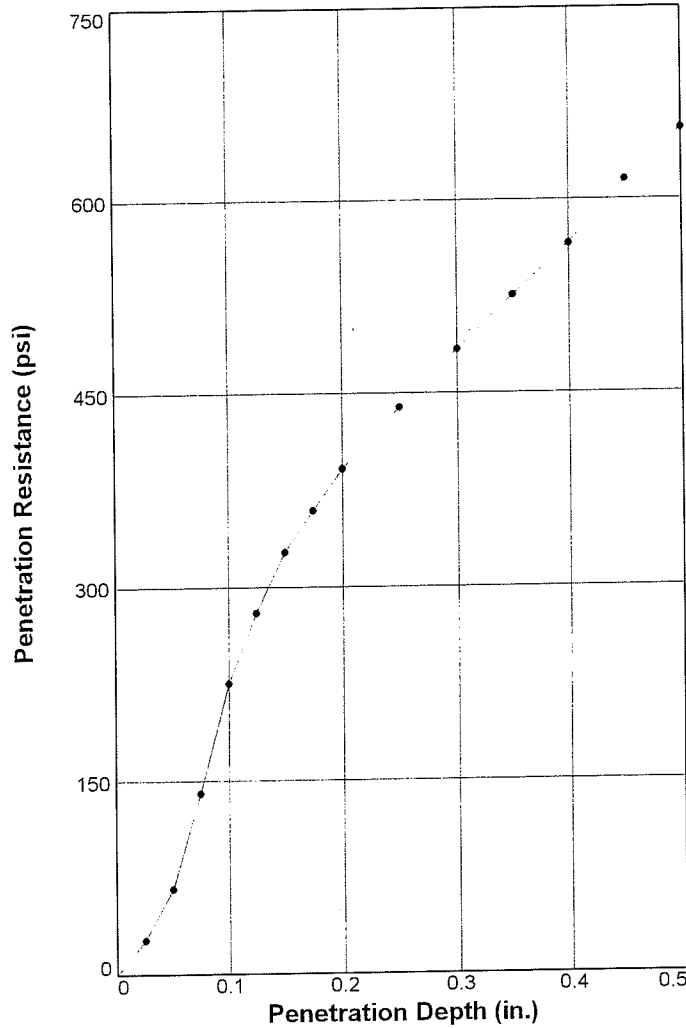
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	TP-5	1	0.5'-1.0'	12.9	25	39	14	CL

LIQUID AND PLASTIC LIMITS TEST REPORT
Island Geotechnical Engineering, Inc.
 Wailuku, Hawaii

Client:
Project: Kahoma Residential Subdivision
Project No.: 101386-FM

BEARING RATIO TEST REPORT

ASTM D 1883-05



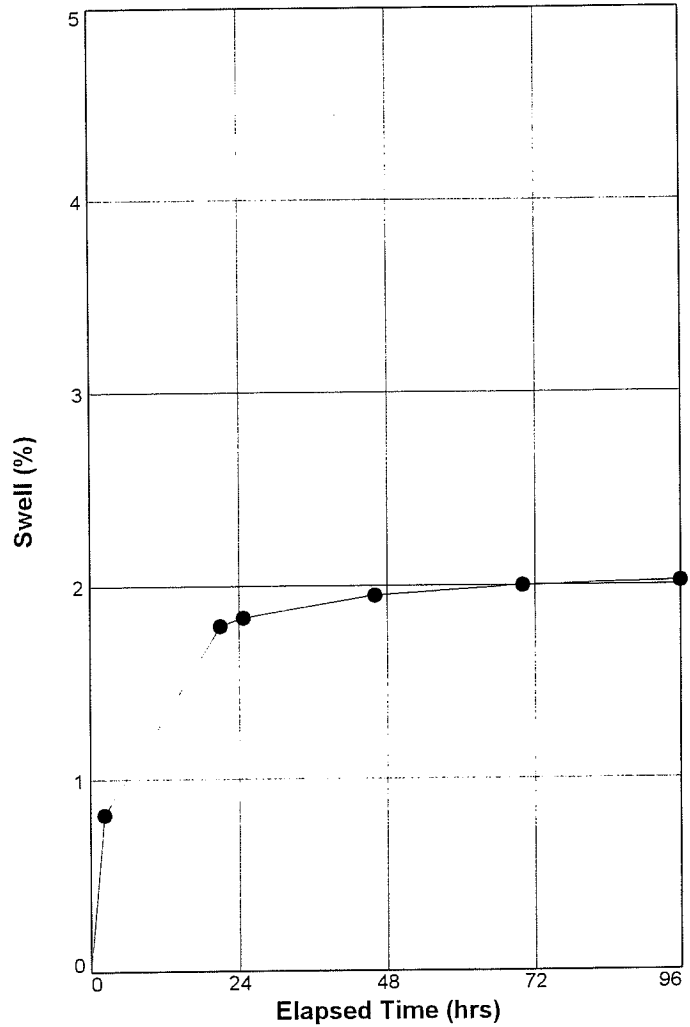
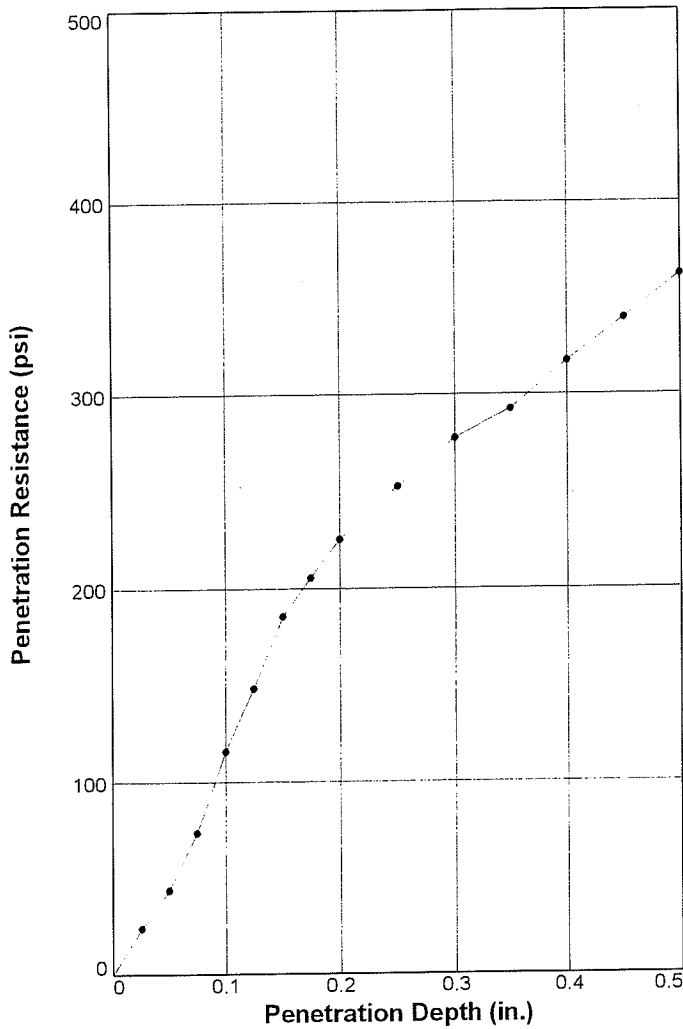
	Molded		Soaked		CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Dry Density (pcf)	Moisture (%)	Dry Density (pcf)	Moisture (%)	0.10 in.	0.20 in.			
1 ○	112.3	13.0	111.0	20.4	28.7	27.9	0.029	10.00	1.1
2 △									
3 □									
Material Description					USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
brown GRAVEL with silt and sand					GP-GM				

Project No: 101386-FM
Project: Kahoma Residential Subdivision
Location: TP-7
Sample Number: 2 **Depth:** 0.5'-1.5'
Date: March, 2010

Test Description/Remarks:
 1. Test performed on portion passing the 3/4" sieve; 84.0% of sample passed the 3/4" sieve.
 2. Material was compacted in the mold in 5 layers; each layer received 56 blows with the 10 lb. hammer.

BEARING RATIO TEST REPORT

ASTM D 1883-05



	Molded		Soaked		CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Dry Density (pcf)	Moisture (%)	Dry Density (pcf)	Moisture (%)	0.10 in.	0.20 in.			
1 ○	106.6	16.1	104.5	23.5	15.5	16.1	0.029	10.00	2
2 △									
3 □									
Material Description					USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
dark yellowish brown sandy CLAY with gravel					CL (est.)				

Project No: 101386-FM
Project: Kahoma Residential Subdivision
Location: TP-18
Sample Number: 1 **Depth:** 0-1.5'
Date: March, 2010

Test Description/Remarks:

1. Test performed on portion passing the 3/4" sieve; 98.0% of sample passed the 3/4" sieve.
2. Material was compacted in the mold in 5 layers; each layer received 56 blows with the 10 lb. hammer.

APPENDIX C.

Biological Resources Survey

BIOLOGICAL RESOURCES SURVEY

for the

**KAHOMA SUBDIVISION
LAHAINA, MAUI**

by

**ROBERT W. HOB DY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
August 2005**

**Prepared for:
West Maui Land Company, Inc.**

BIOLOGICAL RESOURCES SURVEY

KAHOMA SUBDIVISION

INTRODUCTION

The project area consists of two contiguous parcels of land in Lahaina situated along the Kahoma Stream channel. They are TMK 4-5-10:5 & 6 and total 17.76 acres. The property is bounded on the north by the Kahoma Stream Flood Control Channel, on the south and east by residential homes and on the west by the Lahaina-Kaanapali Railroad corridor. The property is a narrow strip of land about a half mile long and 200 to 300 feet wide.

SITE DESCRIPTION

The two parcels are presently open, undeveloped land. The terrain slopes down gently to the west with elevations ranging from about 120 ft. above sea level at the top to about 35 ft. at the bottom along the train tracks. Soils are of the Ewa Silty Clay Loam complex, developed from igneous material, alluvial in origin, neutral in pH and well drained (Foote et al, 1972). Rainfall averages 12-15 inches per year with the bulk falling between November and April (Armstrong, 1983).

BIOLOGICAL HISTORY

During the Hawaiian Government period this area was intensively cultivated for agricultural crops, mostly irrigated by ditch systems for kalo production. During the 1800's and for over 100 years the area was part of Pioneer Mill Co.'s sugar operation and the entire area was under cane. During this period it was repeatedly plowed, planted, burned and harvested. These parcels were heavily disturbed during the construction of the Kahoma Flood Control Channel during the 1980's. For the past 20+ years this area has stood idle since the discontinuation of cane production here and the area has regrown with such dryland grass and shrub species as can survive in this dry area.

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Kahoma Subdivision property that was conducted in August, 2005. The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.
5. Note which aspects of the proposed development pose significant concerns for plants or for wildlife and recommend measures that would mitigate or avoid these problems.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes that would ensure complete coverage of the property. Areas most likely to harbor native or rare plants such as gullies or rocky outcrops were more intensively examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation is rather uniformly a dry open grassland with a scattering of shrubs and a few small trees. One species, buffelgrass (*Cenchrus ciliaris*), is abundant throughout both parcels and characterizes the vegetation of the area. Two other species were common: spiny amaranth (*Amaranthus spinosus*) and koa haole (*Leucaena leucocephala*). All other species were uncommon or rare on the property.

A total of 62 plant species were recorded from the two parcels. Of these just two were indigenous to Hawaii: 'uhaloa (*Waltheria indica*) and 'ilima (*Sida fallax*). Both of these are very common and widespread throughout Hawaii as well as some other Pacific islands.

DISCUSSION AND RECOMMENDATIONS

Little about the vegetation that currently occupies this property is worthy of comment or concern. No Federally Endangered or Threatened plants were recorded nor were any species seen that are candidates for such status.

No wetlands occur on this arid property. Kahoma Stream that runs between the two parcels is completely channelized and contains no riparian habitat.

Proposed developments on these two parcels will have no significant negative impact on the botanical resources of this part of Maui. No recommendations are deemed necessary or appropriate regarding the flora resources on this property.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:
 - endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.
 - indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).
 - Polynesian introduction = plants introduced to Hawai'i in the course of Polynesian migrations and prior to western contact.
 - non-native = all those plants brought to the islands intentionally or accidentally after western contact.
4. Abundance of each species within the project area:
 - abundant = forming a major part of the vegetation within the project 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 project area.

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
MONOCOTS			
ARECACEAE (Palm Family)			
<i>Washingtonia robusta</i> Wendl.	Mexican fan palm	non-native	rare
POACEAE (Grass Family)			
<i>Cenchrus ciliaris</i> L.	buffelgrass	non-native	abundant
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	<i>manienie</i>	non-native	rare
<i>Digitaria violascens</i> Link	<i>kukae pua'a</i>	non-native	rare
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	rare
<i>Eragrostis tenella</i> (L.) P.Beauv.ex Roem.&Schult.	Japanese lovegrass	non-native	uncommon
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	non-native	rare
<i>Panicum maximum</i> Jacq.	Guinea grass	non-native	uncommon
<i>Setaria verticillata</i> (L.) P. Beauv.	bristly foxtail	non-native	rare
DICOTS			
AIZOACEAE (Fig-marigold Family)			
<i>Trianthema portulacastrum</i> L.	-----	non-native	uncommon
AMARANTHACEAE (Amaranth Family)			
<i>Amaranthus spinosus</i> L.	spiny amaranth	non-native	common
<i>Amaranthus viridis</i> L.	spleen amaranth	non-native	rare
ANACARDIACEAE (Mango Family)			
<i>Mangifera indica</i> L.	mango	non-native	rare
ASTERACEAE (Sunflower Family)			
<i>Bidens pilosa</i> L.	Spanish needle	non-native	rare
<i>Tridax procumbens</i> L.	coat buttons	non-native	rare
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Xanthium strumarium</i> L.	<i>kikania</i>	non-native	rare
BORAGINACEAE (Borage Family)			
<i>Cordia sebestena</i> L.	geiger tree	non-native	rare
<i>Heliotropium procumbens</i> Mill.	-----	non-native	rare
CHENOPODIACEAE (Goosefoot Family)			
<i>Atriplex suberecta</i> Verd.	-----	non-native	uncommon
<i>Chenopodium murale</i> L.	'aheahea	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea triloba</i> L.	little bell	non-native	uncommon
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	non-native	rare
CUCURBITACEAE (Gourd Family)			
<i>Momordica charantia</i> L.	balsam pear	non-native	rare
EUPHORBIACEAE (Spurge Family)			
<i>Chamaesyce hirta</i> (L.) Millsp.	hairy spurge	non-native	uncommon
<i>Chamaesyce hyssopifolia</i> (L.) Small	-----	non-native	rare
<i>Ricinus communis</i> L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
<i>Acacia farnesiana</i> (L.) Willd.	klu	non-native	rare
<i>Albizia lebeck</i> (L.) Benth.	siris tree	non-native	rare
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	non-native	rare
<i>Crotalaria incana</i> L.	fuzzy rattlepod	non-native	rare
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	non-native	rare
<i>Desmanthus pernambucanus</i> (L.) Thellung	slender mimosa	non-native	uncommon
<i>Desmodium tortuosum</i> (Sw.) DC	Florida beggarweed	non-native	rare
<i>Indigofera hendecaphylla</i> Jacq.	creeping indigo	non-native	rare
<i>Indigofera suffruticosa</i> Mill.	iniko	non-native	rare

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<i>Leucaena leucocephala</i> (Lam.) de Wit	<i>koa haole</i>	non-native	common
<i>Macroptilium lathyroides</i> (L.) Urb.	wild bean	non-native	uncommon
<i>Prosopis pallida</i> (Humb.&Bonpl.Ex.Willd.) Kunth	<i>kiawe</i>	non-native	uncommon
<i>Senna occidentalis</i> (L.) Link	coffee senna	non-native	uncommon
<i>Tamarindus indica</i> L.	tamarind	non-native	rare
LAMIACEAE (Mint Family)			
<i>Leonotis nepetifolia</i> (L.) R.Br.	lion's ear	non-native	uncommon
MALVACEAE (Mallow Family)			
<i>Abutilon grandifolium</i> (Willd.) Sweet	hairy abutilon	non-native	uncommon
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	non-native	rare
<i>Sida fallax</i> Walp.	<i>'ilima</i>	indigenous	rare
<i>Sida rhombifolia</i> L.	Cuban jute	non-native	rare
<i>Sida spinosa</i> L.	prickly sida	non-native	rare
MORINGACEAE (Horseradish Tree Family)			
<i>Moringa oleifera</i> Lamark	horseradish tree	non-native	rare
MYRTACEAE (Myrtle Family)			
<i>Syzygium cumini</i> (L.) Skeels	Java plum	non-native	rare
NYCTAGINACEAE (Four-o'clock Family)			
<i>Boerhavia coccinea</i> Mill.	-----	non-native	uncommon
PAPAVERACEAE (Poppy Family)			
<i>Argemone mexicana</i> L.	Mexican poppy	non-native	rare
PORTULACACEAE (Purslane Family)			
<i>Portulaca oleracea</i> L.	pigweed	non-native	rare
SOLANACEAE (Nightshade Family)			
<i>Nicandra physalodes</i> (L.) Gaertn.	apple of Peru	non-native	rare

SCIENTIFIC NAME

Nicotiana glauca R.C. Graham

COMMON NAME

tree tobacco

STATUS

non-native

ABUNDANCE

rare

STERCULIACEAE (Cacao Family)

Waltheria indica L.

'uhaloa

indigenous

uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

One species of mammal was observed during two visits to the property. Taxonomy and nomenclature follow Tomich (1986).

Cat (*Felis catus*) – One cat was observed in the area during the evening portion of the survey. Domesticated cats wander here from nearby residences to hunt for rodents and birds.

Other mammals one could expect to occur on the property include rats (*Rattus rattus*), mice (*Mus musculus*), mongoose (*Herpestes auropunctatus*) and dogs (*Canis familiaris*). Rats and mice feed on seeds and herbaceous vegetation and cats and mongoose hunt for the rodents as well as birds. The property is not far from residential areas and domestic dogs and cats could be expected to wander here periodically.

A special effort was made to look for the Hawaiian hoary bat by making an evening survey of the area. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. Bats are not known to inhabit this area, being mostly from mid-elevation, leeward habitats in East Maui. No bats were observed on or around the property though visibility was excellent.

BIRDS

Birdlife was somewhat reduced on this dry open property due to the dryness of the habitat and sparse vegetation. Nine species of non-native birds were observed during two visits to the property. Taxonomy and nomenclature follow American Ornithologists' Union (2005).

Zebra dove (*Geopelia striata*) – Doves were scattered throughout the property in small flocks. They feed on seeds in the openings in the vegetation.

African silverbill (*Lonchura cantans*) – A few small flocks of African silverbills were observed feeding in the grasslands within the project area.

Gray francolin (*Francolinus pondicerianus*) – A few gray francolins were seen in openings in the grasslands and their distinctive calls were heard during the evening.

Japanese white-eye (*Zosterops japonica*) – Several pairs of white-eyes were seen in trees and shrubs and their persistent twitterings could be heard.

Common myna (*Acridotheres tristis*) – Mynas, mostly in pairs, were seen in trees and shrubs throughout the property or flying overhead.

Spotted dove (*Streptopelia chinensis*) – A few spotted dove were seen flying through the property and landing in a trees

Nutmeg manikin (*Lonchura punctulata*) – One small group of these small birds were observed in the area during the evening portion of the survey.

Cattle egret (*Bubulcus ibis*) One small flock was seen flying over the property during the evening. This area does not represent habitat for these birds either for feeding or roosting.

Chicken (*Gallus gallus*) – Chickens were heard in and around adjacent residences and they undoubtedly occasionally wander into the project area.

A few other common introduced birds might be expected to occasionally frequent this property, but it does not represent habitat for any native forest or open country birds. One might expect to see a few migratory golden plovers (*Pluvialis fulva*) here during the fall and winter months.

INSECTS

While insects in general were not tallied, there were a diversity of insects seen though not in great numbers. Only one native insect Blackburn's sphinx moth (*Manduca blackburni*) has thus far been put on the Federal Endangered Species List (USFWS 2000) and this designation requires special focus to ascertain whether any are present. Blackburn's sphinx moth is not currently known to occur in this part of Maui although it probably occurred here in the past. Its native host plants are species of 'aiea (*Nothocestrum*). A non-native alternative host plant is tree tobacco (*Nicotiana glauca*). No 'aiea were found on the property. One small tree tobacco, was observed on the property. It was carefully examined. No sphinx moths or their larvae were seen.

DISCUSSION AND RECOMMENDATIONS

Fauna surveys are seldom comprehensive due to the short window of observation, the seasonal nature of animal activities and the often unpredictable nature of their daily movements. Other animals undoubtedly utilize this property on a daily or seasonal basis. This survey, however, does not represent important habitat for native fauna and is far removed from such areas. No Federally Endangered or Threatened mammals, birds or insects were found to inhabit the property and are unlikely to do so. No native fauna of any kind were observed. As a result of these findings it is apparent that the proposed uses of this property should not have a significant negative impact on the fauna resources in this part of Maui.

No recommendations were deemed necessary or appropriate regarding the fauna resources on this property.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within two groups: Mammals and Birds. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:

endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

abundant = many flocks or individuals seen throughout the area at all times of day.

common = a few flocks or well scattered individuals throughout the area.

uncommon = only one flock or several individuals seen within the project area.

rare = only one or two seen within the project area.

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS</u>	<u>ABUNDANCE</u>
<u>MAMMALS</u>			
Cat	<i>Felis catus</i>	non-native	rare
<u>BIRDS</u>			
Zebra dove	<i>Geopelia striata</i>	non-native	common
African silverbill	<i>Lonchura cantans</i>	non-native	uncommon
Gray francolin	<i>Francolinus pondicerianus</i>	non-native	uncommon
Japanese white-eye	<i>Zosterops japonica</i>	non-native	uncommon
Common mynah	<i>Acridotheres tristis</i>	non-native	uncommon
Spotted dove	<i>Streptopelia chinensis</i>	non-native	uncommon
Nutmeg mannikin	<i>Lonchura punctulata</i>	non-native	rare
Cattle egret	<i>Bubulcus ibis</i>	non-native	rare
Chicken	<i>Gallus gallus</i>	non-native	rare

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APPENDIX D.

Archaeological Assessment

**AN ARCHAEOLOGICAL ASSESSMENT FOR
16.8-ACRES IN LAHAINA,
MOALI AHUPUA`A, LĀHAINĀ DISTRICT,
MAUI ISLAND, HAWAII
[TMK (2) 4-5-10: 005 & 006 (por.)].**

Prepared By:
Jenny L. Pickett, B.A.
and
Michael F. Dega, Ph.D.
Revised February 2006

Prepared for:
West Maui Land Corp.
33 Lono Ave, Ste. 4500
Kahului, HI 96732

ABSTRACT

Scientific Consultant Services (SCS) Inc. conducted Archaeological Inventory Survey on a parcel of land measuring 16.8-acres in Kahoma, Moali'i Ahupua'a, Lāhainā District, Maui Island, Hawai'i [TMK (2) 4-5-10: 005 & 006 (por.)]. The current landownership is in transition from Kahoma Land Company, LLC to West Maui Land Corporation. The study concentrates on portions within a land section that has been entirely modified. The Inventory Survey was conducted on the parcel to determine the presence or absence of archaeological deposits within surface and/or subsurface contexts. Methods for the current study involved complete intensive pedestrian survey and representative subsurface testing through backhoe test trenching.

A total of 15 backhoe test trenches were placed throughout the project area. All trenches contained artificial (fill) soils that proved major land alterations have occurred throughout the entire study area. The old Kahoma Stream was originally located along the southern boundary but has been diverted, and currently follows a concrete culvert pathway along the northern boundary of the project area. The old Mill Road and adjacent Sugar Cane Train tracks are located to the west adjacent to project area's boundaries. There were no archaeological or cultural findings identified in surface or sub-surface contexts during the project. Due to the negative finds of this investigation, the Inventory Survey has been classified as an Archaeological Assessment for reporting purposes.

The entire parcel has been previously grubbed, graded, cut and/or filled and most of the area is presently utilized as a dumping and/or storage area. Extensive machine (bulldozer) alterations are evident throughout the area and bulldozer push-piles along with large boulder-piles render the area completely modified. No further archaeological work is recommended for this project area.

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INTRODUCTION

Scientific Consultant Services (SCS) Inc., conducted Archaeological Inventory Survey on a 16.8-acre parcel in Lahaina, Moali`i Ahupua`a, Lāhainā District, Maui Island, Hawai`i [portion of TMK: (2) 4-5:-10:005 & 006 (Figures 1 and 2)]. The study area is conceptually planned to be an employee/special needs/affordable/market housing project (Figure 3). Kahoma Stream was once aligned along the southern project area boundary but has been diverted through a concrete culvert (see below: *Kahoma Stream Flood Control*) along the northern boundary of the project area (Figure 4).

The objective of the current project was to determine the presence/absence of archaeological features or deposits within surface and subsurface contexts and if present, to evaluate the significance of the sites. As the project only yielded negative results, this report has been re-classified as an Archaeological Assessment document. All methods used in the survey were consistent with those performed in a full Inventory Survey program. The Archaeological Assessment has been written following with State of Hawai`i Historic Preservation Division (SHPD) Guidelines for Archaeological Assessment Reports.

Specific archaeological methods utilized during this project included the following: historical background investigations; archival research; full, systematic pedestrian survey; representative subsurface testing in the form of backhoe trenching; locating, profile mapping, and drafting of trenches; soil analysis, interpretation; reporting of all relevant data; and consultation with SHPD Maui archaeologist Melissa Kirkendall. Fieldwork was conducted on September 6 and 9, 2005 by Ian Bassford, B.A. and Jenny Pickett, B.A., with Principal Investigator M. Dega, Ph.D.

ENVIRONMENTAL SETTING

PROJECT AREA LOCATION

The project area consists of 16.8-acres occurring between the Kahoma Flood Control Channel and the existing residential area of Kelawea Village in Lāhainā. The project area is located in Kahoma, Moali`i Ahupua`a, Lāhainā District, roughly 609 meters (1,998 feet) inland from the coast at 20.90° latitude and 156.63° longitude (see Figures 1 and 2). The natural grade of the parcel slopes moderately from east to west, ranging from a maximum elevation of approximately 68 m (223 ft.) to a minimum elevation of c. 40 m (130 ft.).



Figure 1: USGS Lahaina Quadrangle Map of Project Area and Maui Island Inset.



Figure 3: Conceptual Plan of Future Development and Location of Project Area.



Figure 4: Aerial Photograph of Project Area (foreground) and Kahoma Stream Flood Control Project.

The subject parcel is bounded on the west by the old Mill Road with train tracks to the west. The tracks belong to the old historic Sugar Cane Train that was constructed in 1882 and currently conducts daily tours. To the south of the parcel is the ancient village of Kelaweā, a current residential community. The remains of the old Pioneer Mill smokestack and sugar mill are located in the central region on adjacent parcels. The eastern boundary also consists of a residential area with a connecting dirt roadway. The northern extreme is bounded by the flowing waters of the Kahoma Flood Control Channel (see Figures 3 & 4).

PROJECT AREA DESCRIPTION

In 1990, Kahoma Stream was diverted and a concrete culvert traces the new water route (see Figures 3 & 4). The entire parcel has been previously grubbed, graded and/or otherwise mechanically altered by bulldozers. Exposed soils, bedrock, and the rate of vegetative re-growth indicated that the most severe alterations probably occurred within the last five to ten years. A local informant (anonymous neighbor) supplied additional information about the project area. The resident stated that the boulder piles and approximately 2.5 meters of 'fill' located throughout the area are the results of an HC&S dumping site. Construction during the Kahoma Stream Flood Control project also severely affected the current study area.

CLIMATE

Climatic conditions in this area of Maui are exemplified by mild and consistent year-round temperatures, moderate humidity, and steady north-northeasterly trade-winds. Lāhainā is located in the dry leeward portion of Maui. Local weather stations have measured average temperatures for Lāhainā from a variable 64-88 degrees year round (Fahrenheit). Monthly average temperatures vary approximately 5°-10° between the coolest and warmest months. Summer months are much drier and hotter. Precipitation varies on an average monthly basis but the average yearly rainfall is only c. 20 inches per year.

SOILS

According to Foote *et al.* (1972: Sheet 94), soils in the project area consist exclusively of Wahikuli very stony silty clay (WdB). According to Foote *et al.* (1972:126), this series consists of well-drained soils on uplands that have developed in material weathered from basic igneous rock and are gently to moderately sloping. This WdB series essentially is the same as Wahikuli silty clay but with an added 3% surface coverage of stones. However, this classification was made prior to massive land alterations. At present times, nearly all soils in the project area are severely disturbed. When grading occurred during the Kahoma Stream Alignment project, soil and rocks were pushed throughout the project area. Subsurface observations concluded that

almost no original or undisturbed soils were present. Several trenches exposed portions of the old Kahoma stream alignment. Aside from the few alluvial deposits (gravel and pebbles), soils consisted of a combination of loose and compact silt.

KAHOMA STREAM FLOOD CONTROL PROJECT

The study parcel has been completely modified most recently by the Kahoma Stream Flood Control project that was planned in 1986 and completed in April 1990. According to the State of Hawai'i U.S. Army Corps of Engineers, additional work was completed in October, 1996 that provided the County with an improved access ramp and maintenance of the debris basin. Based on analyzed records since 1879, at least 20 damaging floods occurred in the area due to over-stopping of Kahoma Stream. Sponsored by the County of Maui Department of Public Works, and in accordance with the Flood Control Act of 1965, the drainage basin was installed within a 5.4 square mile area. The project consisted of construction of a 5,415 foot concrete channel, a debris basin, an offshore rubble apron, three pre-stressed concrete bridges, and related utility relocations. Federal and non-Federal costs covered the project, including the underpass to the Cannery Mall, a vehicular traffic bypass at Front Street, widening of the Honoapiilani Highway Bridge, and a drainage outlet structure.

TRADITIONAL HAWAIIAN AND HISTORIC SETTING

PRE-CONTACT/TRADITIONAL HAWAIIAN ERA

Intensive research with attention to oral tradition and local folklores is most effective to identify or re-create pre-Contact, traditional Hawaiian, and even post-Contact contexts. There are countless stories regarding ancient Lāhainā and only some will be summarized that relate to the current study area.

Lāhainā was one of the central population bases for ancient Hawaiians. At least eight *heiau* were recorded around the old village of Lāhainā. *Ko`a* (fishing shrine) were scattered along the beaches and *heiau* (temples, or places of worship) were located throughout the slopes surrounding the town and above the bays. *Lo`i*, or taro fields lined the beautiful and lush slopes above and surrounding Lāhainā. It was a political center for *ali`i* (royalty) and many tales are told of ancient times in royal Lāhainā.

Petroglyphs were identified surrounding Lāhainā, although their meanings have yet to be fully understood (Thrum 1908, 1916, 1917; Walker 1930:103). In fact, petroglyphs were identified next to Kahoma Stream near the current study area. Pearl shells were collected from

Makaiwa Beach for the eyes of ancient *ki`i* (sacred image) and many battles were fought in the area (Sterling 1998:45). There are also many documented ancient Hawaiian human burials throughout sandy deposits along the coastline.

Pu`u Keka`a, was made famous for the birthplace of the sons of *ali`i* and has been associated with ghosts, strange occurrences, and the skeletons of defeated invaders. Fornander 1918–19, Vol. 5:542 documents Kaha saying:

On account of the great number of people at this place there are numerous skeletons [several bloody battles occurred here], as if thousands of people died there; it is there that the Lāhaināluna students go to get skeletons for them when they are studying anatomy. The bones are plentiful there; they completely cover the sand.

This is a ghostly place. Some time a number of people came from Kaanapali (from the other side) going to Lāhainā in the dark. When they came to Keka`a stones rolled down from the top of the hill without any cause. Listening to it, it seemed as if the hill was tumbling down; the people going along were startled and they explained, Keka`a is ghostly! Kekaa is ghostly!" Certainly this is a strange thing for this hill to do [*ibid*].

Pu`u Keka`a was also a *leina a ka`uhane*, or soul's leap, as told by Fornander (1918–19, Vol. 5:542). There are many legends, songs, and stories with reference to areas in Lāhainā. According to legend, lands surrounding Pu`u Keka`a were areas of intense cultivation and the capital and home of the Maui chief, Kaka`alaneo. While he ruled West Maui, he lived on the *pu`u* with his wife, a chiefess from Moloka`i. Fornander 5:540–541 further explains:

Kekaa was the capital of Maui when Kalaalaneo was reigning over West Maui. Many houses were constructed and people cultivated a great deal of potatoes, bananas, sugar cane, and things of a like nature. I have been told that the country from Kekaa to Hahakea and Wahikuli –that country now covered by cactus, in a northwesterly direction for Lahaina-was all cultivated. This chief also planted bread fruit and kukui trees down at Lahaina. Some of these trees southwest of the Lahaina Fort were called the bread fruit trees of Kauheana.

Kaka`alaneo's possessions included fishponds in Hana and a famous breadfruit grove he planted outside of Lāhainā (Handy and Handy 1972). His son, Ka`ulula`au, became famous for

traveling around Lāna`i fighting ghosts (Sterling 1998). Maui, the demi-god himself, was associated with Pu`u Keka`a as relayed in “Tales from the Temples” (Thrum 1909). Pu`u Keka`a is known as a culturally rich location brimming with oral histories and ancient stories.

Pu`u Keka`a was said to be the burial place of Kekaulike’s oldest son, Kauhi`aimoku-a-kama, who was defeated by his brother and Uncle at the Battle of Koko-o-na-moku at Makaiwa Beach (Sterling 1998). The famous chief Kahekili succeeded his brother Kamehameha-Nui as ruler of Maui and to prove he was a true descendant of the gods, he leapt from the `Ū-ha-ne lele or Soul-Leaping Place of Maui. No ordinary man would dare to do this (*ibid.*). Kamakau (1964: 39) refers to a burial site used by the *maka`āinana* of the district: “Waiuli...is a deep pit where the corpses of the common people were thrown...It is directly Mauka of Honokohau, Honolua, and Honokahua, and for those from Lahaina to Kahakuloa, it was the common burial place”.

Those who died on Molokai were also brought back to that place.

Throughout all of Hawai`i, coastal lands were utilized for chiefly residences and Lāhainā was no different. Oceanfront areas provided easily accessible resources such as elaborate offshore and onshore fish ponds as well as open-ocean or deep-water fishing. Surfing was very popular among the elite and was known as the sport of kings. Lāhainā provided some of the best surfing locales throughout the entire island. Some of the most extensive and fertile wet land taro patches were located throughout the Lahaina-luna area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources such as taro and sweet potatoes were brought to *ali`i* residences at the coast from nearby plantations.

Agricultural concentration was situated in the lower portions of stream valleys (such as near the current project area) where there were broader alluvial flat lands or along bends in the streams. Alluvial terraces were often modified and ditches painstakingly maintained to help create a complex hydrologic system utilizing the natural stream-flow. Dry land cultivation occurred in colluvial areas at the base of gulch walls or on flat slopes (Kirch 1985; Kirch and Sahlins 1992, Vol. 2:59). Lāhainā □had the extra advantage of a calm roadstead and is in close proximity to Lāna`i, and Moloka`i (Handy and Handy 1972). Perhaps that is part of the reason Lāhainā was such a beloved destination.

CONTACT PERIOD

From the late A.D. 1500s until Western contact in 1778, Maui was under control of Kahekili, the brother of King Kamehameha I, and others (Fornander 1969 Vol. II: 78). In November 1778, Captain James Cook of the H.M.S. Cook sailed along-side Maui and Kahekili visited the ship as it anchored off the northeast coast near Kahului. Cook's arrival commonly denotes the *Contact* era, as he was the first explorer to document communication with native Hawaiians and for plotting Hawai'i on a map. Four years later, Kahekili unified Maui, Lana'i, and Moloka'i (Barrère 1975). A short time later, Maui was conquered by Kamehameha I unifying all the Hawaiian Islands. At that time, Lāhainā became the capital of the Hawaiian Kingdom until it transferred to Honolulu in 1855.

POST-CONTACT PERIOD

Ancient Hawaiians resided in a very different Maui than is known today. Rainfall sustained a larger forest zone of native animals, plants, and trees. Extensive cultivation of taro, sweet potatoes, breadfruit, various fruits and herbs supplemented by coastal fishing, supported a sizeable Hawaiian population. Landscapes and lifestyles changed drastically with the introduction of foreign animals, and more influentially, the foreign "market" economy (Bartholomew 1994:118). The economy essentially facilitated from a redistributive one to a market economy.

Once Hawai'i was documented on the map, whalers, missionaries, businessmen, and curious foreigners migrated to the islands. Whalers were attracted to the beautiful and resourceful humpback whales that occupy Hawaiian waters during the months of December through May. In the 1820s, Lāhainā and Honolulu were central ports for whalers from around the globe. There were as many as six-hundred sailors interacting with the local residents at any given time in either town. According to Kame'eleihiwa (1992:140):

As the maka'āinana flocked to the port towns to see the foreigners and their ships and to earn money, agriculture in the countryside was neglected...the population dwindled in outlying villages it became increasingly difficult to maintain the complicated irrigation systems necessary for wetland taro production, systems that required much communal labor. Drunkenness, which occurred perhaps from despair and especially when the fleet was in, because all too frequent among both foreigner and Hawaiian, while syphilis and other foreign diseases were freely exchanged.

The Native peoples of Hawai'i lacked the immunity to fight many foreign diseases.

Christian missionaries came to the islands in 1821. This produced further implications. Just a few years before, in 1819, Queen Ka`ahumanu assisted in the abolishment of the ancient Hawaiian spiritual belief system known as *`ai kapu*, so the new religion was widely accepted. Lāhainā was one of Hawai`i's central locations for missionaries and Christian services.

According to Taylor 1928:42-43, Rev. C.S. Stewart, a missionary in 1823, was assigned to the Lāhainā station. The Rev. commented on the attractiveness of the luxurious area:

The settlement is far more beautiful than any place we have yet seen on the Islands. The entire district stretching nearly three miles along the seaside, is covered with luxuriant groves, not only of the cocoanut, the only tree we have before seen except on the tops of the mountains, but also of the breadfruit and the kou...while the banana plant, kappa and sugar-cane are abundant, and extend almost to the beach, on which a fine surf constantly rolls

...The breadfruit trees stand as thickly as those of a regularly planted orchard, and beneath them are kalo patches and fishponds, 20 or 30 yards square, filled with stagnant water, and interspersed with kappa trees, groves of banana, rows of the sugar cane, and bunches of the potato and melon...It scarcely ever rains, not oftener, we are told, than half a dozen times during the year, and the land is watered entirely by conducting streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day.

Lāhainā was the Hawaiian center for education that was originally established by missionaries. Many missionary families and Hawaiian royalty spent time learning and studying in Lāhainā.

Menzies (1920:105) was a naturalist and surgeon on board HMS Discovery during Captain George Vancouver's 1793 tour. He made these observations of the Lāhainā coast and village:

[We]...soon entered the verge of the woods where we observed the rugged banks of a large rivulet that came out of the chasm cultivated and watered with great neatness and industry. Even the shelving cliffs of rock were planted with esculent roots, banked in

and watered by aqueducts from the rivulet with as much art as if their level had been taken by the most ingenious engineer...

...to see the village of Lāhainā, which we could scattered along shore on a low tract of land that was nearly divided into little fields and laid out in the highest state of cultivation and improvement by being planted in the most regulated manner with the different esculent roots and useful vegetables of the country, and watered at pleasure by aqueducts that ran here and there along the banks intersecting the fields, and in this manner branching through the greatest part of the plantation [112].

As recorded in Handy and Handy 1972:493, little had changed twenty-six years later when J. Arago visited Hawai`i with Captain Louis de Freycinet in 1819:

The environs of Lāhainā are like a garden. It would be difficult to find a soil more fertile, or a people who can turn it to greater advantage...various sorts of vegetables and plants...amongst which we distinguish the Caribee-cabbage, named here taro; double rows of banana, bread-fruit, cocoa-nut, palma-christi, and the paper-mulberry trees.

Lāhainā was indeed an area of vast agricultural fields which supported a sizable Native population.

With the influx of diseases and such, Native Hawaiian populations were decimated. More and more people from all directions of the globe were drawn to the magical Islands as the Native population dwindled. Eventually, a whole new society formed. A Hawaiian monarchy ensued and society changed drastically from ancient Hawaiian days. The mid 1800s were a political turning-point for the Hawaiian Islands.

MĀHELE

To protect Hawaiian sovereignty from foreigners, Kamehameha III (Kauikeaouli) enacted a new system of legal land ownership processes for the Hawaiian population that Kirch (1985:309) summarizes:

By mid-century ...the single most significant inducement to cultural change, the Great *Māhele* or division of lands between the king, chiefs, and government, establish[ed] land ownership on a Western-style, fee-simple basis. From this single act, an entire

restructuring of the ancient social, economic, and political order followed.

Because of the Māhele, lands that were once under *ali`i* care either became privately owned or were turned over to the government.

LAND GRANTS

According to the Waihona `Aina database (2005), some of the King's lands (some later known as *Ceded Lands*) belonged to *ali`i* and were exchanged back to the King for Commutation of the property. Other returned portions became Land Grants, or Government lands that were sold in attempt to generate income for the Kingdom (in which the King had no power). If the Government land was sold to a foreigner, the text is written in English, and if it were sold to a Native Hawaiian, the text was written in Hawaiian. By 1915, documents were written only in English, regardless of the buyer's ethnicity.

According to the most currently available TMK map, two Land Grants were issued in the project area. The first is Land Patent Grant #1891 issued to Dwight Baldwin for 46.50 acres in 1850. He paid \$232.00 for these fee simple lands (see APPENDIX A). The document describes the area by chains and the said heirs. The survey describes the landscape containing: house lots, a pond, a coconut tree, Moalii creek, a Government swamp, taro patches, kulas, a road, a fence boundary and a great stone. The second Land Patent Grant listed on the TMK map in the current project area was issued in 1865 (see Appendix A). Grant #2998 was issued to William Ap. Jones for 0.70 acre and who paid \$20.00 fee simple. According to the Waihona `Aina (2005) document, the land was:

Kula land. Stoney & barren partially surrounded by a low stone wall containing one thatched house belonging to Nehowahilani, and in the North West portion several graves indicated by stones and in the South West also.

The land was assigned to William Ap. Jones and his heirs and assigns forever. The land was subject to taxes.

LAND COMMISSION AWARDS (LCAS)

For Natives that had been cultivating and living on the lands, lengthy and costly procedures enabled them to possibly claim some of the plots. Awarded claims were called Land Commission Awards (LCAs) and each was issued a Royal Patent number (RP). The present

project area contains multiple LCAs. Many records have been misplaced and/or are unidentified. The most recent TMK map has completely different LCAs than were listed for the area on a Government Survey map from 1884 (Figure 5). The LCAs that were located at the time of the 1884 map and the identifiable LCAs from the most current TMK map are presented In Appendix A.

Ethnographic and historical literature indicated Lāhainā was an agriculturally-rich locale irrigated by impressive aqueducts that originated in well-watered valleys, with permanent occupation predominately along the coastline. Handy and Handy (1972:593) state the space cultivated by the natives of Lāhainā at about “three leagues [9 miles] in length, and one in its greatest breadth. Beyond this all is dry and barren; everything recalls the image of desolation”. Crops in cultivated areas included coconut, breadfruit, paper mulberry, banana, taro, sweet potato, sugar cane, and gourds.

Lāhainā was the port of choice for commercial endeavors that succeeded the traditional economy. With the demise of the whaling industry and the location change of the Hawaiian Kingdom from Lāhainā to Honolulu, population fluctuated. By the mid-1800s the area was entirely converted from traditional agriculture to commercial sugar cane. As early as 1849, Judge A.W. Parsons operated a sugar mill in Lāhainā. Henry Dickenson began a sugar plantation in 1859 that was quickly followed by the Pioneer Mill Co. By 1883, Pioneer Mill Co. had assets in excess of \$50,000,000 (Simpich 1974). Pioneer Mill’s railroad extended from the center of Lāhainā Village to a point north of the town of Pu`ukoli`i in Hanaka`ō`ō and was as close as 350 feet AMSL at its northern end (Condé 1975). Pioneer Mill Co. re-organized in 1900, at which time the cane fields were located along the coast for 10 miles, with some areas extending back as far as two and one half miles.

PIONEER MILL

The famous Pioneer sugar mill smokestack ascends from central Lāhainā north and adjacent to the current study area and is representative of local history. The mill sits on about 1.5 acres of land within LCA 3702:2. According to the Hawai`i Sugar Plantation Association (HSPA) plantation archives, James Campbell started the sugar plantation in 1860. Henry Turton and James Dunbar soon joined Campbell and they formed *Campbell & Turton*. In 1865, Dunbar left the company and the name was changed to *Pioneer Mill Company*. By 1874, Campbell and Turton added to the Mill’s holdings: Lāhainā Sugar Company and Kamehameha V’s venture of West Maui Sugar Company. In 1877, Campbell sold his half to Turton for \$500,000 with agents Hackfeld & Company holding a second mortgage of \$250,000. By 1885, Turton declared

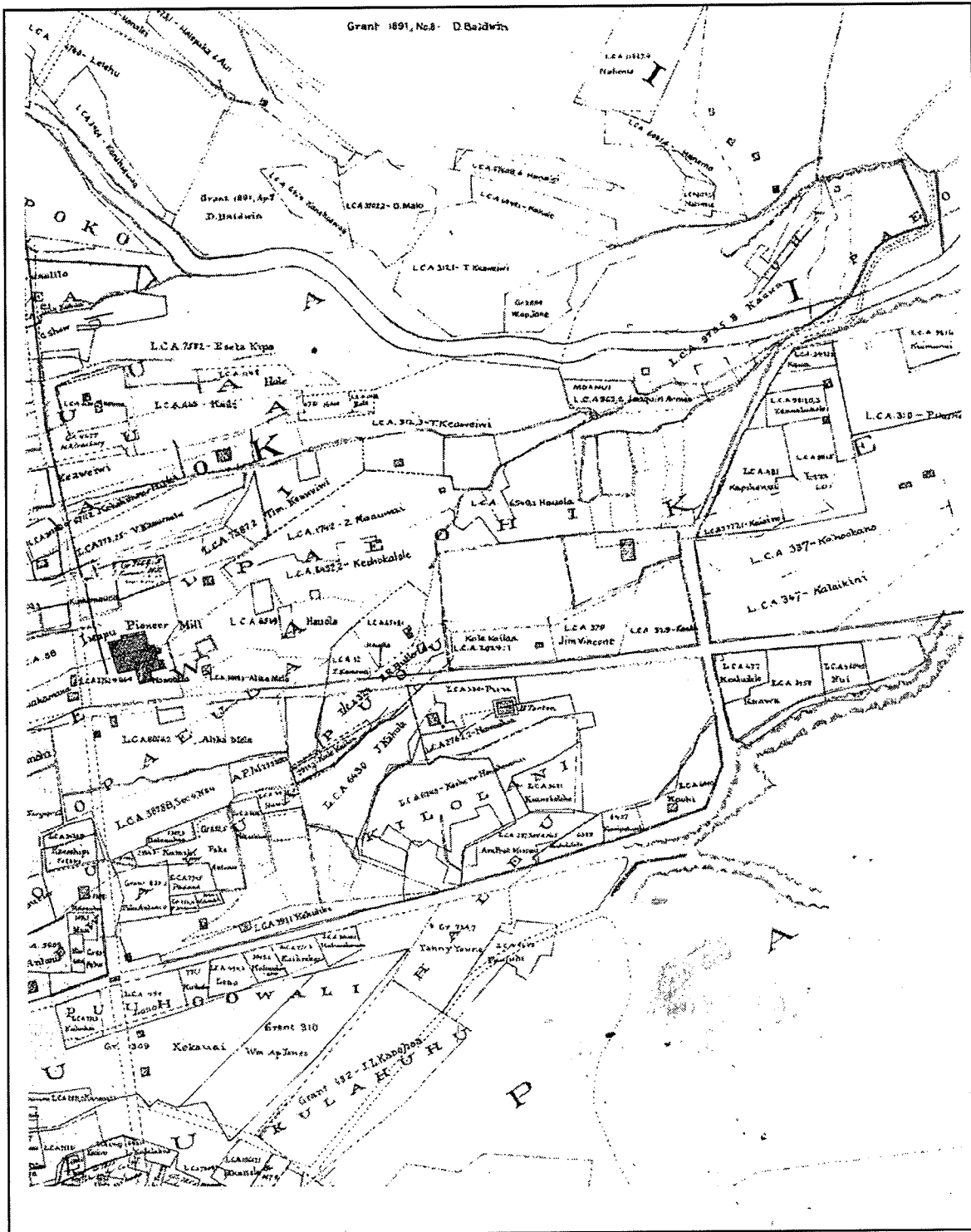


Figure 5: Hawaiian Government Survey Map for the Town of Lahaina and Showing Land Commission Awards within the Environs of the Project Area (S.E. Bishop 1884).

bankruptcy and sold the property back to Campbell and Paul Isenberg (Hackfeld & Co.). In 1916, Pioneer Mill Company was owned by 1,500 individual stockholders and valued at \$5,000,000. By 1935, over 10,000 acres of land (half-owned and half leased) produced cane for Pioneer Mill. In 1960, Pioneer Mill Company became a complete subsidiary of the agent company.

Since the commencement of sugarcane production in Lāhainā, a large plantation community evolved around the Pioneer sugar mill. Plantation camps were established for workers and their families. Plantation settlements were once scattered among the cane fields from Olowalu to Honokohau. Lāhainā Light and Power Company, Lāhainā Ice Company, the Pioneer Mill Hospital, and the Lāhainā and Pu`ukoli`i Stores were all associated with the plantation, providing services to employees as well as other Lāhainā residents. The Second World War caused a severe labor shortage, forcing Pioneer Mill Company to drop over 1,000 acres from cultivation. The neighboring high school operated on a four day week so that students could spend Fridays and Saturdays on the plantation.

The sugar cane train tracks border the western terminus of the current project area. HSPA states that Pioneer Mill was one of the first plantations to use a steam tramway for transporting harvested cane from the fields to the mill. Approximately 1,000 acres of cane was flumed directly to the mill cane carrier and the remainder was delivered to the mill by rail. Sugar was taken by train to the landing at Pu`u Keka`a in Kā`anapali at Black Rock. Work areas and buildings were constructed there to aid in plantation activities such as oil and molasses tanks, a pavilion and some beach cottages for the use of Pioneer Mill Company's personnel (Clark 1980:61). In addition, a quarter-mile track had been constructed on the tidal flats (previously the site of the Battle of Koko-o-na-moku) behind Hanaka`ō`ō for horse racing on holidays.

Between 1948 and 1951, a rock removal program rehabilitated 3,153 acres of Pioneer land to permit mechanical planting, cultivating, and harvesting. In 1952, the railroad was eliminated. The train has more recently been cared for and is now the presently operating sugar cane train that conducts daily tours. The Kā`anapali Landing was abandoned before World War II and by 1957 plans were established for a multi-million dollar resort to be built around Pu`u Keka`a. Among other things, the shift to tourism in the 1950s sent sugar plantations into decline. Agriculture was replaced by high profit developments of golf courses, five-star hotels, condominiums, numerous strip malls, restaurants, and shops.

Currently, the smokestack is still standing but is very dilapidated and filled with cobwebs and rats. According to Kubota (2004), there are a number of issues surrounding the historical site. When the wind blows, fiberglass sheets curl up and the heavy metal corrugated sheet pieces actually break off. Pioneer Mill Co. has tried to reduce the number of rats that cross the road from the mill to residences at night, with no success. Adding to the problems are several years of unresolved talks among the landowner's agent, Kaanapali Development Corp., Maui County, and historic preservation advocates. In 2001, after community objections, Kaanapali Development scuttled plans to destroy most of the site, including the smokestack. Since then, no proposals have been put forth to finance the projected \$300,000 preservation and maintenance of the smokestack alone or any other structures on the site. A number of Maui residents are interested in preserving portions of Pioneer Mill, including the smokestack and the mill office. However, long-term preservation desires are not presently financially backed. The sugar cane train and the Pioneer Mill smokestack site are presently infamous landmarks that appear to be some of the few remains of the sugar company's once foremost influence in Lāhainā town.

PREVIOUS ARCHAEOLOGY

Previous archaeology in the area is relatively extensive due to the rich archaeological resources in the area and the impetus for modern development. The following summary begins relatively early with Walker's survey of *heiau* on the island (1930). Walker documented Wailehau Heiau (50-50-03-6) at Malika Beach, Halekumukalani Heiau (50-50-03-7) in the Puehuhunui cane fields above Lāhainā, and Apahua Heiau (50-50-0308) in Kuia Ahupua'a near upper Waine'e. Additionally, *Heiau* are known relatively near the current project area named Wai'ie, Luakona, Halulukoakoa, and the further discussed Moku'ula.

According to Burgett and Spear (1994:10), the Kahoma Complex (State Site # -1203) is located on the south bank of Kahoma Stream approximately 1.7 miles inland of the coastline. Originally recorded in 1978, the site consisted of a rock-shelter and thirty-eight petroglyphs. Barrera relocated the site and recorded additional features in 1989 (*ibid.*). Jensen (1989) documented habitation and agricultural features in the vicinity of Site# -1203. The site also included 13 probable burial features and a large cairn/marker.

The area on the south side of the mouth of Kahoma Stream was the focus of numerous archaeological investigations during the 1970s and 1980s. Studies were conducted in association with the proposed flood control project for Kahoma Stream by: Hommon (1973); Connolly (1974); Joerger and Kaschko (1979); and Ahlo & Morgenstein (1980)

More extensive analyses were documented at the mouth of Kahoma Stream near Mala Wharf by Sinoto (1975), Davis (1974), and Hammatt (1978). Numerous Hawaiian and Historic burials were located in the sandy beach dunes that continue to be exposed and weathered to this day. Hammatt (1978) recorded a ditch that may have connected `Alamihi Fishpond and Kahoma Stream to the north and monitored the removal of 90 burials with a cultural deposit from the sand dune.

Jenson (1988) and Haun (1988) conducted studies near `Alamihi Fishpond and Mala Wharf. Jenson excavated eight backhoe trenches on the south side of fishpond that resulted in negative findings. Haun excavated 19 backhoe trenches that uncovered some of the pond-field remains and a .25-.50 m thick cultural deposit that yielded a date from AD 1260 to 1761 (Haun 1988:17).

Walter and Demaris Fredericksen completed a number of archaeological investigations in the area including the 1965 excavations at King Kamehameha I's brick palace at TMK: (2)-4-6-001:007 (State Report # M-00019). In 1970, they drafted the final report for the preparation of the exhibit of the palace (State Report # M-00018). In 1978, they conducted excavations at the outbuildings adjacent to the Baldwin House [TMK (2)-4-6-008:007], under contract with the Lāhainā Restoration Foundation (State Report #M-00183). In 1981-1982, they conducted excavations at Hale Pa'i site at TMK (2)-4-6-018:005. (State Report #M-00180), and in 1988, the Aus Site: H.S. State site #50-03-1707.

A preliminary Archaeological Inventory Survey Report was submitted by Walter and Demaris with the help of Eric Fredericksen at TMK (2)-4-6-009:021 (State Report #M-00186). In 1989, they prepared an archaeological Inventory Survey of the Plantation Inn Site at TMK (2)-4-6-009:042 and 043 (State Report #M-00219) Also in 1989, they conducted an archaeological Data Recovery report for the previously investigated Aus Site at TMK (2)-4-6-009-021 (State Report #M00222). The same year, they conducted an Inventory Survey of a parcel of land adjacent to Malu-ulu-o-lele park at TMK (2)-4-6- 007:001 (State Report #M-00239). In 1990 they prepared the Data Recovery Report for the Plantation Inn Site (State Report #M00285). Finally in 1993, they completed an Inventory Survey on a Parcel of land located in the Ahupua'a of Paunau at TMK (2)-4-6-009:012 (State Report #M-00448).

Kurashina and Sinoto (1984) identified two sites associated with Pioneer Mill during Reconnaissance Survey on 11.7 acres. The project area was located on the east side of Front Street between Baker and Papalaua Streets. The two sites mentioned were an irrigation gate that once regulated the flow of water from Kahoma Stream into the cane fields; and surface remains

of the Pioneer Mill Hospital. The report indicated that no archaeological sites or portable artifacts were located (Kurashina & Sinoto 1984:8-9).

An archaeological Reconnaissance survey was conducted in an area near Waine'e Village in 1992 by Robert Hommon at TMK (2)-4-6 (State Report #M-00074). There was an Archaeological walk-through examination of proposed housing by Joseph Kennedy at TMK (2)-4-6-013:006 in 1986 (State Report #M-00140). In 1988, there was a Historic site survey for Lāhaināluna Road and Waine`e Street widening projects by Spencer Mason Architects at TMK (2)-4-6 [State Report#M-00261]. In 1989 Kennedy submitted an archaeological report concerning subsurface testing at TMK (2) 4-6-008:012 (State Report #M-00210). A Supplemental Archaeological Survey was completed for the Lāhainā Master-Planned Project Offsite Sewer, Water Improvements, & Cane Haul Road, Lands of Wahikuli, Hanaka'o'o, Honokawai, Kuhua, Kuholilea, Puou, Pu'uiki, and Aki in 1991 by Peter Jensen and Jenny O'Claray at TMK (2) 4-4, 5, and 6 (State Report #M-00336).

In 1994, an Archaeological Inventory Survey was prepared for Waiola Church in the Ahupua'a of Waine'e by Melody Heidel, William Folk, and Hallet Hammatt at TMK (2)-4-6-007:016 (State Report #M-00517). In 1995, Moku'ula a History and Archaeological Excavations at the Private Palace of King Kamehameha III was completed by Paul Klieger, Ed Christiaan; Boyd Dixon, Susan Lebo, Heidi Lennstrom, Dennis Gosser, and Stephan Clark at TMK (2)-4-6-002:023, 2-4-6-007:001; 002; 035; 036; 037; 038; and 041 (State Report #M-00503). Stephan Clark, Paul Klieger, and Ed Christiaan reported human burials at Moku'ula in 1995 Site 50-50-03-2967 at TMK (2)-4-6-007:002 (State Report #M-005471). The same year, Paul Klieger and Lonnie Somer submitted a draft for emergency mitigation at Malu'ulu o Lele Park at Moku'ula Site 50-50-03-2967 at TMK (2)-4-6-007: 002 (BPBM 50-Ma-D5-12 State Report #M-00734).

Burgett and Spear (1994) conducted Inventory Survey of 8.8 acres in a neighboring area at Kainehi (makai). Mechanical trenches were excavated systematically throughout the study area. A human burial was encountered and a burial treatment plan was completed.

In 1996, Maurice Major, Ed Christiaan, Paul Klieger, and Susan Lebo completed the historical background and archaeological testing at Pikanele's *Kuleana* and an Inventory Survey report of LCA 310.3 (Royal Patent 1729, TMK [2] 4-6-07:13). An archaeological survey of the northeastern edge of Loko o Mokuhinia was conducted. In this portion of Kalua o Kiha, a combination of pre-and post-Contact artifacts were collected. Additional reports were prepared

in conjunction with Front Street widening and other improvements (e.g. Klieger and Prismont 1994).

An abundance of archaeological sites in the Lāhainā District have been severely impacted and/or completely destroyed by early historic and modern day activities. Moku'ula (the brick castle) is one of the most publicized site in the area that was buried under about .60 m of fill in 1914, and is now in the process of being rediscovered through local community and government efforts (Klieger 1995). The site was once an island known as Moku'ula within Malu'ulu o Lele Park in Lāhainā, which is west of the current project area. Moku'ula was the private residential complex of King Kamehameha III from 1837 to 1845, when Lāhainā was the capital of the kingdom of the Hawaiian Islands. The site is on the state and national registers of historic places within the Lāhainā Historic District that consists of 60 sites administered by the County of Maui Cultural Resource Commission since 1962. Phase I Archaeological Inventory and Survey Excavations of Moku'ula were undertaken by the Bishop Museum in 1993 (Klieger 1995).

SITE PATTERNS

Based on all available physiographic, archaeological, and historical evidence, there was a limited, yet significant, chance of finding traditional Hawaiian (*i.e.*, Pre-Contact) sites and features in the project area. The probability of surface architecture or cultural remains was minimal due to severe land alterations from commercial agricultural sugarcane ventures and significant machine land alterations from the re-alignment of Kahoma Stream. If not for major historical land alterations, based on Māhele documentation, there would have been traditional surface features in the form of rock terraces, enclosures, footings, alignments and other features related to agriculture and permanent habitation. LCA research documented a number of house lots, Kula land for sweet potatoes, numerous kalo patches (most had Lo`i listed that involved intensive agri/aquaculture). There were probably plantings of other types of fruits, herbs, and vegetables. Based on extensive use of the area and the established widespread landscape disturbance, it was expected that any archaeological findings would be located in sub-surface contexts.

METHODOLOGY

The work described in this report consists of historical background and archival research; pedestrian survey of the parcel; mapping and describing of surface features; subsurface testing (excavation by backhoe); analysis, interpretation, and reporting of all relevant data. Fieldwork was conducted by SCS archaeologists Ian Bassford, B.A., and Jenny Pickett, B.A. on

September 6 and 9, 2005. J. Pickett conducted the background and archival research; Dr. M. Dega is the project Principal Investigator.

ARCHIVAL METHODS

Archival research was conducted at the SHPD-Maui library facility and on the SHPD website (SHPD 2005) before, during, and after the fieldwork described in this report. Archival work consisted of general research on the history and archaeology of Lāhainā in general, as well as specific searches of previous archaeological studies in and around the subject parcel. Historic land use data from in and around the site were obtained from the Waihona `Aina website and a copy of the LCAs within the project area are (as previously noted) located in **APPENDIX A** (Waihona `Aina 2005).

FIELD METHODS

Fieldwork involved systematic pedestrian survey (5-meter spacing) of the entire project area and representative testing. All aspects of field work were photographed with a digital camera and copies of these photographs have been archived on the SCS computer network. As no surface features or deposits were identified during survey and the area was previously grubbed/graded and utilized for a storage/dump area, emphasis was placed on subsurface investigations. Trenches were placed across various portions of the project area to provide representative coverage and test areas most amenable to potentially yielding archaeological information. All backhoe trenches were described using standard archaeological recording forms with sufficient detail to exhibit character, size, location, and inter-relationships. Figure 6 illustrates trench locations. Scaled profile drawings of soil stratigraphy; soil layer colors (Munsell; dry), and soil compositional data were acquired from each trench.

LABORATORY METHODS

As there were no significant finds on the surface or through testing, laboratory work primarily consisted of digital drafting of stratigraphic trench profiles, trench locations, and project area maps. All field notes, maps, photographs, and communications pertaining to this project are being curated at the SCS laboratory in Honolulu.

FIELDWORK RESULTS

Complete pedestrian survey of the subject parcel failed to reveal any structures, artifacts, or surface deposits. Survey did reveal the large extent of previous grading and overall disturbance to the project area surface. In addition, a total of fifteen stratigraphic backhoe

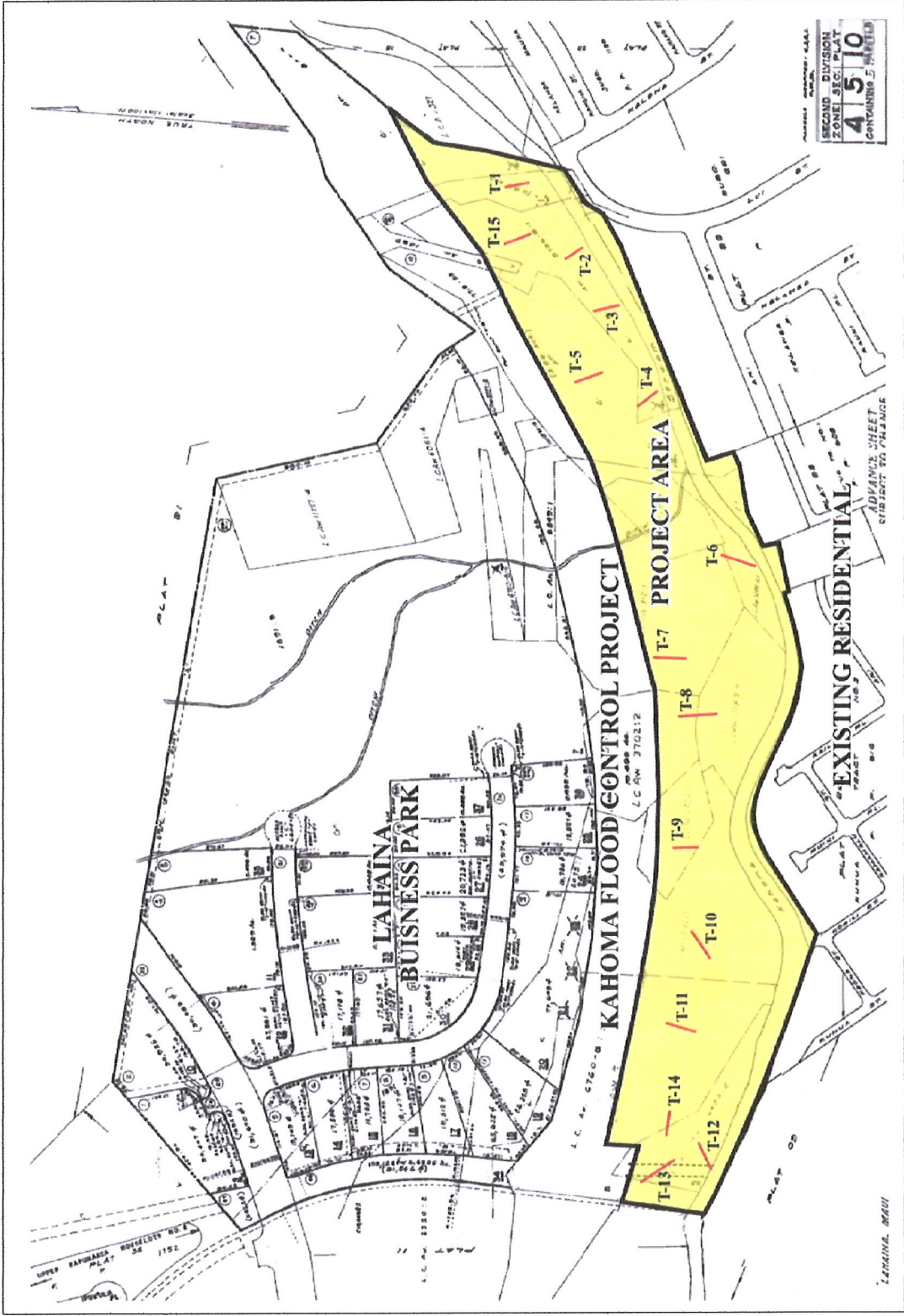


Figure 6: Plan View Map Depicting Testing Locations in Project Area.

Trenches (T-1 through T-15) were excavated across the parcel. Table 1 summarizes trench excavation results:

Table 1: Excavation Trench Data and Results

Trench No.	Length (m)	Width (m)	Depth (m)	Orientation (degrees)	Soil Type	Additional Information
1	5	1.2	1.1	40/220	Possibly Original (Layer II)	Excavation terminated at saprolitic/bed rock.
2	6.3	1.5		150/330	Fill	Maximum Depth.
3	6.9	1.25	1.5	170/350	Fill	White plastic pipe at about 1m. Excavation terminated at saprolitic/bed rock.
4	5.1	1.1	0.75	150/330	Fill	Black plastic at about .50m. Excavation terminated at saprolitic/bed rock.
5	7.7	1.2	1.6	160/340	Multiple Layers of Fill	Wood, soda can, black plastic throughout. Old A-horizon observed. Excavation terminated at saprolitic/bed rock.
6	5.2	1.15	1.18	160/340	Possibly Original (Layer I)	Significant grass roots/rootlets. Excavation terminated at saprolitic/bed rock.
7	5.8	1.25	1.75	20/200	Fill	Large boulders-old HC&S boulder dump-site. Wood at about 1m.
8	5.75	1.3	1.75	170/350	Possibly Original (Layer II)	Black plastic throughout Layer I.
9	6.11	1.3	1.95	160/340	Fill	Black plastic throughout Layer.
10	6.3	1.15	1.98	256/66	Fill & old streambed	Black plastic throughout Layer I. Old Kahoma streambed Layer II.
11	7	1.15	1.6	180/360	Multiple Layers of Fill	Black plastic throughout both Layers. Wood at about .50m.
12	7	1.05	1.55	100/280	Fill & old streambed	Black plastic and wood located in Layer I. Old Kahoma streambed Layer II.
13	7.4	1.25	2.7	140/320	Possibly Original	Old Kahoma streambed Layer II. Maximum depth.
14	8.3	1.2	2.7	50/230	Fill	Black plastic throughout Layer. Maximum Depth.
15	6.8	1.2	1.9	360/180	Fill	Large boulders-possibly old HC&S boulder dump-site.

Trenches were intentionally positioned throughout the project area in order to obtain the broadest coverage. Average trench length was 6.44 m with an average width of 1.13 m. The depth of excavation ranged from 0.5–2.7 m at an average of 1.78 m below surface (bs). Trench locations were recorded using tape and compass and documented on a TMK map (see Figure 6). Field notes, stratigraphic profiles, and soil descriptions were recorded for each trench according to standard archaeological resource management procedures. All trenches yielded negative results.

As all trenches yielded negative results and were somewhat redundant in profile, trench descriptions, orientation, and measurements are included herein as **Appendix B**. Photographs and illustrations of all stratigraphic profiles are available upon request.

DISCUSSION

Fairly intensive surface and subsurface investigations of the project area failed to yield evidence for traditional or historic-period activities. All investigations yielded only negative results. The reasons for this absence of cultural resources appear to be primarily related to modern land disturbances. Mechanical clearing and grading have certainly affected the surface area of the parcel. These same activities, combined with removal of natural soil and importation of fill soils, is another cause for the absence of any subsurface cultural materials. Construction of the Kahoma Flood Control Channel certainly played in role in disturbance to surface and subsurface contexts of the project area.

RECOMMENDATIONS

Based on archival research, LCA documentation, and previous archaeology noted herein, it appears that the current project area would be deemed significant to the cultural history of the area. However, extensive machine (bulldozer) alterations are evident throughout the area and bulldozer push-piles along with large boulder-piles have completely modified the original surface and into subsurface contexts. Given the fairly extensive investigations conducted herein and the absolute lack of cultural resources documented during this project, no further archaeological work is recommended for the project area. In the unlikely event that significant cultural resources, including burials, are encountered during construction, the contractor must contact SHPD-Maui to discuss the find(s) and potential mitigation on the parcel.

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APPENDIX A: LCA DATA

LCAs IN PROJECT AREA:

Number: 04878BB

Claim Number:		04878BB	
Claimant:		Honu	
Other claimant:			
Other name:			
Island:		Maui	
District:		Lahaina	
Ahupuaa:		Makila	
Ili:			
Apana:	2	Awarded:	1
Loi:	1	FR:	
Plus:		NR:	215v6
Mala Taro:		FT:	39v7
Kula:	1	NT:	
House lot:	1	RP:	3585, 4506
Kihapai/Pakanu:		Number of Royal Patents:	2
Salt lands:		Koele/Poalima:	No
Wauke:		Loko:	No
Olonā:		Lokoia:	No
Noni:		Fishing Rights:	No
Hala:		Sea/Shore/Dunes:	No
Sweet Potatoes:		Auwai/Ditch:	No
Irish Potatoes:		Other Edifice:	No
Bananas:		Spring/Well:	No
Breadfruit:		Pigpen:	No
Coconut:		Road/Path:	No
Coffee:		Burial/Graveyard:	No
Oranges:		Wall/Fence:	No
Bitter Melon/Gourd:		Stream/Muliwai/River:	No
Sugar Cane:		Pali:	No
Tobacco:		Disease:	No
Koa/Kou Trees:		Claimant Died:	No
Other Plants:		Other Trees:	
Other Mammals:	No	Miscellaneous:	

CL 4878BB, Honu, Part 24, June 1, 1849

F.T. 39v7

Kauhikapa, sworn, I know the land of claimant. They are in "Makila," Lahaina and consist of 2 pieces. In one is a house lot and kula. The other is not in "Makila" but is in Alio and is kalo land.

The kalo land which is one loi I gave to the claimant in 1837 and he has occupied it in peace ever since. The house lot and kula he received from Makaena in 1837 and he has not been disputed in his title to this piece.

The house lot and kula are bounded:

Mauka by the land of Pupuka
Olowalu by the dry creek bed
Makai by the main road of Lahaina
Kaanapali by the land of Kekua.

The kalo land is bounded:

Mauka and Olowalu sides by my lois
Makai by the poalima lois of Serang or Victoria
Kaanapali by Kainaiki.

[Award 4878BB; R.P. 4506 & 3585; Makila Lahaina; 1 ap.; 1 rood 9 rods; Makila Lahaina; 1 ap.; 2 roods 23 rods; See 4878 for Native Register document for Pi in list of Upai ma claimants]

Number: 04878F

Claim Number:	04878F		
Claimant:	Pi		
Other claimant:			
Other name:			
Island:	Maui		
District:	Lahaina		
Ahupuaa:	Makila		
Ili:			
Apana:	2	Awarded:	1
Loi:	40	FR:	
Plus:		NR:	215v6
Mala Taro:		FT:	28v7
Kula:		NT:	
House lot:	2	RP:	8226,2705,7458
Kihapai/Pakanu:		Number of Royal Patents:	3

Salt lands:	Koele/Poalima:	No
Wauke:	Loko:	No
Olonā:	Lokoia:	No
Noni:	Fishing Rights:	No
Hala:	Sea/Shore/Dunes:	No
Sweet Potatoes:	Auwai/Ditch:	No
Irish Potatoes:	Other Edifice:	No
Bananas:	Spring/Well:	No
Breadfruit:	Pigpen:	No
Coconut:	Road/Path:	Yes
Coffee:	Burial/Graveyard:	No
Oranges:	Wall/Fence:	No
Bitter Melon/Gourd:	Stream/Muliwai/River:	Yes
Sugar Cane:	Pali:	No
Tobacco:	Disease:	No
Koa/Kou Trees:	Claimant Died:	No
Other Plants:	Other Trees:	
Other Mammals: No	Miscellaneous:	

Cl. 4878F, Pi, Part 5
F.T. 28v7

Holi, sworn, I know the lands of Pi. They are in "Makila," Lahaina, and they consist of three moos or ridges of kula land on which his house stands, which are in one piece. Also one House lot separated from this, and one piece of kalo land containing 40 lois.

Claimant received these lands from Kaulunae in 1824 and he has held them without dispute ever since. The King is the great Lord of "Makila" and to him belongs the poalima.

The piece of kula is bounded:
By the House lot of Maimaoe Mauka
Olowalu by the land of Kekua
Makai by the road to Olowalu
Kaanapali by the land of Paele.

The house lot further mauka is bounded:
Mauka by the stream
Olowalu and Makai by Kapuka's land
Kaanapali by the land of Maimai.

The kalo land is bounded:

Mauka by the Auwai dividing it from the lois of Makakapu
 Olowalu by the creek
 makai by the land of Kekua
 Kaanapali sides is a water course dividing it from uncultivated kula.

See page 32 volume 15

F.T. 32v15
 No. 4878F, Pi, from p. 28v7

Claimant appeared in person and stated that he had given up the piece of kula land disputed by Pupule, surveyed for him by Mr. Alexander.

[Award 4878F; Land Patent 8226, Makila Lahaina; 1 ap.; 3 roods 8 rods; R.P. 2705; Maikila Lahaina; 2 ap.; 1 Ac.; & R.P. 7458; Makila Lahaina; 1 ap.; 1 Ac. 29 rods; See 4878 for Native Register document]

Number: 04878II

Claim Number:	04878II		
Claimant:	Pupuka		
Other claimant:			
Other name:			
Island:	Maui		
District:	Lahaina		
Ahupuaa:	Lahaina		
Ili:			
Apana:	Awarded:		1
Loi:	FR:		
Plus:	NR:		215v6
Mala Taro:	FT:		42v7
Kula:	NT:		
House lot:	RP:		1749,1201,2707
Kihapai/Pakanu:	Number of Royal Patents:		3
Salt lands:	Koale/Poalima:		No
Wauke:	Loko:		No
Olona:	Lokoia:		No
Noni:	Fishing Rights:		No

Hala:	Sea/Shore/Dunes:	No
Sweet Potatoes:	Auwai/Ditch:	No
Irish Potatoes:	Other Edifice:	No
Bananas:	Spring/Well:	No
Breadfruit:	Pigpen:	No
Coconut:	Road/Path:	No
Coffee:	Burial/Graveyard:	No
Oranges:	Wall/Fence:	No
Bitter Melon/Gourd:	Stream/Muliwai/River:	No
Sugar Cane:	Pali:	No
Tobacco:	Disease:	No
Koa/Kou Trees:	Claimant Died:	No
Other Plants:	Other Trees:	
Other Mammals: No	Miscellaneous:	

**No. 4878II, Pupuka, Part 31, June 1, 1849
F.T. 42v7**

Kamohai, sworn, I know the land of claimant. They are in "Makila," Lahaina. They consist of 2 pieces. One a kula land and the other a kalo land.

The claimant obtained these lands from Kauluwae soon after Liholiho went to England, about 1835 and his title to them is without dispute.

The kula is bounded:
Mauka by the house lot of Kapuka
Olowalu by the creek
Makai by the house lot of Muonou
Kaanapali by the land of Kaleiopu.

The kalo land is bounded:
Mauka by the lois of Kaleiopu
Olowalu by the pali
Makai by my lois
Kaanapali by the pali.

[Award 4878II; R.P. 1749; Makila Lahaina; 1 ap.; 1.75 Acs; R.P. 1201; Makila Lahaina; 1 ap.; 1.7 Acs; R.P.2707; Makila Lahaina; 1 ap.; 1.13 Acs; See 4878 for Native Register document]

Number: 04878KK

Claim Number: **04878KK**

Claimant: **Kelea**

Other claimant:

Other name:

Island: **Maui**

District: **Lahaina**

Ahupuaa: **Makila, Polaiki**

Ili:

Apana:	2	Awarded:	1
Loi:	2	FR:	
Plus:	+	NR:	215v6
Mala Taro:		FT:	43v7
Kula:	1	NT:	
House lot:	1	RP:	4429
Kihapai/Pakanu:		Number of Royal Patents:	1
Salt lands:		Koele/Poolima:	No
Wauke:		Loko:	No
Olonā:		Lokoia:	No
Noni:		Fishing Rights:	No
Hala:		Sea/Shore/Dunes:	No
Sweet Potatoes:		Auwai/Ditch:	No
Irish Potatoes:		Other Edifice:	No
Bananas:		Spring/Well:	No
Breadfruit:		Pigpen:	No
Coconut:		Road/Path:	Yes
Coffee:		Burial/Graveyard:	No
Oranges:		Wall/Fence:	No
Bitter Melon/Gourd:		Stream/Muliwai/River:	Yes
Sugar Cane:		Pali:	No
Tobacco:		Disease:	No
Koa/Kou Trees:		Claimant Died:	No
Other Plants:		Other Trees:	
Other Mammals:	No	Miscellaneous:	

Cl. 4878KK, Kelea, Part 32, June 1, 1849

F.T. 43v7

Pupuka, sworn, I know the lands of the claimant. They consist of [a] section of kalo patches on "Puehuehueiki" and a house lot and kula and loi on "Makila."

The claimant obtained these lands in the days of King Liholiho from Kaleikana [?], and has possession [of] them in peace ever since.

The piece on "Makila" is bounded:
Mauka by my land
Olowlu by the creek
Makai by the main road of Lahaina
Kaanapali by the land of Kanchiwa.

The piece of kalo land is bounded:
Mauka by the land of Laahili
Olowlu by the same
Makai by the lois of Haukolea [?]
Kaanapali by the lois of Keawekane.

[Award 4878KK; R.P. 4429; Makila Lahaina; 1 ap.; 1 rood 78 rods; no R.P.; Poiaiki Lahaina; 1 ap.; 12 rods;
See 4878 for Native Register document]

Number: 06210

Claim Number:	06210	
Claimant:	Kapuka	
Other claimant:		
Other name:		
Island:	Maui	
District:	Lahaina	
Ahupuaa:	Makila	
Ili:		
Apana:	Awarded:	1
Loi:	FR:	
Plus:	NR:	355v6
Mala Taro:	FT:	103v7
Kula:	NT:	
House lot:	RP:	2706
Kihapai/Pakanu:	Number of Royal Patents:	1

No. 312, T. Keaweiwi
N.R. 76-77v2

To the Land Commissioners, Greetings: I hereby tell you of my right, at Lahaina. Aki and Kuhua are the lands where my lot is, and this is my residence.

A portion has been occupied from ancient times and a portion is new. It has not been surveyed - it is for you to survey it.

Farewell, and thank you

TIM. KEAWEIWI

Witnesses: Imiwale, Kaleoku

N.T. 12v15

No. 312, Timoteo Keaweiwi, Lahaina 15. November 1852

Ahuli, sworn, says he knows the House Lot of Claimant in Waiokama, Lahaina. Witness has lived there under Claimant for the last ten years. Claimant received this Lot from Kekahiko about 1836, and there is no dispute to his title.

The Lot is bounded:

Mauka by Nalehu

Olowalu by Malokuakea

Makai by Nalehu

Kaanapali by Napahi's house Lot.

N.T. 87v2

No. [312], Keaweili, Lahaina, January 1847

Postponed - work to be resumed when (he) returns.

N.T. 195v2

No. 312, Timoteo Keaweiwi, See T.

Hoohei, sworn by the Word of God, This place which Timoteo is claiming is at Aki and are small sections of land. It was acquired during the time of Kalehu and the right was received from Kalehu, who was the konohiki of Aki, who had received his interest from Kalaimoku and Kalaimoku had received his interest from Kamehameha. Imiwale and Kaiahua both have a small piece of that place. He (Timoteo) has two lots there which have been enclosed with a fence. There is a mud house standing in there, also another enclosure and he is living there now. No one has objected to him.

It (claim) is postponed and will resume when a witness is found.

[Award 312; R.P. 2650; Waiokama Lahaina; 1 ap.; 16 rods; Kuhua Lahaina; 1 ap.; .43 Ac. & Uhao (See 11146) Lahaina; 3 ap.; 1.36 Acs; R.P. 1180; Moalii Lahaina; 2 ap.; 7.62 Acs; Aki Lahaina; 1 ap.; 6 Acs 2 roods 10 rods; R.P. 1179, Akiaiole Lahaina; 1 ap.; 3.47 Acs; See also Award 11146 & 11150]

No. 11150, Keone
F.T. 68v15

Claimant, being sworn, deposed that she gave in her claim to Mr. Richards, at Lahaina, in the year 1847, and had it surveyed at the same time by J. Richardson (produced a copy of the survey).

T. Keaweiwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

It is bounded on:
Olowalu side by Alaala's land
Makai by Hale's lot
Kaanapali side by "Kuhuanui"
Mauka by Imiewale's land.

Claimant has also a piece of Kula land, in "Kuhuanui," it is surrounded by the land of Konohiki, I think.

She has also another House lot, in "Kuhuanui,"

Bounded on:
Olowalu side by a stream
Makai by Moaliis[?]
Kaanapali side by Timoteo
Mauka by Kekahuna's land.

It is enclosed and belonged to Claimant's husband and is still occupied by some of her relatives.

Claimant has also a kalo patch, adjoining the first mentioned House lot, in "Kuhua." It is

Bounded on:
Olowalu side by a watercourse
Makai by Wahine's land
On the other side by the same.

Claimant derived her lands from her husband who got them from Kipa in ancient times, and has always held undisturbed possession of them.

[Award 312; R.P. 2650; Waiokama Lahaina; 1 ap.; 16 rods; Kuhua Lahaina; 1 ap.; .43 Ac. & Uhao (See 11146) Lahaina; 3 ap.; 1.36 Acs; R.P. 1180; Moalii Lahaina; 2 ap.; 7.62 Acs; Aki Lahaina; 1 ap.; 6 Acs 2 rods 10 rods; R.P. 1179, Akiaiole Lahaina; 1 ap.; 3.47 Acs; See also Award 11146 & 11150]

No. 11150, Keone
F.T. 68v15

Claimant, being sworn, deposed that she gave in her claim to Mr. Richards, at Lahaina, in the year 1847, and had it surveyed at the same time by J. Richardson (produced a copy of the survey).

T. Keaweiwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

It is bounded on:
Olowalu side by Alaala's land
Makai by Hale's lot
Kaanapali side by "Kuhuanui"
Mauka by Imiewale's land.

Claimant has also a piece of Kula land, in "Kuhuanui," it is surrounded by the land of Konohiki, I think.

She has also another House lot, in "Kuhuanui,"

Bounded on:
Olowalu side by a stream
Makai by Moalii[s?]
Kaanapali side by Timoteo
Mauka by Kekahuna's land.

It is enclosed and belonged to Claimant's husband and is still occupied by some of her relatives.

Claimant has also a kalo patch, adjoining the first mentioned House lot, in "Kuhua." It is

Bounded on:
Olowalu side by a watercourse
Makai by Wahine's land
On the other side by the same.

Claimant derived her lands from her husband who got them from Kipa in ancient times, and has always held undisturbed possession of them.

Kuheleloa, sworn, says he is Luna of "Kuhua" under Haalelea and he knows the pieces of land claimed by Keone. She and her family have held them ever since witness came to live on "Kuhua," seven years ago.

[Award 11150; R.P. 2651; Kuhua Lahaina; 4 ap.; 1 Ac. 3 roods 21 rods]

No. 6424, Kanehoewaa, Lahaina, February 4, 1848
N.R. 371v6

Greetings to the Commissioners of the Mo'i: I have a little claim for a lot, at Moalii, adjoining the flowing stream; it is 68 fathoms long by 68 fathoms wide.

[DIAGRAM]

Furthermore, there is a kihapai for planting sweet potatoes, 11 fathoms in length and 24 fathoms in width /sic/.

This is its diagram

[DIAGRAM]

This is its diagram, adjoining the stream of Moalii in Lahaina on the Island of Maui.
KANEHOEWAA

F.T. 18v7
Cl. 6424, Kanehoewaa

for house lot and farm

Lelehu, sworn, I know these lands. Claimant had them from Hoai who had them from me about 10 years since. I had them from Kaahumanu. I never head claimant's title disputed.

The house lot is in Lahaina, the part called Moalii.
Mauka is David Malo's land
Olowalu is Kaulakukui's
Makai is my land
Kaanapali is my yard.
The fence is the true boundary.

The farm lot is bounded:
Mauka by my land
Olowalu by Moalii Creek
Makai by my land and Kaanapali.
[Award 6424; R.P. 1840; Moalii Lahaina; 1 ap.; 1.6 Acs]

GRANTS:

B>No. 1891, Baldwin, Dwight, Moalii, Ahupuaa, District of Lahaina, Island of Maui,
Vol. 10, pps. 183-185 [LG Reel 3, 01321-01323.tif]

No. 1891
Royal Patent

Kamehameha IV, By the Grace of God, King of the Hawaiian Islands, by this His Royal Patent, makes known, unto all men, that he has for himself and his successors in office, this day granted and given, absolutely, in Fee Simple unto Dwight Baldwin his faithful and loyally disposed subject for the consideration of Two Hundred and Thirty two Dollars, paid into the Royal Exchequer, all that certain piece of Land situated at Moalii, Lahaina in the Island of Maui and described as follows:

No. 1.

Beginning at South West corner on shore the boundary runs
South 52 1/2° East 1.00 Chains along Alamihi
North 18° East 155 Chains along Manakaumi's house lot
South 72° East 67 Chains along said
South 16° 14' West 1.42 along Do
South 60° East 181 Chains along Alamihi's boundary to Unahiole pond
North 31 1/2° East 0.94 Chains along house
North 62° West 0.90 along Kauakanui's house lot
North 31° East 215 Chains along lots to a cocconut tree
North 70° West 7.12 Chains along Hauki's pond
North 14 1/2° East 2.90 Chains along Keawe's
South 72 1/2° East 1.66 Chains along Keawe's to road
North 4° West 2.89 Chains to road West 1.20 Chains along Kaaakekoa
North 1° East 6.70 Chains along said lot to road
North 11 3/4° West 741 Chains along road of Punakea
North 42° West 4.52 Chains along Kealiipio
South 26° East 6.52 along sea shore
South 1° East 11.56 Chains along sea shore
South 11° West 8.47 Chains along sea shore to commencement.
Area 3 Acres, 1 Road, 9 Rods.

No. 2

Begin at South West corner on the main road, run
South 70 3/4° East 6.90 Chains along Palea
South 14 1/2° West 2.80 Chains along Palea to creek
South 84 1/3° East 1.64 Chains along creek
North 9 1/2° East 1.62 Chains along Kuaikawai's House lot
South 78 1/2° East 2.50 Chains along D
South 89° East 2.13 Chains along D
North 85° East 2.24 Chains along D
North 25° West 1.00 Chains along Nalimanui's

North 4° East 2.64 Chains along D & Kaulakukui's
 South 82 1/2° East 2.15 Chains along Nalimu
 South 81 1/2° East 2.47 Chains
 North 86° East 1.68 Chains along D, North 0.27 Chains along Moakaka
 South 82° West 1.30 Chains
 North 83° West 2.81 Chains
 North 79° West 2.08 Chains all along Keawe's
 North 11 1/2° East 2.90 Chains along Nalimu, Keawe, & Moakaka
 North 80° West 6.08 Chains along Moakaka
 South 11° West 1.22 Chains along Moakaka & Nalimu
 North 78 1/2° West 2.54 Chains
 North 67 1/2° West 3.96 Chains both along nalimu
 North 4° West 1.36 Chains along Malimu & Moakaka
 North 81 1/4° West 3.00 along Government Swamp
 South 4° East 1.70 Chains along main road
 South 78 1/2° East 3.00 Chains along Kaiki & Keawe
 South 67 1/2° East 3.96 Chains along Keawe
 South 78 1/2° East 2.52 Chains along D
 South 11° West 2.41 Chains along Keawe & Kaulakukui & Kaiki to North east corner of
 Koopahea taro patch
 North 81 3/4° West 1.25 Chains along Kaiki on bank of Koopahea
 South 13° 3/4 West 0.71 Chains along Kauakanui
 North 71° West 6.92 Chains along D to road
 South 6 1/4° East 0.70 Chains along main road to place of beginning.
 Area 7 Acres, 1 Road, 21 Rods.

[page 184]

No. 3.

Begin at South West corner on Main Road, run
 South 81° 1/4 East 2.94 Chains along middle of Government Swamp
 South 71° 1/2 East 1.00 Chains
 South 74° East 3.63 Chains
 South 86° [?] 2.05 Chains
 South 79° East 3.00 Chains
 South 80 1/2° East 3.06 Chains these boundaries run along Moakaka, South 0.67 Chains
 along 2 Moo's of Moakaka
 South 78° 1/2 East 5.09 Chains
 South 34° East 0.30 Chains
 South 73° 1/2 East 2.23 Chains
 South 6° West 0.46 Chains
 South 84° East 1.58 Chains all along Moakaka
 North 6 1/2° East 0.54 Chains
 North 67° 1/4 West 4.66 Chains, North 0.93 Chains along Naolalo
 North 70° West 2.48 Chains
 North 75° West 2.47 Chains along Kaiwi, South 0.76 Chains along Naolalo

North 85° 1/4 West 2.12 Chains
North 83° 1/2 [?] 3.82 Chains
North 4° 1/2 West 0.48
North 88° West 1.64 Chains
North 78° West 3.50 Chains
North 2 1/2° East 0.66 Chains
North 81 1/2° West 0.72 Chains all along Naolalo
North 83° West 3.70 Chains to road
South 4° East 1.52 Chains along Main Road to place of beginning.
Area 3 Acres, 1 Road, 28 Rods.

No. 4.

Begin at South West corner run
South 77° 1/4 West 3.06 Chains
South 66° 1/2 East 2.60 Chains, South 0.90 Chains
South 87 1/2° East 1.12 Chains
South 11° 1/4 West 0.55 Chains
South 71° 1/4 East 4.70 Chains, all these boundaries running along Moakaka, North 0.51
Chains along Hale Parker
South 84° 1/2 East 2.30 Chains along D
North 41° West along lava land to a great Gorge
North 65° West 7.32 Chains along Government lava land
South 15° West 1.83 Chains
North 82° 1/2 West 3.46 Chains both along Naolalo, South 0.52 Chains along Moakaka
to place of beginning.
Area 3 Acres

No. 5. A moo in Ili o Kapaahu

Begin at South West corner run
South 77° 1/2 East 5.08 Chains
North 25° East 0.61 Chains both along Keawe
North 72° 1/2 West 5.08 Chains along Nalimu
South 17° West 0.90 Chains along Nalimu & Nalimunui to place of beginning.
Area 1 Road, 21 Rods

No. 6. A short Moo North of No. 3.

Begin at South West corner run
South 85° [?] 2.68 Chains, North 0.36 Chains
North 82° 3/4 West 2.80 Chains, South 0.47 Chains all these boundaries running along
Naolalo to place of beginning.
Area 18 Square Rods

containing [left blank] Acres, more or less, excepting and reserving to the Hawaiian
Government, all mineral or metallic mines of every description.

To have and to hold the above granted Land in Fee Simple, unto the said [left blank]

Heirs and Assigns forever, subject to the taxes to be from time to time imposed by the Legislative Council equally, upon all landed Property held in Fee Simple.

In Witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Hawaiian Islands to be affixed, at Honolulu, this [left blank] day of [left blank] 18[
left blank].

[page 185]

Helu
Palapala Sila Nui

Ma keia palapala sila nui ke hoike aku nei o Kamehameha IV, ke Alii nui a ke Akua i kona lokomaikai i hoonoho ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho; a no kona mau hope alii, ua haawi lilo loa aku oia ma ke ano alodio ia [left blank] i kona [left blank] kanaka i manao pono ia ia i kela apana aina a pau e waiho la ma [left blank] ma ka Mokupuni o [left blank], a penei hoi ka waiho ana o na Mokuna.

No. 7, In Ili of Puco

Begin at South West corner on the creek, run
South 80 1/2° East 1.80 Chains
North 47 1/2° East 3.77 Chains
North 64 3/4° East 1.79 Chains along Moalii Creek
North 43° East 1.20 Chains
North 45 1/2° West 0.40 Chains both along Keoni's yard
South 77 1/2° West 2.90 Chains
North 71 3/4° West 2.11 Chains
North 43 1/2° 1.85 Chains along Kanehoewaa
North 86° East 2.05 Chains along D: (a stone wall)
North 41° West 1.20 Chains along Kaula Kukui
South 77 1/2° West 5.50 Chains along Hale Parker
South 12° East 5.90 Chains along Lelehu of Kanehoewaa to Moalii Creek to place of beginning.
Area 2 Acres, 3 Roads, 22 Rods.

No. 8, East part of Moalii lava land

Begin at South West part at great stone, run
South 41° East 3.45 Chains along Government lava land
South 64° 1/4 East 3.73 Chains along Hale Parker & stone wall
North 87° 1/2 East 3.98 Chains along Hale Parker & Kaula Kukui
North 71° East 2.32 Chains along Kaula Kukui
North 55° East 2.79 Chains along Timateo
North 30° West 1.00 Chains
North 60° East 4.11 Chains along Kula of Kane's
North 77° 1/4 East 5.76 Chains along Kanau & Keawe
North 22° 3/4 West 3.00 Chains along Nalimu Taro patch

North 77° 1/2 West 1.61 Chains
South 51° West 2.77 Chains
North 39° West 1.78 Chains all along Hanems
South 62° 1/2 West 1.61 Chains
North 21° West 5.86 Chains
North 58° East 3.46 Chains all along Nalimu
South 77° West 21.60 Chains along Waikuli
South 65° 1/2 East 7.32 Chains along Government land to a great stone, the place of beginning.
Area 32 Acres, 1 Road, 27 Rods.

No. 9, Taro Patch in Kapaahuiki
Begin at South West corner, run
North 60 3/4° East 1.00 Chains along fence boundary
North 29° 1/4 West 1.25 Chains along Keawe
South 60° 3/4 West 1.00 Chains along Kaneino
South 29° 1/4 East 1.25 Chains along Nalimu & Keawe to place of beginning.
Area 20 Square Rods.

[Land Patent Grant No. 1891, Baldwin, Dwight, Moalii, Ahupuuaa, District of Lahaina, Island of Maui, 46.50 Acres, 1850]

APPENDIX B: TRENCH DESCRIPTIONS

APPENDIX B : TRENCH DESCRIPTIONS

Trench Descriptions

For all trench locations, please refer to Figure 6. All trenches were sterile.

Trench 1 (T-1) was located along the existing residential neighborhood in the easternmost section of the project area. The excavation unit measured 5 x 1.2 m and extended to a maximum 1.1 m deep. The trench was oriented at 40°/220°. Two stratigraphic layers were revealed:

Layer I was composed of dark yellowish brown (10 YR 3/6) stony silt and ranged from surface (0.0)-0.38 mbs; loose, non-sticky, and non-plastic when dry. Layer I was found directly overlying Layer II and had a non-abrupt, indistinct lower boundary with approximately 15-20 cm of transition.

Layer II was a dark reddish brown (5 YR 2.5/2), silt ranging from 0.58 - 1.10 mbs; loose, non-sticky, and non-plastic when dry. Layer II was found directly overlying saprolite.

Trench 2 (T-2) was located in the southeast corner of the project area near the existing residential neighborhood. The excavated trench measured 6.3 x 1.5 m with a maximum depth of 2.7 mbs. The trench was oriented at 150°/330°. The southernmost portion of the trench was shallow due to the presence of bedrock reached at 0.38 mbs. Two stratigraphic layers were identified in T-2:

Layer I was composed of dark yellowish brown (10 YR 3/6) stony silt and ranged from the surface-2.2 mbs; loose, non-sticky, and non-plastic when dry. Layer I was found directly overlying Layer II and had an abrupt, distinct lower boundary.

Layer II was a dark reddish brown (5 YR 2.5/2) stony silt ranging from 1.10-1.80 mbs; loose, non-sticky, and non-plastic when dry. Layer II continued beneath the extent of excavation.

Trench 3 (T-3) was located southeast of T-2 and angled against the old Kahoma Stream alignment. T-3 measured 6.9 x 1.25 m and extended to 1.5 mbs. The trench was oriented at 170°/350. One stratigraphic layer was encountered:

Layer I consisted of three mottled soils: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.5 mbs and the soil was loose, non-sticky, and non-plastic when dry. Layer I was found with heavy grass rootlets and numerous sub-angular basalt cobbles. Black plastic pipe shreds located throughout. Layer I continued until saprolite covered the trench floor.

Trench 4 (T-4) was placed along the southern edge of the project area. The trench measured 5.1 x 1.1 m and extended to 0.75 mbs. The trench was oriented at 150/330°. One stratigraphic layer was identified:

Layer I consisted of three equally parceled mottled soils: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.5 mbs and the soil was loose, non-sticky, and non-plastic (dry). Layer I contained many grass rootlets and numerous sub-angular basalt cobbles. Black plastic and piping shreds were located throughout the layer. Layer I ceased on a saprolitic floor.

Trench 5 (T-5) was placed in the northwest section of the project area. The trench measured 7.7 x 1.2 m and extended to a maximum 1.6 mbs. The trench was oriented at 160/340°. Two stratigraphic layers were identified:

Layer I was composed of dark reddish brown (5 YR 3/2) silt and ranged from surface to 1.2 mbs; loose, non-sticky, non-plastic when dry and contained wood, recent soda can, and sub-angular basalt cobbles. Layer I was found directly overlying the distinct abrupt lower boundary of the old/original (A-horizon) with an intact grass line observed. Layer II was below and had an abrupt, distinct lower boundary with approximately .05-0.10 m of transition.

Layer II consisted of one soil unit with three mottles: a dark yellowish brown (10 YR 3/6), dark reddish brown (5 YR 2.5/2), and dark reddish gray (7.5 YR 4/2) stony silt. Boundaries ranged from surface to 1.25 mbs and the soil was loose, non-sticky, and non-plastic when dry. Sub-angular basalt cobbles, black plastic, and piping shreds were located throughout. Layer II ceased upon a saprolitic floor.

Trench 6 (T-6) was located in the south-central section of the project area. The trench measured 5.2 x 1.15 m and extended to 1.18 mbs. The trench was oriented at 160/340°. A single stratigraphic layer was encountered:

Layer I was composed of brown (7.5 YR 4/3) stony silt, ranging from surface to 1.18 mbs; loose, non-sticky, and non-plastic when dry; Layer I directly overlay saprolite.

Trench 7 (T-7) was placed in the north-central portion of the project area within a HC&S sub-surface boulder field. The trench measured 5.8 x 1.25 m and extended to a maximum 1.75 mbs. The trench was oriented at 20/200°. A single, disturbed stratigraphic layer was identified:

Layer I was composed of dark brown (7.5 YR 3/4) stony silt, ranging from surface to 1.75 mbs; very loose, non-sticky, and non-plastic when dry; wood and large boulders were identified throughout the stratum. Layer I was based on a saprolitic floor.

Trench 8 (T-8) was placed just west of T-7. The trench measured 5.75 x 1.3 m at extended to a maximum 1.75 mbs. The trench was oriented at 170/350°. Two stratigraphic layers were identified in T-8:

Layer I was composed of dark brown (7.5 YR 3/4) stony silt and ranged from surface to 0.78 mbs; loose, non-sticky, and non-plastic when dry; Layer I was directly overlying the transition soils of Layers I and II. Approximately 0.25 m of a mixture of the two soil types was designated as transition that was a non-abrupt, indistinct lower boundary.

Layer II consisted of dark yellowish brown (10 YR 3/6) stony silt and ranged from 0.98-1.75 mbs; loose, non-sticky, and non-plastic when dry; Layer II was based on a saprolitic layer.

Trench 9 (T-9) was located to the west of T-8 and to the east of T-10. T-9 measured 6.11 x 1.3 m and reached 1.95 mbs. The trench was oriented at 160/340°. A single, disturbed stratigraphic layer was encountered:

Layer I was composed of dark brown (7.5 YR 3/3) stony silt and ranged from surface to 1.95 mbs; very loose, non-sticky, and non-plastic when dry. Large boulders and black plastic shreds and plastic pipes were identified throughout the stratum; Layer I was based on a saprolitic floor.

Trench 10 (T-10) was placed near the HC & S boulder field in the western section of the project area. The trench measured 6.3 x 1.15 m and extended to 1.98 mbs. The trench was oriented on a 256/66° axis. Two stratigraphic layers were identified:

Layer I was composed of dark brown (7.5 YR 3/3) stony silt fill and ranged from surface to 1.25 mbs; very loose, non-sticky, and non-plastic when dry; large boulders and black plastic shreds and plastic pipes were identified throughout the stratum; Layer I was found directly overlying Layer II with an abrupt, distinct, alluvial lower boundary.

Layer II consisted of brown (10 YR 4/3) silt ranging in depth from 1.0 to 1.98 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

Trench 11 (T-11) was located in the western section of the project area between T-10 and T-14. The trench measured 7.0 x 1.15 m at reached 1.6 mbs. The trench was oriented on a north-south axis at 180/360°. Two stratigraphic layers were revealed:

Layer I was composed of dark reddish brown (5 YR 3/4) stony silt and ranged from surface to 0.92 mbs; loose, non-sticky, and non-plastic when dry; wood fragments and black plastic shreds were located throughout the stratum; Layer I had a non-abrupt, indistinct lower boundary with no immediate transition to Layer II.

Layer II consisted of dark brown (7.5 YR 3/3) stony very compact silt and ranged from 0.58-1.10 mbs; compact, non-sticky, and non-plastic when dry; black plastic shreds were located throughout the stratum; Layer II was found mixed with saprolite.

Trench 12 (T-12) was placed in the southwestern portion of the project area near the old Kahoma stream route. T-12 measured 7.0 x 1.05 m and extended to 1.55 mbs. The trench was oriented at 100/280°. Two stratigraphic layers were identified:

Layer I was composed of dark reddish brown (5 YR 3/4) stony silt and ranged from surface to 1.25 mbs; loose, non-sticky, and non-plastic when dry; wood pieces and black plastic shreds were located throughout the stratum; Layer I had a non-abrupt, indistinct lower boundary with no transition to Layer II but for slight color difference.

Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.1-1.55 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition.

Trench 13 (T-13) was placed along the western edge of the project area. T-13 measured 7.4 x 1.25 m and reached a depth of 2.7 m. The trench was oriented at 140/320°. Three stratigraphic layers were identified:

Layer I was composed of dark reddish brown (5 YR 3/3) silty loam and ranged from surface to 1.25 mbs; compact, non-sticky, and non-plastic when dry; Layer I had an abrupt, distinct lower boundary.

Layer II consisted of brown (10 YR 4/3) silt and ranged from 1.25-1.80 mbs; loose, non-sticky, non-plastic when dry, and filled by 95% gravel and pebbles reflecting alluvial deposition; Layer II had an abrupt, distinct lower boundary.

Layer III was composed of dark reddish brown (2.5 YR 3/3) silt and ranged from 1.80-2.70 mbs; compact, non-sticky, and non-plastic when dry.

Trench 14 (T-14) was placed in the western portion of the project area near T-12 and T-13. The trench measured 8.3 x 1.2 m and extended to 2.7 mbs. The trench was oriented at 50/230°. A single stratigraphic layer was identified:

Layer I was composed of dark reddish brown (5 YR 3/3) silty loam and ranged from surface to 1.25 mbs; mildly compact, non-sticky, and non-plastic when dry; wood, black plastic shreds, and black plastic pipes were identified throughout the stratum; Layer I consisted of imported fill material that extended beyond the maximum base of excavation.

Trench 15 (T-15) was placed between T-1 and T-2 in the eastern portion of the project area on a gentle eastern slope. The trench measured 6.8 x 1.2 m and extended to 1.9 mbs. The trench was oriented at 360/180°. A single stratigraphic layer was identified:

Layer I was composed of dark grayish brown (10 YR 4/2) silty loam and ranged from surface to 1.25 mbs; mildly compact, non-sticky, and non-plastic when dry; large sub-angular boulders were located throughout the stratum; Layer I consisted of imported fill material that extended beyond the base of excavation.

APPENDIX D-1.

State Historic Preservation Division Approval Letter

LINDA LINGLE
GOVERNOR OF HAWAII



608

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

SEAN KAKANO
ACTING DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

February 9, 2006

Michael Dega, PhD
Scientific Consultant Services
711 Kapiolani Boulevard, Suite 975
Honolulu, Hawai'i 96813

LOG NO: 2006.0230
DOC NO: 0602MK10
Archaeology

Dear Dr. Dega:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
An Archaeological Assessment for 16.8-Acres of Land in Lahaina
Moali'i Ahupua'a, Lahaina District, Island of Maui
TMK (2) 4-5-010:005 & 006 por.**

Thank you for the opportunity to review this report which our staff received on November 18, 2005, (Pickett and Dega 2005, *An Archaeological Assessment for 16.8 Acres in Lahaina, Makila Ahupua'a, Lahaina District, Maui Island, Hawai'i [TMK (2) 4-5-10:005 & 006 por.]*... Scientific Consultant Services, Inc., ms).

The background section acceptably establishes the *ahupua'a* settlement pattern and predicts the likely site pattern in the project area. The historical information provided summarizes the history of the post-Contact period land uses. The summary of previous archaeological work in the area provides a baseline for the current work.

The subject parcel comprises portions of two (2) Land Grants, Land Patent Grant #1891 (Dwight Baldwin for 46.5-acres, 1850) and Land Patent Grant #2998 (issued to William Ap. Jones, 0.70 acre, 1865). Both land patents indicated that house lots, taro patches, and low stone walls constituted the improvements in the area.

The survey has adequately covered the project area documenting no historic properties. Subsurface testing, fifteen (15) backhoe trenches were also negative for evidence of cultural deposits. Backhoe trenches were excavated to a basal depth of between 0.75 meter (TU 4) and 2.70 meters (TU 13 and TU 14). Multiple fill episodes were encountered in all trenches.

We agree that no further archaeological work is warranted in this area, as numerous impacts from commercial agriculture and fill episodes have been directly observed in the subsurface stratigraphy.

Dr. Michael Dega
Page 2

We find this report to be acceptable.

The assessment meets our minimum requirements, as set forth in HAR 276-5 (a) and (c). The historic preservation review process is concluded. Development of the project areas will have "no effect" on significant historic sites.

As always, if you disagree with our comments or have questions, please contact Dr. Melissa Kirkendall at (808) 243-5169 as soon as possible to resolve these concerns.

Aloha,


Melanie Chinen, Administrator
State Historic Preservation Division

MK:kf:dlb

cc: Bert Ratta, DPWEM, County of Maui
Michael Foley, Director, Dept of Planning, 250 S. High Street, Wailuku, HI 96793
Maui Cultural Resources Commission, Dept. of Plng, 250 S. High Street, Wailuku, HI 96793

APPENDIX E.

Cultural Impact Assessment

KAHOMA

(Thin or Hollow)

FINAL REPORT

TMK (2) 4-5-10: parcels 5 & 6 which consist of a 16.8-acre parcel. This Proposed Project includes twelve special needs units and sixty single family residential lots for Kahoma Employee Special Needs.

Prepared for:

WEST MAUI LAND COMPANY, INC.

33 Lono Ave, Suite 450

Kahului, Maui, Hawaii 96732

Contact Heidi Bigelow

Ph (808) 877-4202

Fax (808) 877-9409

Prepared by:

HANAPONO

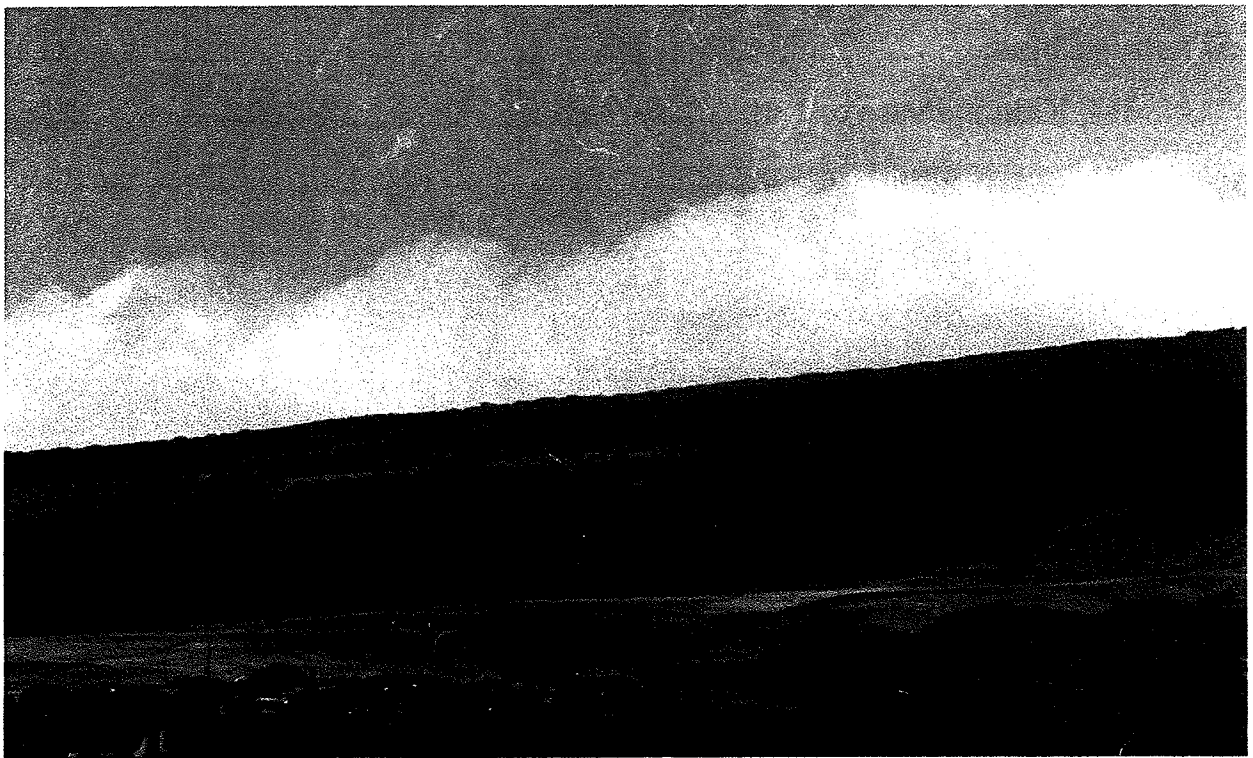
2275 Apala Place

Haiku, Maui, Hawaii 96708

Keli'I Tau'a & Kimokeo Kapahulehua

Ph & Fax (808) 572-6162

Kimokeo Cell (808) 276-7219



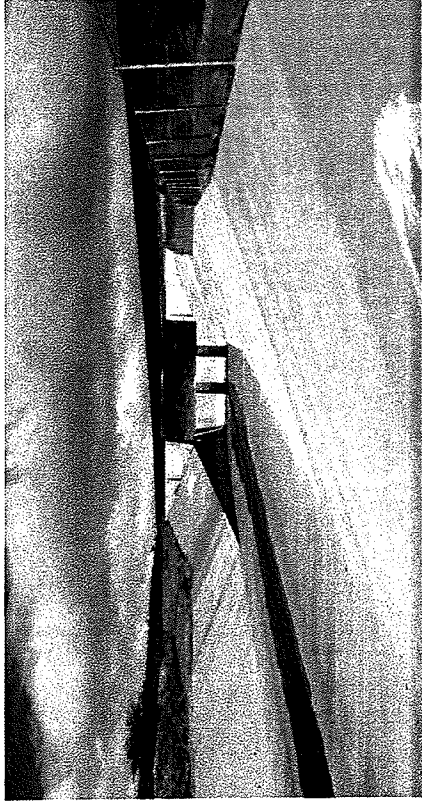
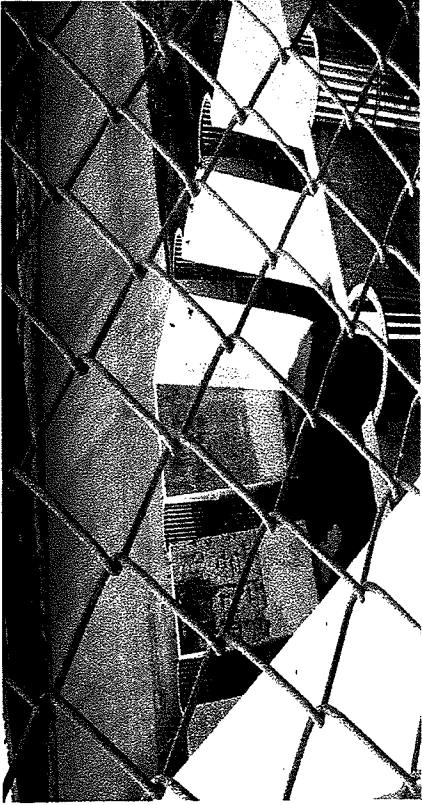
Kahoma

(Thin or Hollow)

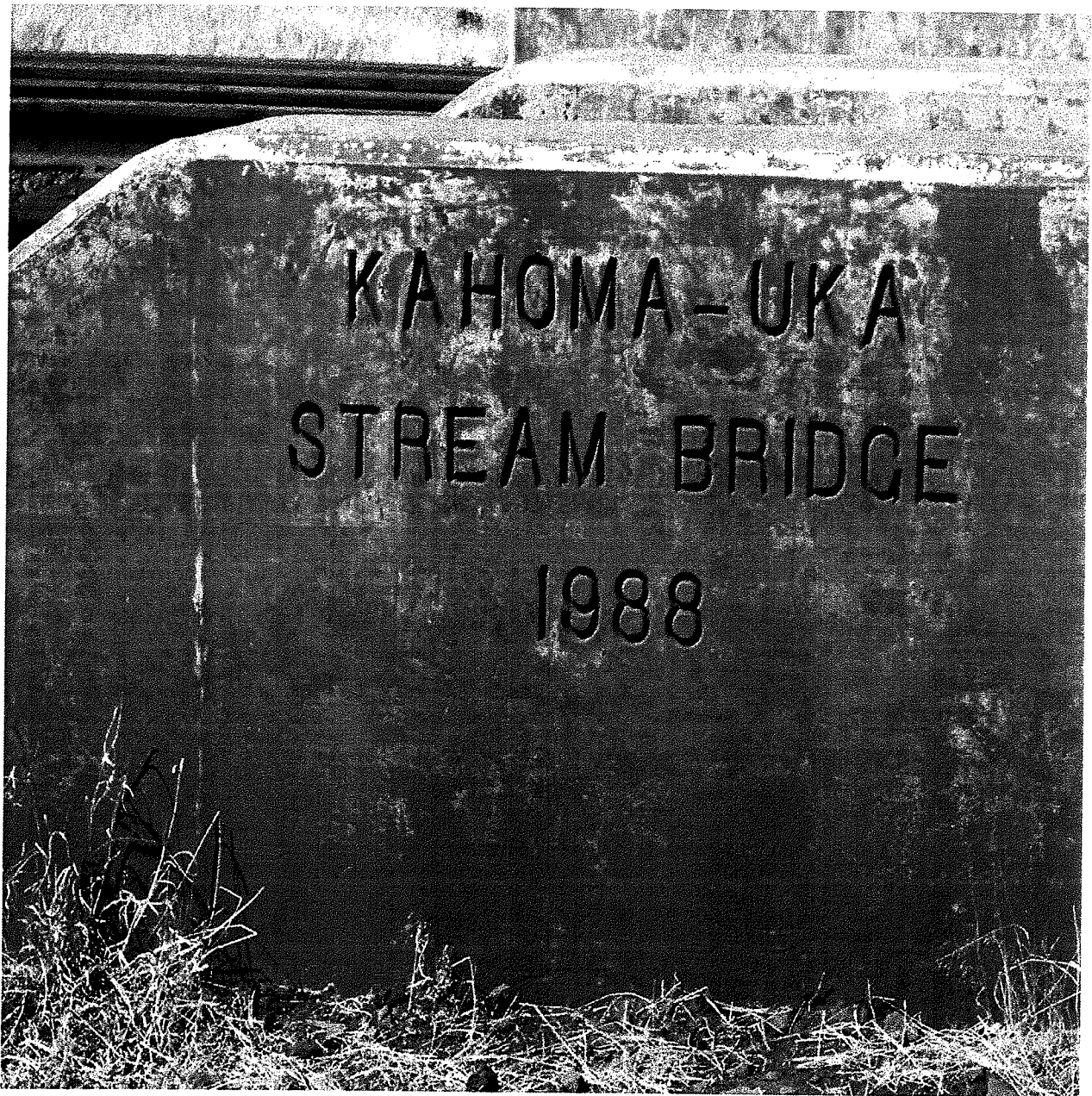
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Kahoma Stream Dam

Mauka-Makai



Flood Dirt Overflow 1988 on
White Bridge before Flood
Control Project 1990



Kahoma Project Site- Stream
Pioneer Mill Smoke Stack
Background -Boats,Moloka'i



Scope

The scope of this report will be to compile various historical, cultural and topographical accounts and facts of the Kahoma area and its adjacent ahupua'a (land divisions). The Kahoma ahupua'a may be clearly identified from the ocean with Mala Wharf as its identifying landmark and moving mauka (upland) with the Kahoma Stream serving as our guide into the valley.

Kahoma, as part of West Maui, has remained obscure all these years since Central Lahaina, the first capital for the Hawaiian Islands, was the focal point. Lahaina was attracting all the popular attention with Hawai'i's Royalty; such as King Kamehameha's one year occupancy; his wife's, Queen Ka'ahumanu and Queen Keopuolani, last years; King Kamehameha III's residency and the rowdy waterfront during the whaling years. Meanwhile, Kahoma was receiving periodic negative publicity with its river banks overflowing, causing major floods in the lowlands of Lahaina, Mala, and Hanaka'o'o. Today, the new Kahoma Flood Control Project aides in the control of future floods and will not be a distraction with the building of the Kahoma Subdivision, a project consisting of Employee, Special Needs and Market homes.

Introduction

Hana Pono, under contract to West Maui Land Company, Inc. (WMLC) has conducted a Cultural Impact Assessment (CIA) for WMLC, Inc.'s proposed Kahoma Subdivision on a 16.8-acre parcel between Kahoma Flood Control Channel and a residential area in Kahoma, Lahaina, Maui TMK: (2) 4-5-10: parcels 5 & 6. It includes twelve special needs units and sixty single family residential lots approximately 6,000 square feet in size.

The CIA was conducted in accordance with the State of Hawai'i Office of Environmental Quality Control (OEQC) Guidelines for Assessing Cultural Impacts {1997}, and includes oral interviews with knowledgeable consultants of Kahoma and its surrounding areas and archival research.

Lahaina's Borders

According to author researcher Elspeth P. Sterling of the book "Sites of Maui", Lahaina is part of the large moku (section) at West Maui stretching from South Ukumehame to the borders of Hanaka'o'o, just before Ka'anapali. The Ka'anapali ahupua'a continues around North Maui and includes the district called Kahakuloa.

Kahoma's Place in Lahaina's Legacy

Kahoma, a section of the 'Alamihi ahupua'a, is a small part of the many isolated but rich valleys located in the middle of the large Lahaina moku (section). Lahaina's shape was like a rounded shield that just finished its eruption laying prey to very aggressive erosion all along the mountainous terrain. Exposure to erosion developed Kahoma's steep cliffs, ridges and a water outlet that enriched the wetland areas mauka (upland) and makai (lowland) of Kahoma.

Kahoma is on the kona side of the island of Maui. The description of kona is hot, dry and windy. During the winter months it is common for the trade winds to cease, producing heavy humidity, sticky weather and storms from the south.

Lahaina was the punana (nest) of the West Maui chiefs. In the great battle between two powerful chiefs, Kauhi'aimoku-a-kama and Kamehameha-nui, the former chief was able to seize and collect from 'Alamihi ahupua'a sufficient food to support his army's march across the island (Kamakau, 73). It suggests that 'Alamihi ahupua'a was capable of providing a rich resource for needy chiefs and visitors. Handy & Handy note that along these southwest coast lands of West Maui mountains beginning at Olowalu and continuing through Launiupoko, Laupakanui, Waine'e and Lahaina onward to small terraced valleys of Kahoma, Honokawai, Honolua and Honokahau were taro lands irrigated from the flowing streams and that Lahaina itself was flanked by excellent fishing grounds (Kamakau 272).

Early accounts of Lahaina by a famous missionary whose proselytizing efforts in the South Pacific Islands and brief moments in Hawai'i were penned by William Ellis.

At day-break, on the 4th, we found ourselves within about four miles of Lahaina, which is the principal district of Maui, on account of its being in the general residence of the chiefs, and the common resort of ships that touch at the island. The appearance of Lahaina from the anchorage is singularly romantic and beautiful. A fine sandy beach stretches along the margin of the sea, lined for a considerable distance with homes, and adorned with shady clumps of koa trees, or waving groves of coconuts. The level land of the whole district, for about three miles, is one continuous garden, laid out in beds of taro, potatoes, yams, sugar-cane, or cloth-plants (wauke). The lowly cottage of the farmer is seen peeping through the leaves of the luxuriant plantain and banana tree, and in every direction white columns of smoke ascend, curling up among the wide-spreading branches of the bread-fruit tree. The sloping hills immediately behind, and the lofty mountains in the interior, cloth with verdure to their very summits, intersected by deep and dark ravines, frequently enlivened by waterfalls, or divided by winding valleys, terminate the delightful prospect (Ellis, 76).

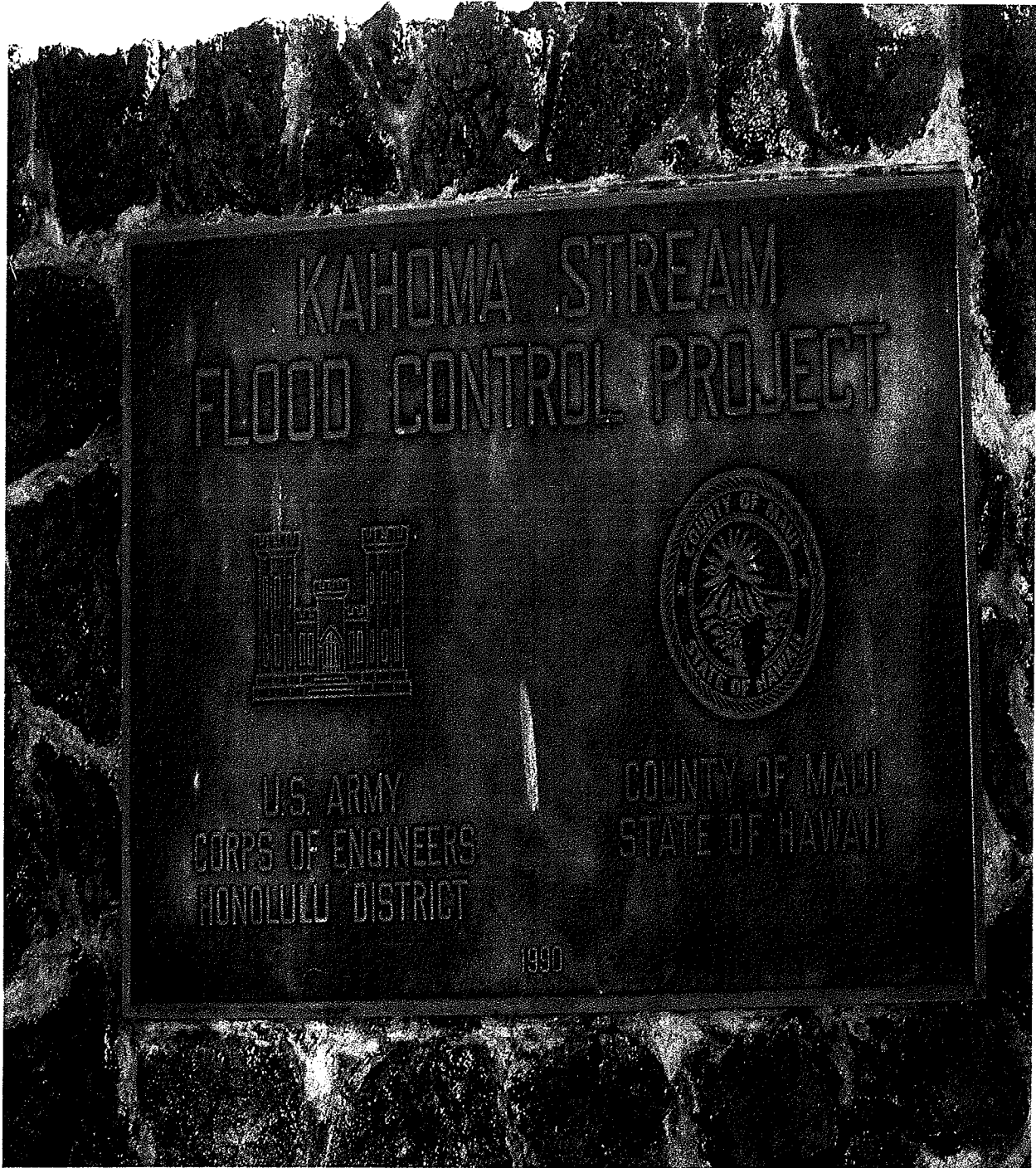
Pu'u Kukui's Wealth

The great wealth of this area stems from the waterways flowing from Pu'u Kukui, the highest point on West Maui at 5,788 ft. above sea level. Pu'u Kukui receives about 400 inches of rain a year while rain is scarce along the coast. From the abundant Pu'u Kukui water source, many streams feed the valleys below. "Uwe ka lani, ola ka honua." When the heavens weep, the earth will grow.

The Kahoma Stream

The Kahoma Stream is an intermittent stream originating in the West Maui Mountains at the base of Kaho'olewa Ridge which joins up with the tributary Kahana Stream close to the Lahainaluna High School elevation. Collectively, the streams provided a powerful single flowing force that flooded the lowland areas of Lahaina and Ka'anapali many times over.

U.S. ARMYCORP OF
ENGINEERS
HONOLULU DISTRICT
1990



Although Pu'u Kukui provides water outlets for many other streams, Kahoma and Kahana, being the closest direct waterway to the ocean, sent a destructive water force flowing which deemed necessary for the U.S. Army Corps of Engineers (USACE) to address the repetitive excessive flooding during the winter months in Lahaina. The interviewed consultants (Kupuna Joe Lai & Keola Sequeira), stated that it wasn't unusual to see the old cannery, now the Lahaina Cannery Mall, flooded. The USACE completed the Kahoma Stream Flood Control Project (KSFCP) in 1990 to prevent further flooding (Kanalei Shun 1991).

The waiwai (richness) of West Maui stemmed from the abundant flow of fresh water from Ka Mauna Kahalawai (West Maui Mountains). The fresh water fed the food crops mauka and makai. The eroded soils at the mouths of the valleys provided optimum conditions with the available water flow to irrigate the Hawaiians wet land taro (kalo), paper mulberry (wauke), bananas (mai'a), and other food crops. Later, the sugar and plantation owners used the established irrigation system to water their crops which we can see even today at most of the ahupua'a (Hammon-Kahoma Stream Study: Bishop Museum 1973).

Streams of Pu'u Kukui

From the south, Pu'u Kukui provided water for Manawainui Gulch, Ukumehame Gulch, Olowalu Stream and Launiupoko Stream. Closer to Lahaina are Kaua'ula Stream, Kanaha and Kahoma Stream. North from Lahaina are Honokowai Stream, Kahana Stream, Mailepai Stream, Honokahua Stream, Honolua Stream, Honokohau Stream, and lastly Kahakuloa Stream rolling down on the extreme north side of the island all originating from Pu'u Kukui.

With the present town structure in Lahaina, the lay of the land clouds our vision on how Lahaina used to be. In ancient times, Lahaina was surrounded by wetlands from the ocean shoreline up to present Malu'ulu'olele Park. Wetland taro occupied much of the area mauka and makai as late as the early 1900's.

Fornander tells an interesting Hawaiian love story about E'eke and Lihau, two prominent landmarks in the uplands of Lahaina ahupua'a next door to Kahoma. E'eke and Lihau had been married for some time when E'eke became entangled. He saw a beautiful maiden from Kaua'ula named Pu'uwaiohina, the younger sister of Lihau and he committed adultery. E'eke was punished for his unfaithfulness by their god Hinaikauluau turning E'eke to a mountain, Pu'uwaiohina a mountain ridge while big sister Lihau became the hill in back of Olowalu. Pu'uwaiohina is the prominent mountain ridge at Kaua'ula today (Fornander, 534).

Lahaina Shelters Ships

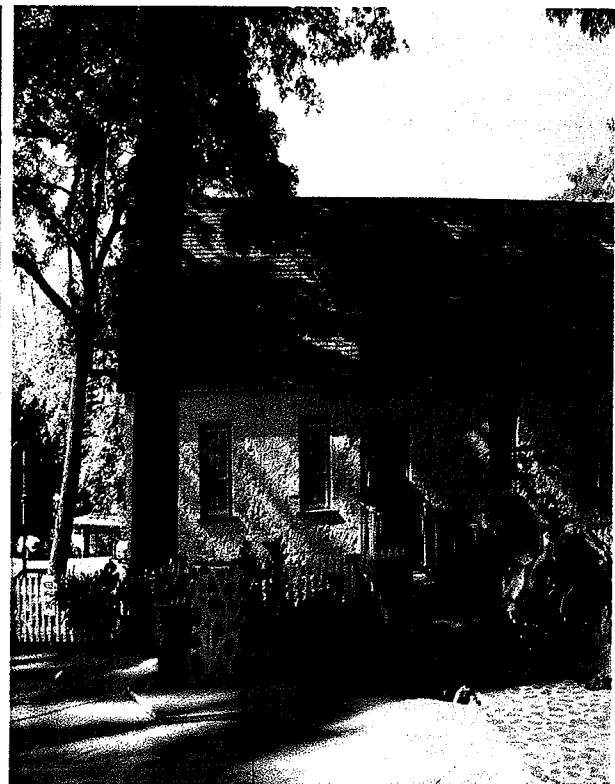
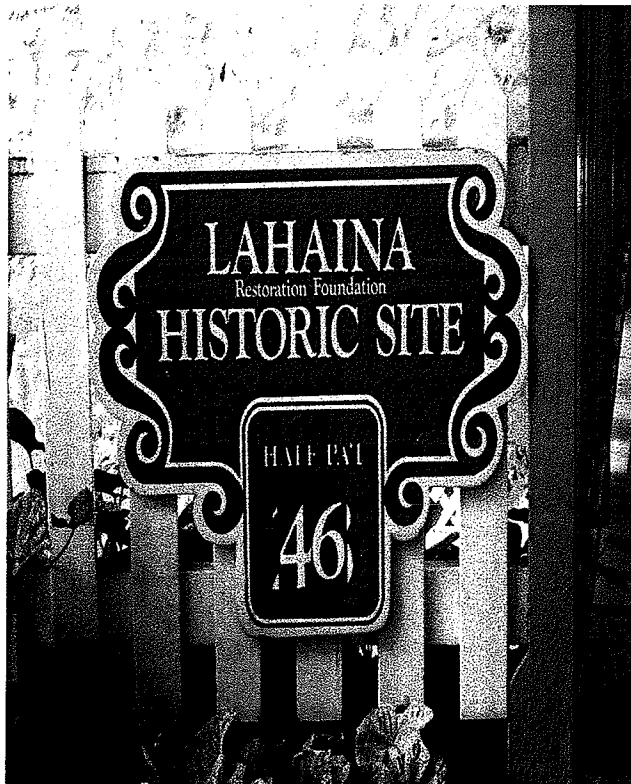
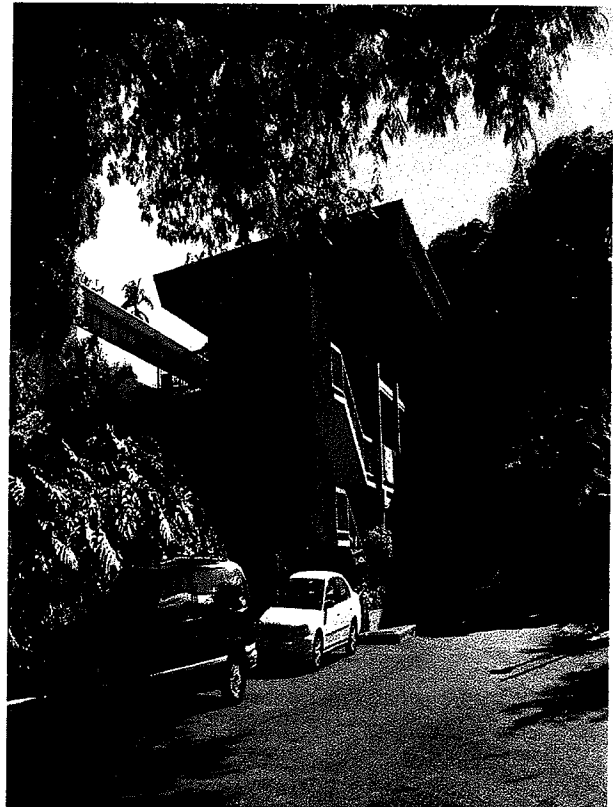
The surrounding islands of Kaho'olawe, Molokini, Lana'i and Moloka'i provided Lahaina with desirable sheltered conditions for conquering chiefs and their large sailing canoes. Later, the whaling ships found the attractive conditions very suitable for them to anchor in Lahaina and remain throughout the winter months. Even today, it is not unusual to see two or more large ocean cruise ships and many other smaller boats in the same location where the whaling ships used to anchor.

One of the interviewed consultants got teary-eyed when he shared his childhood stories about seeing the canoes riding right up to the shoreline before the reconstruction of modern day Lahaina. He said that he remembered the canoes coming into the wet land area at 505 Front Street

HISTORICAL SITES-Lahainaluna

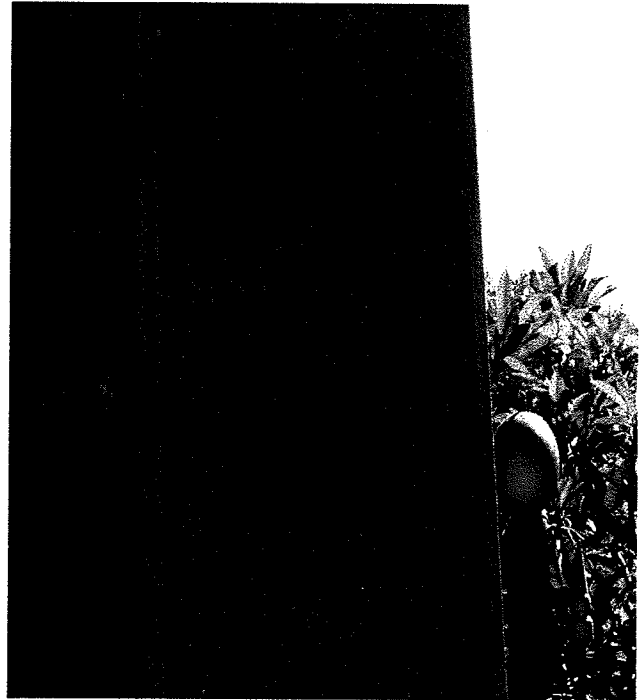
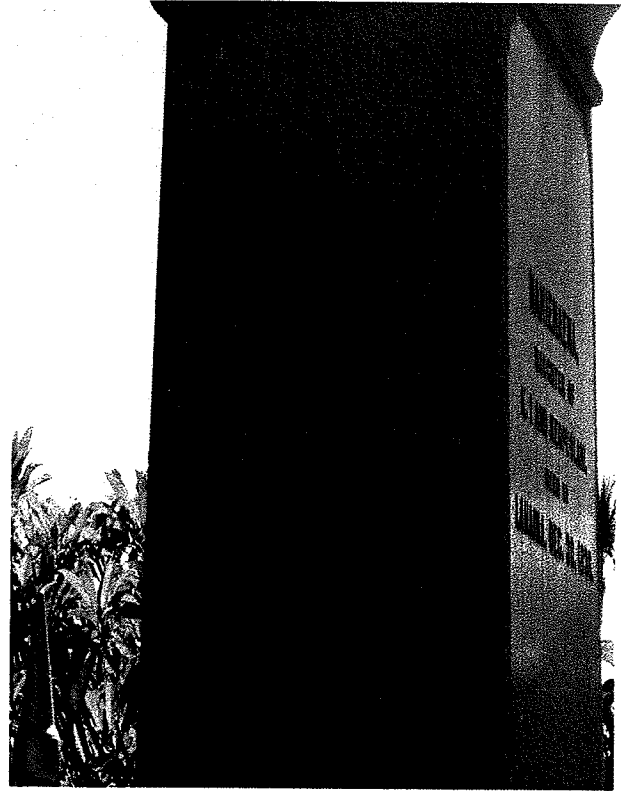
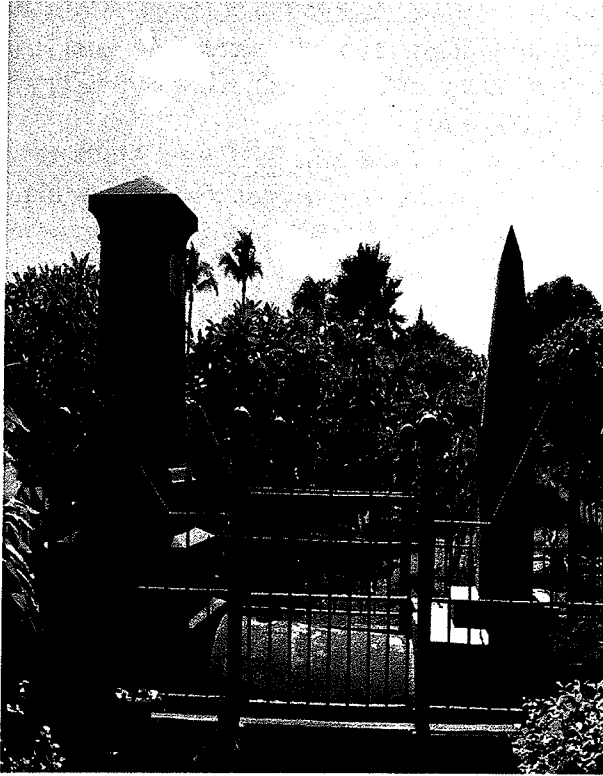
First High School

West of Rocky Mountains and Printing Press



TOMBSTONES OF NA ALI'I

QUEEN KEOPUOLANI - CHIEF KAUMUALI'I
PRINCESS NAHI'ENA'ENA



all the way up to the baseball park now the area which included a fishpond is covered up and is used for parking, stores and the present Malu'ulu-'o-Lele ball park (Kaniho).

Maui Chief Pi'ilani

A powerful chief who assisted in the physical architecture and cultural outlay of the island of Maui in the 1500's was Pi'ilani. He took up residence on the strip of land on the beach side of Moku'ula. The chief's ruling power extended from Hana in East Maui to the six bays of West Maui collectively called Honoapi'ilani or the bays acquired by Pi'ilani. The bays were Hononana (animated bay), Honokeana (the cave bay), Honokowai (bay drawing water), Honokohau (bay drawing dew), Honolua (two harbors) and Honokahua (sites bay).

Another great contribution Pi'ilani made unique only to Maui was the famed Alaloa or long road. This road, which the king started, was the only ancient highway to encircle any Hawaiian island which he completed at West Maui. His son Kiha'api'ilani followed through by completing the East Maui area. The road was four to six feet wide, 138 miles long, and a rock-paved thoroughfare prominently called the King's Highway. Historical accounts refer to the Alaloa running through Kahoma and the Ka'anapali Resort but it was destroyed by bulldozers when the plantations prepared the grounds for pineapple and sugar cane (Kamakau, 1961).

Lahaina, A Port Of Aloha

Upon investigating the living conditions of Kamehameha the Great's one year occupancy around 1802 which would establish Lahaina as the capital of the Hawaiian Islands, we were impressed by the fact that the West Maui Hawaiian community could supply their guests with the needed food for about 2,500 Lahaina residents. The Lahaina village during the time of King Kamehameha stretched from Mokuhinia Pond to the neighborhood known today as Mala. Mala Wharf and the Royal Coconut Grove were planted and maintained by orders of Queen Ka'ahumanu. At one point, it was estimated that Kamehameha had attacked Maui with 10,000 canoes. Multiply that figure by 4 to 6 warriors per canoe and that would give us an estimate of the large number of warriors the residents had to serve.

Kamehameha and Sandalwood

The Lahaina District had already been fulfilling the demand for supplies during Kamehameha the Great's sandalwood trade. During those early years, it was expected of the Maui natives to cut the sandalwood from distant Haleakala, drag it down to Central Maui, and deliver the fragrant sandalwood logs ('iliahi) to those ships in Lahaina that would deliver the King's cargo to China to be made into several items such as perfume, furniture, oils, etc. It certainly removed the Maui islanders out of their laid back lifestyle. The burden to supply large groups of uninvited guests did not stop with Kamehameha.

Whaling Ships

By 1822, there were recorded 34 American whaling ships replenishing supplies in the Hawaiian Islands, mainly in Lahaina. In 37 years, the number of whaling ships increased to a whopping 549 ships that docked for the winter months in Lahaina. The ship's captains expected to procure provisions and construct much needed repair work on their ships. The townspeople, including the influx of Christian missionaries who had taken up residence earlier, were not ready to handle the pleasure-bent, unruly and hard to handle crew.

With further study, we came to the realization that the entire Lahaina District was filled with an abundance of land crops such as taro and banana mauka and makai due to the abundance of water. The town of Lahaina was expected to assist in fulfilling the needs of the sailors. Exposure to the outside world brought rapid growth to Lahaina as well as rapid challenges. Every ahupua'a from Ukumehame to little Kahoma and out to North Honokohau and Kahakuloa was expected to provide the needed supplies.

'Alamihi, Kahoma's Loko I'a

The rich shorelines of Lahaina assisted the community with supplies from the sea such as fish, squid, octopus, seaweed, etc. Maui had been at the forefront in developing ocean aquaculture (loko i'a) that first started in Maui as early as the 13th century. The developments of the loko i'a at various locations in the Hawaiian Islands were created for the specific purpose of sheltering and nurturing fish for consumption.

The building of the first fishpond starts with a famous ancient story of the fish deity named Ku'ula who lived at Lehoula in the district called Aleamai, Hana, Maui with his wife Hinapuku'ia. The first work he was inspired to fulfill was to construct a loko i'a handy to his house but close to the shore where the surf breaks. This pond he stocked with all kinds of fish. Upon a rocky platform he also built a house to be sacred for the fishing kapu which he called by his own name Ku'ula.

Although Moloka'i has revived the cultivation their fishponds, the mokupuni (island) of Maui lists many fish pond sites that were built in ancient times but many are now dormant or covered by man today.

In our cultural search of Kahoma, we found that some investigators of the past had been aware of the presence of a possible fishpond named 'Alamihi which extended south from the south bank of Kahoma Stream. The Territory of Hawai'i granted a permit to Sizuko Suehiro to use the pond in the early 1900's. It is not known whether it was really utilized for aquaculture purposes by Suehiro. Surveys taken from 1908 concerning its size at 5.230 acres showed a significant decrease in size to 2.417 acres in 1953. In the later 1920's, 13,400 cubic yards of fill material was added to the pond as part of a public works improvement project to the Mala Wharf area. Though it was unclear where the material was put, it was thought to have been placed along the existing access road to Mala Wharf which would cut right in the middle of the fishpond.

All indications point that the 'Alamihi pond was intentionally filled in very rapidly by man. These factors, combined with a probable drop in the water table during this century, rapidly decreased the utility of the pond for aquaculture (Kanalei Shun Report).

Moku'ula and Mokuhinia

South of Kahoma, at today's 505 Front Street, was the more popular fishpond of Mokuhinia which housed Moku'ula, an ancient royal palace and religious site. This pond was fed by the freshwaters of Kaua'ula Stream. There were other fishponds in the neighborhood but Mokuhinia received most of the attention because it was the original home of the lizard goddess Kihawahine. Hawaiians believe that the essence of this sacred goddess has been present in fishponds throughout the State of Hawai'i. Kamehameha I called upon her powers when he was on his quest to conquer all the islands.

Later in the 1830s and 1840s, Kamehameha III used Moku'ula as his private residence. The Hawaiian government was run from the secluded island until 1845 when the capital was moved to Honolulu. While residing on the secluded island of Moku'ula, King Kamehameha III passed the land law called the Great Mahele. This law allowed land to be purchased by foreigners

On the opposite side of Kihawahine's home North of Kahoma was Pu'u Keka'a, the residence of King Kaka'alaneo. Pu'u Keka'a is known as the leina a ka 'uhane (the place of the passing of spirits). Hawaiians believed the souls after passing went to a sacred place to leap off into the next world.

In Fornander, Vol. 5:542, he writes:

On account of the great number of people at this place there are numerous skeletons as if thousands of people died there; it is there that the Lahainaluna students go to get skeletons for them when they are studying anatomy. The bones are plentiful there; they completely cover the sand.

This is a ghostly place. Some time a number of people came from Ka'anapali (from the other side) going to Lahaina in the dark. When they came to Keka'a stones rolled down from the top of the hill without any cause. It prompted the neighbors to run around shouting, Keka'a is ghostly! Keka'a is ghostly!

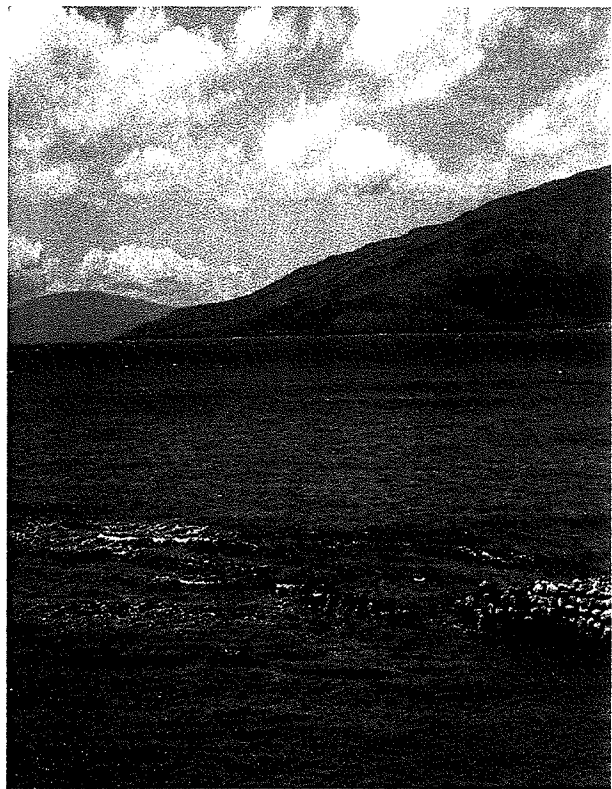
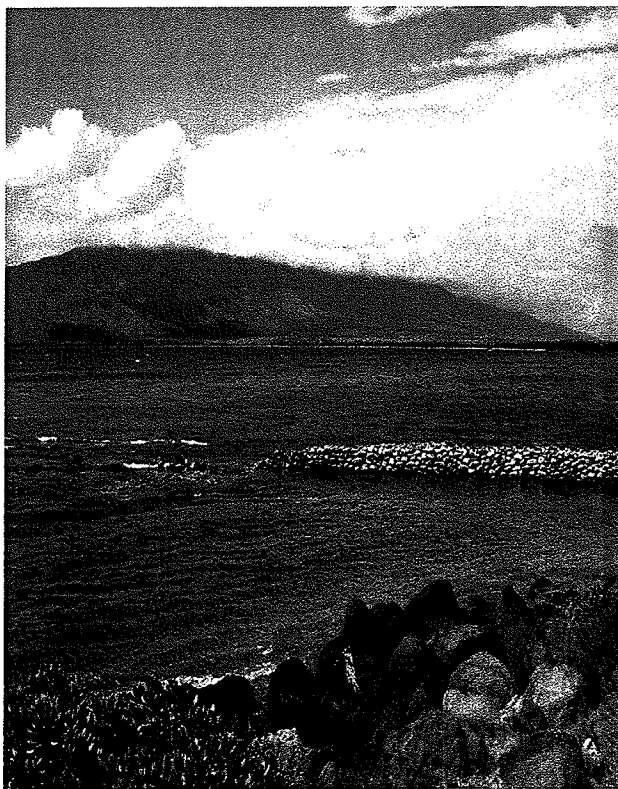
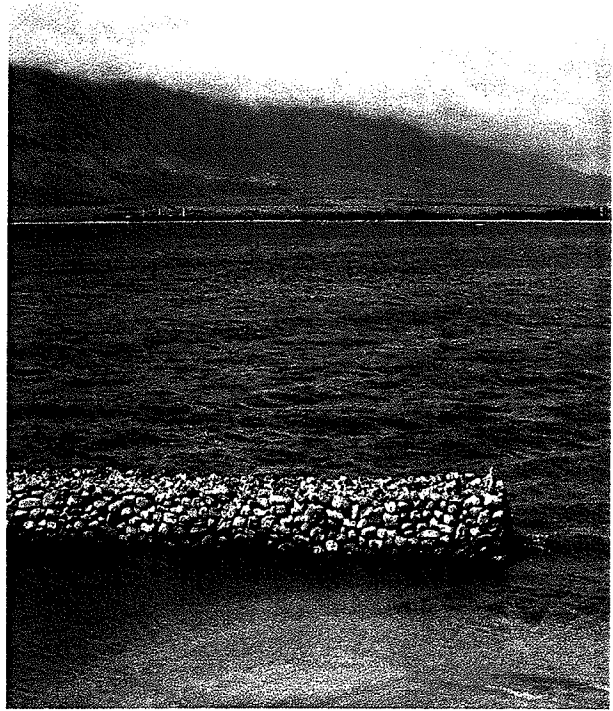
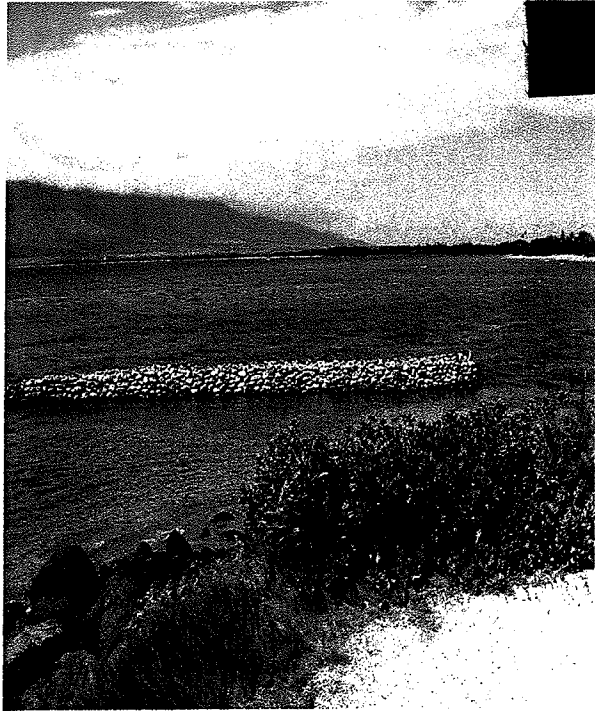
One of the reasons for finding so many corpses at Pu'u Keka'a was that a historical battle called Koko'o'na'moku took place there.

There are existing gravesites at Pu'upihia at the mouth of Mala Wharf. The neighboring Japanese Jodo Temple reported that many of the graves there are Japanese, Chinese and Hawaiian. The sandy coastline all along the Lahaina ahupua'a was the burial site of many local families. Many students reported to the KSFP that the banks of Kahoma Stream also served as gravesites to past residents in the area (Shun Report).

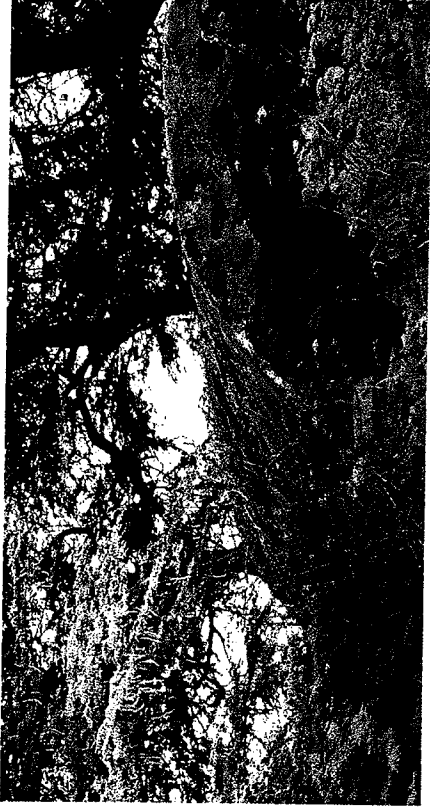
Lahaina's Ancient Temples

Kahoma sported its own heiau (ancient temple) called Luakona Heiau located at the rear of the old Chinese Store at Moali'i Bridge over the Kapa'ulu Stream between the wharf and the cannery (Ashdown). Ashdown goes on to list several other heiau starting with Wailehau at Malika Beach, Halekumukalani in the Puehuhunui cane fields above Lahaina and Apa'ahua heiau in the cane fields above Pioneer Mill Company's power house. She lists others such as: Wai'ie, Halulukoakoa and Moku'ula. It is appropriate to recognize that a thriving community required having their own temples so that the residents could conveniently go to worship their gods on their own accord. In "Sites of Maui", Sterling writes that a chief of Maui named Oho'ohukulani, was

LOKO I'A - Fish pond CONSTRUCTION IN PROGRESS

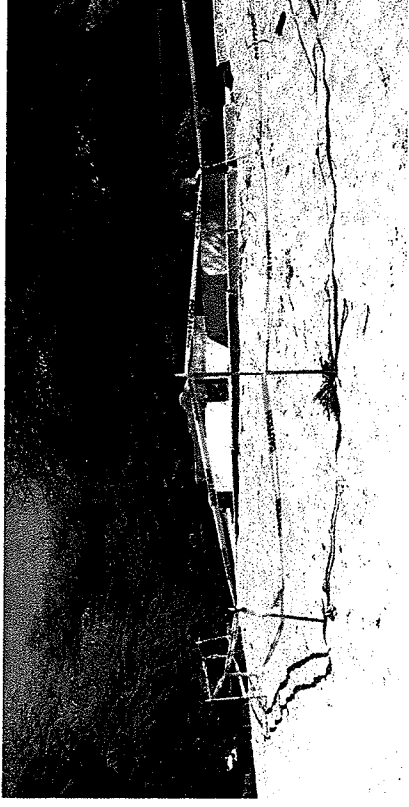


MALA WHARF BURIALS



Recent Erosion of Ocean Grave at Mala Wharf

- Lahaina Jodo Mission provided valuable data on the oceanside graveyards @ Mala were filled with early Chinese & Japanese corpses. Since it's location is on the sandy seashore, many of the graves were recently uprooted by high surf in the area as indicated in the picture.



taken to the Pu'uhale heiau in Lahaina and offered as a sacrifice after he was killed by Kaka'alaneo's son Kaulula'au. This type of sacrificial heiau is called Luakini.

Ki'i Pohaku

Histories of the past were documented on the rocks and the walls of the river beds throughout Hawai'i. Many petroglyphs are still being discovered as archeologists and cultural assessors walk the land with a fine tooth comb. In Connolly III's Phase I KSFCP, he sites a location of Kahoma petroglyphs with an accompanying map of its location right in the middle of Pioneer Mill Company property.

Less known and apparently of far older origin are petroglyphs of strictly matchstick type located on the side of a cliff up Kahoma Valley, just below Lahainaluna School. Also located on Pioneer Mill Co. property, they were recently discovered by J.B. McConkey, of Lahaina Light & Power Co. Ltd. Along the left side of the road, the figures are found at intervals for at least a sixth of a mile. Since the area has been relatively unexplored, it is believed that more of the figures may exist behind the dense underbrush at the base of the cliff. Others probably exist on the buried faces of slate which have fallen from the parent cliff (Sterling, 42).

Pioneer Mill

High above the Lahaina town backdrop of Kahoma Stream is the landmark smokestack that represents an era that changed the lifestyle of the residents of Lahaina. Started in 1860 by James Campbell, Henry Turton and James Dunbar, they ran the newly created Pioneer Mill Company that expanded into sugar production which was delivered by train to Pu'u Keka'a in Ka'anapali at Black Rock. In 1957, they proposed a multi-million dollar resort which started replacing sugar plantations with golf courses, hotels, condominiums, shopping malls, restaurants and shops.

Except for the smokestack and the train that still runs vacationers on a scenic ride, Pioneer Mill is closed for business.

Hauola Rock

One of the most sacred and significant sites that have come down through infinity is the Hauola Rock that sits close to shore in Lahaina Town. The rock relates to a woman by the name of Hauola who fled from her enemies. When she reached the shore, her gods turned her into the Hauola Rock. Hau means to worship and ola means life (Ashdown).

Report Summary

Anchored upon the definition of Hauola, here is our response to the development of the Kahoma Subdivision. The Kahoma project will assist in providing much needed affordable housing in the surrounding area in the spirit of Hauola or the appreciation of life. The designated developing area TMK {2} 4-5-10: Parcels 5 &6 are far back from the ocean so that it won't affect the shoreline. The development would not influence the Kahoma Stream run off after development because it is high and far removed from the fence line and serves as a barrier for irregular pollution activities. No cultural sites and artifacts were found on the actual piece of land by the cultural assessors. Even though there were many significant sites in ancient times, there is nothing left that might have impact on Hawaii's culture. We are including a list of native trees and plants that can help the weather patterns and overall environment of Kahoma and retain the Hawaiianess of the ahupua'a. The suggested plan to have an entry/exit road that leads to Lahainaluna Road and another entry/exit road towards Honoapi'ilani will help the flow of the neighborhood traffic. In short, we leave this report me ke aloha pumehana (with our sincerest aloha) and the wisdom of our kupuna who said, "E ho'olohe i ka leo o ka 'aina" (Listen to the voice of the land).

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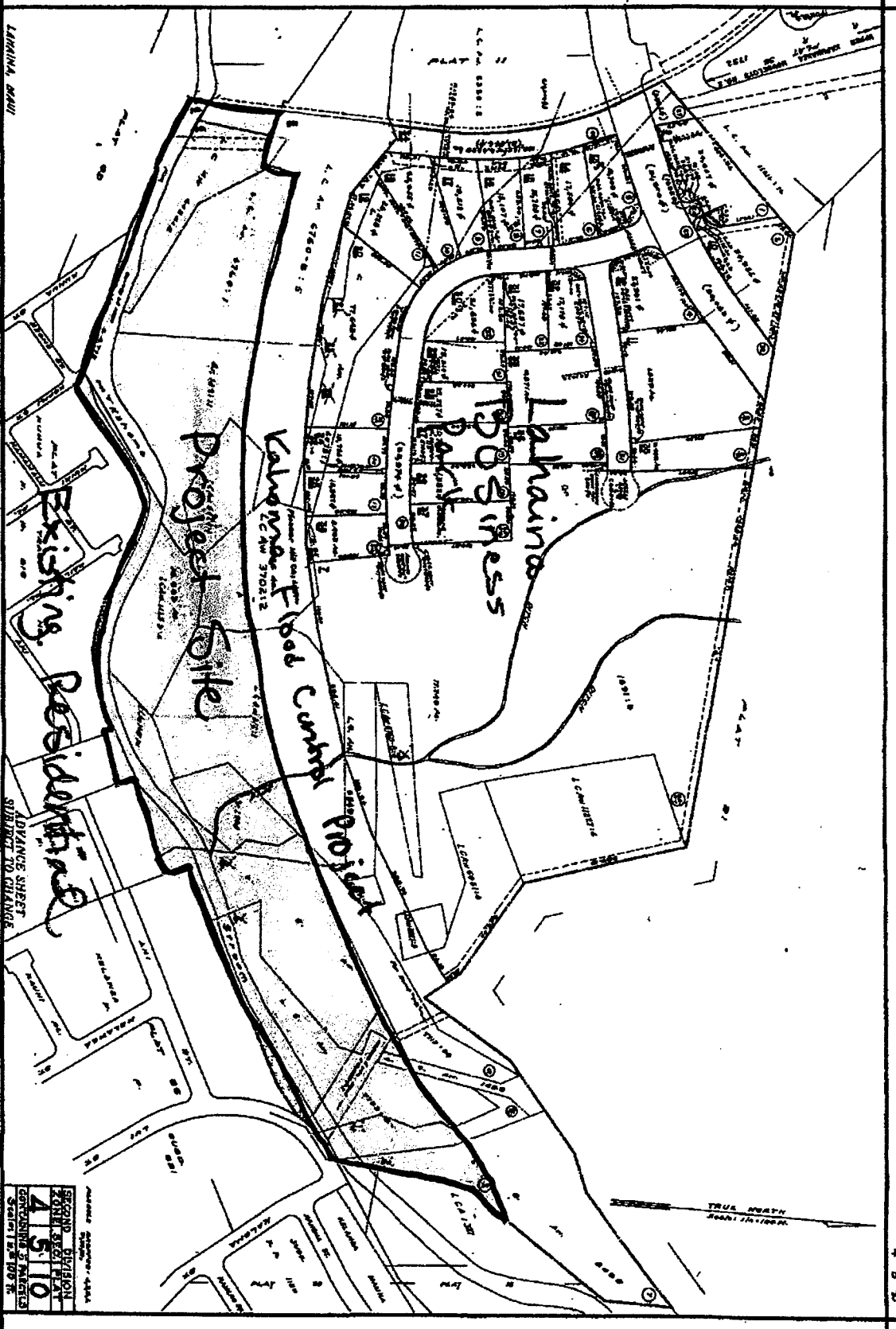
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LAUREL AVENUE

ADVANCE SHEET
SUBJECT TO CHANGE

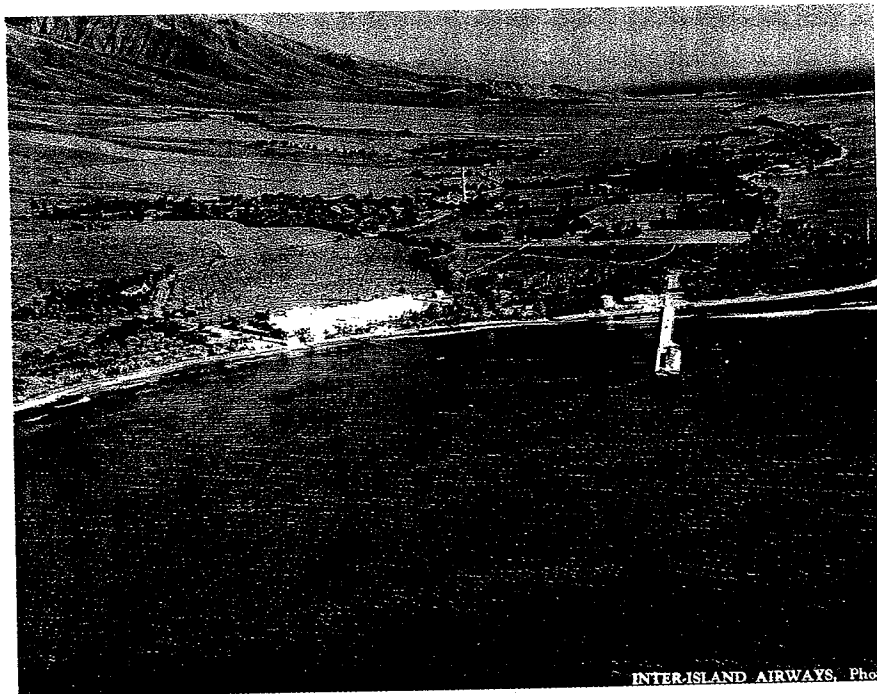
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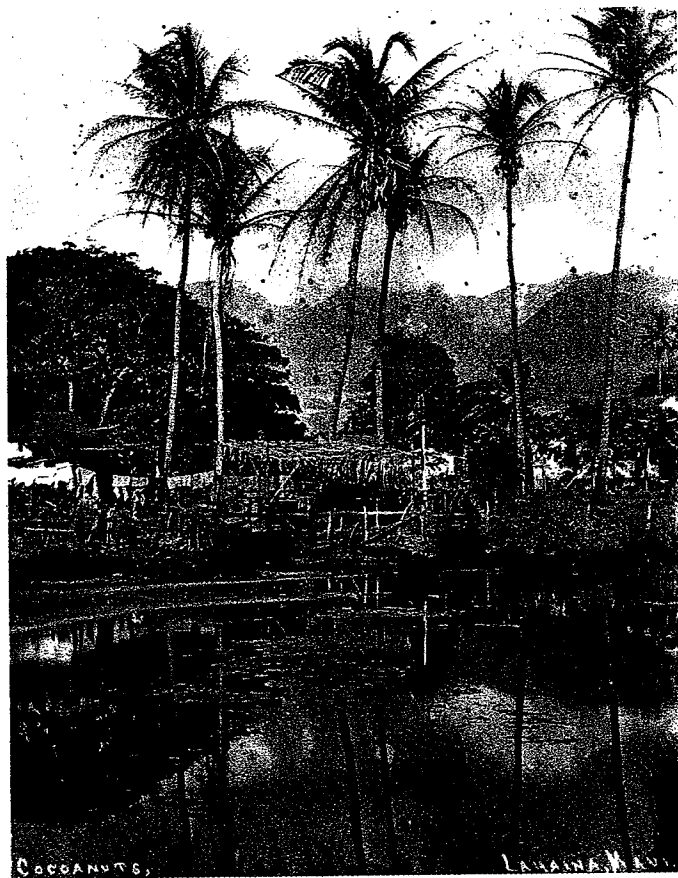


LOCATION MAP



● KAHOMA
EMPLOYEE
SPECIAL NEEDS
MARKET SITE





COCONUTS,

LAHAINA, MAUI.



Coconut Grove - Maui, H.I.

Some Kahoma Native Plants

Type*	Scientific Name	Hawaiian Name	Family
S	<i>Achyranthes splendens</i>	Ewa hinahina	Amaranthaceae
T	<i>Charpentiera ovata</i>	Papala	Amaranthaceae
S	<i>Nototrichium sandwicense</i>	Kulu'i	Amaranthaceae
T	<i>Rhus sandwicensis</i>	Neneleau	Anacardiaceae
L	<i>Alyxia oliviformis</i>	Maile	Apocynaceae
T	<i>Rauwolfia sandwicensis</i>	Hao	Apocynaceae
T	<i>Reynoldsia sandwicensis</i>	Ohe makai	Araliaceae
T	<i>Tetraplasandra hawaiiensis</i>	Ohe mauka	Araliaceae
T	<i>Pritchardia forbesiana</i>	Loulu	Arecaceae
S	<i>Bidens mauiensis</i>	Ko'oloa'ula	Asteraceae
S	<i>Artemisia mauiensis</i>	Ahinahina	Asteraceae
S	<i>Lipochaeta succulenta</i>	Nehe	Asteraceae
T	<i>Cordia subcordata</i>	Kou	Boraginaceae
S	<i>Capparis sandwichiana</i>	Maiapilo	Capparaceae
S	<i>Chenopodium oahuense</i>	Aweoweo	Chenopodiaceae
L	<i>Ipomoea indica</i>	>>Ipomoea indica	Convolvulaceae
G	<i>Jacquemontia ovalifolia</i>	Pa'uohi'iaka	Convolvulaceae
L	<i>Bonamia menziesii</i>	Hawai'i lady's nightcap	Convolvulaceae
L	<i>Sicyos hispidus</i>	Anunu	Cucurbitaceae
GS	<i>Carex wahuensis</i>	Oahu sedge	Cyperaceae
F	<i>Nephrolepis cordifolia</i>	Kupukupu	Dryopteridaceae
T	<i>Diospyros sandwicensis</i>	Lama	Ebenaceae
S	<i>Styphelia tameiameia</i>	Pukiawe	Epacridaceae
T	<i>Acacia koaia</i>	Koaia	Fabaceae
L	<i>Canavalia haleakalaensis</i>	Awikiwiki	Fabaceae
S	<i>Senna gaudichaudii</i>	Kolomona	Fabaceae
S	<i>Scaevola gaudichaudii</i>	ridgetop naupaka	Goodeniaceae
G	<i>Dianella sandwicensis</i>	Uki'uki	Liliaceae
T	<i>Pleomele auwahiensis</i>	Hala pepe	Liliaceae
T	<i>Hibiscus kokio</i>	Koki'o 'ula	Malvaceae
T	<i>Hibiscus brackenridgei</i>	Ma'o hau hele	Malvaceae
S	<i>Sida fallax</i>	Ilima	Malvaceae
S	<i>Abutilon menziesii</i>	Ko'oloa 'ula	Malvaceae
L	<i>Cocculus trilobus</i>	Huehue	Menispermaceae
T	<i>Myoporum sandwicense</i>	Naio	Myoporaceae
T	<i>Metrosideros polymorpha</i>	Ohi'a lehua	Myrtaceae
T	<i>Pisonia sandwicensis</i>	Papala kepau	Nyctaginaceae
G	<i>Peperomia leptostachya</i>	Ala'ala wai nui	Piperaceae
T	<i>Pittosporum glabrum</i>	Hoawa	Pittosporaceae
GS	<i>Eragrostis variabilis</i>	Kawelu	Poaceae
GS	<i>Heteropogon contortus</i>	Pili	Poaceae
T	<i>Alphitonia ponderosa</i>	Kawila	Rhamnaceae
T	<i>Santalum ellipticum</i>	Iliahi	Santalaceae
T	<i>Dodonaea viscosa</i>	A'ali'I	Sapindaceae
T	<i>Pouteria sandwicensis</i>	Ala'a	Sapotaceae

Type*: T = Tree, S = Shrub, G = Groundcover, L = Liana, F = Fern, GS = Grass Sedge

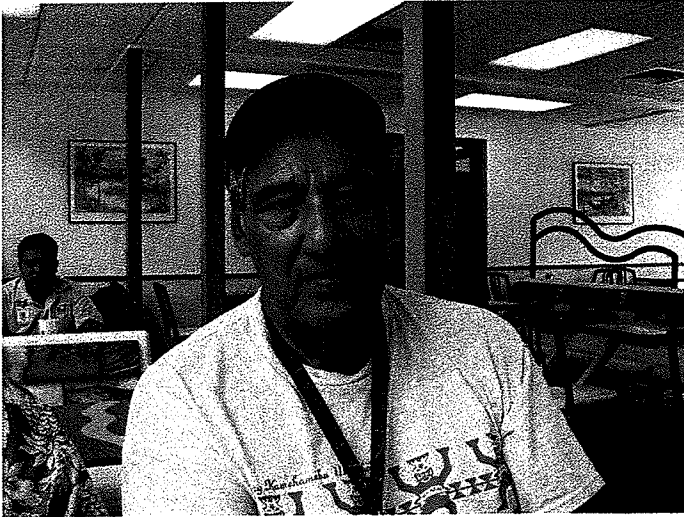
Some Kahoma Native Plants

L	<i>Smilax melastomifolia</i>	Hawai'i greenbrier	Smilacaceae
T	<i>Nothocestrum latifolium</i>	Aiea	Solanaceae
T	<i>Wikstroemia oahuensis</i>	Akia	Thymelaeaceae
S	<i>Pipturus albidus</i>	Mamaki	Urticaceae

Type*: T = Tree, S = Shrub, G = Groundcover, L = Liana, F = Fern, GS = Grass Sedge

INTERVIEW: Harold Kaniho

By Keli'i Tau'a and Kimokeo Kapahulehua
Oct 17, 2005



Interviewers = KT/KK and Consultant = C

KT – Harold, please give us your full name?

C – Harold Kale Kaniho & I am 72. Born in Lahaina on July 24, 1933 & attended the old Kamehameha III when it was 2 story building from kindergarten to 8th grade. In those days, they had schools @ Honokawai, Pukoli'i??, then after they merged the schools then they came to Lahaina Front Street. Some had only K to 5th. After, students went Lahainaluna.

KT – Borders @ Lahainaluna have a lot of personal experiences in Kahoma.

C – I've been in there. There's lots of foliage, kukui trees, etc

KT – Did you see taro patches?

C – Yea. That I saw. I think those belonged to the Keahi family from Mala. Now one of the relatives live up there by that place. The Neizman girl married to that guy named Hans. He raises goats over there. Up there was a camp called Crater Camp. There was a little Crater up there and that's why they called it Crater Camp. We use to p/u the kids to come to school and to play sports.

KT – You folks played against the camps?

C – Yeah. Some team names were Launiupoko, Lahaina Pump, etc.

KT – You worked for Pioneer Mill. Can you remember when (it) Kahoma overflowed?

C – I know when it did it flooded out Mala Camp. The water jumped the river bank. Up there had good kind awa.

KK – What was your job @ Pioneer Mill?

C – Everything. I worked for the co. over 45 yrs. I know that Kamehameha III school had developed a very good band and challenged all the high schools. The teacher's name was Sam Mo'okini. The students could play every instrument in the band. Everytime we had May Day, Emma Sharpe and Eddie Kamae's grandmother (Eddie Kamae) from this area use to participate. Eddie Kamae had patents of land up in Kaua'ula as told by Ke'eaumoku who is working and living up there now. My father didn't want anything to do with land cause he knew the challenges it would bring to the family.

KK – What was your father & mother's name?

C – Humihumi Kaniho father and mother Mary who was pure Portuguese. Grandfather was Joseph Kalakaua Andrade. He was a luna for Pioneer Mill. I remember all the Tutus meet under the banyan tree during Mayday with their holoku, mu'umu'u, hats, leis. The old style Valley called or referred to as Halona. My family was up @ Kauaula. John Paul and Mahelonas. When I was young, I use to go up Kauaula, had taro patches and lots of fruit trees. In the patches had gold fish, o'opu, etc. I didn't finish here @ Lahainaluna School, I went to work for the plantation early. The water was not flowing all the way to 'Olowalu. One man water had to take its course.

KK – What about the seashore?

C – Our family was very sad and in tears when they built the breakwater and harbor, We were not able to beach the canoes right on the beach in front of Front St. It was a sad day in Lahaina. People were very upset right in front of Pioneer Hotel. When we were small kids, we learned to swim over there. It was sloped in first steps, second steps, third steps. I know the Nai'a and the Mana used to come in @ Mala Wharf. We used to go dive way outside of Mala and catch any kind of fish. Planty of taco all the over to Puamana and Launiupoko Stream. My wife comes from Kahana Stream. Lot's of pepeiao. I do lots of crafts @ home and lot's of collections of old artifacts like bottles, (Lemon soda, bottle), Tahauri, (Cream soda), We had a lot of JPO's for school. We lived right behind the park.

INTERVIEW: Ewalani Shim

By Keli'i Tau'a and Kimokeo Kapahulehua
Nov 17, 2005



Interviewers= KT /KK and Consultant=C

KK – What is your name?

C – My name is Gwendolyn Ewalani Lum Shim

KK – When were you born?

C – 1941 @ Honolua Bay, Maui. My Tutus had a home there in the year 1848 and the tidal wave took it in 1946. On April Fool's Day I was born @ my Tutu's home and my mother had a mid-wife, her name was Akeneki Kane. My older brother and I were both delivered in the same way under Haili Keahi. Next to Honolua is Punalau where after the tidal wave my Tutu went to reside @ Punalau on top of the hill in 1946. Past Punalau is Honokahau Bay and valley.

KT – What was Honolua Bay like before the tidal wave?

C – It was called Slaughter House called Honokahua. There was a ranch there run by Maui Land & Pine which was Baldwin Packers. Henry Baldwin was the big man @ that time raising cattle and pineapple. My great-grandfather Haili Keahi was a supervisor for Baldwin Packers and the other Hawaiian families, the Kukahikos, they all worked for Baldwin Packers. I'm a graduate of Kamehameha III School. My mom & dad moved to Honolulu so I was raised by my grandparents until I moved w/ mom & dad to Honolulu.

My Tutu lived in Honolua Bay the year 1848 with the home my great great grandfather Haili Keahi had a shed on the side of the house to pound their own poi. Honolua Bay was where my grandfather Joseph Haili (fisherman) gathered their food. Honolua Bay was famous for Akule fishing. Honolua Bay area was a cattle ranch run by Inez Ashdown's husband. It was

under Henry Baldwin, Baldwin Packer's Pineapple Co. My great great grandfather Haili Keahi was a supervisor for the pineapple company under David Fleming Senior. Mr. Fleming Senior had his akule boat launched by the ramp. When it was akule season, great great grandfather and all the family and workers from the pineapple company went out with the boat. My mom said that there was always a big gathering there with all the families enjoying a big pa'ina (food feast like a luau).

Mom & dad moved back to Maui & lived in Lahaina at Baby beach so we walked to Kamehameha III School. I lived down by Mala Wharf. Went to Lahainaluna for four years. There were 10 children and I am the 2nd oldest child.

KT – Where is the oldest?

C – He passed away. He lived in Waimanalo married to a prominent Sanborn family. (Granddaughter)

KT – When you moved back to Maui, did you get to play @ Kahoma Stream?

C – When we moved back, we lived @ Ah mau Camp where the Hinau family was our neighbor..

KT – Betty Hinau?

C – Yes, her husband. We lived close to Ah mau Camp and the Leong family lived close by right by the stream. My father use to pick mangoes by the stream to make mango seed & pickled mangoes.

KT/KK – The joining of Kahoma and Kahana caused big water flow. What about the fish?

C – My Tutu said all the fishing was @ Honolua & Punalau and Honokahau Bay.

KT – Do you recall walking up Kahoma?

C – No but I had uncles who attended Lahainaluna High school. The school had lots of spirits. The school library burnt down in 1959 and lost much and most of the valuable history and very old documents. I worked in the library. Some of my classmates, Julian Kaleopu and Kenneth Kenui (Alexa Vaught's brother) who live in Lahaina. Norbert Hinau who lives in Honolulu would know more about Kahoma Stream. The border at Lahainaluna school would know more about the Kahoma Stream.

C – In Lahaina, they need more roads and low income housing. My classmates climbed up to the L (the high school symbol above the school) to help clean and paint and see David Malo's grave. Lahaina hardly rains but the plantation took a lot of the water. All the borders at Lahainaluna were familiar with the streams. The Meyer boys from Moloka'i, Pinhos and William Mederios from Hana, Aunty Barbara Kukahiko was our cafeteria manager. One of the uncles got very sick which was believed to have been of a spiritual nature.

KT – You are presenting something that in the western mind is unbelievable but our kupuna understood it. Very important for us to document for our youth to understand. What are some significant events?

C – I remember May Day under the Banyan Tree. We use to do the Maypole dance that I thought was very special but we don't see it anymore. Aunty Emma Sharpe, auntie Sanborn, all of us. We sang a lot, it was very special for me. Nobody talked to us about Hawaiiana

when I went to school. In fact, we didn't even learn the language. My mom and Tutus spoke Hawaiian fluently but they asked us to speak English, no pidgin and simple Hawaiian.

My grandparents were taro farmers in Honokahau valley, laid nets @ Punalau, we all had to go help take all of the fishes out from the nets and put it in big pakinis, Then grandpa and the boys use to go to Honokahau valeey to pull taro. I had three cousins that lived with grandparents, one cousin cooked the taro, after, we went over to peel and clean and get it ready for grandma to put it in the hamburger grinder. During my great great grandfather's time, they pounded the poi. At great grandpa Haili Keahi's house he had a board in there so w/ poi pounders, I sat there and watched great grandfather pound poi. I have his poi pounder which I gave to my son.

KT – You are 64, who is next to you?

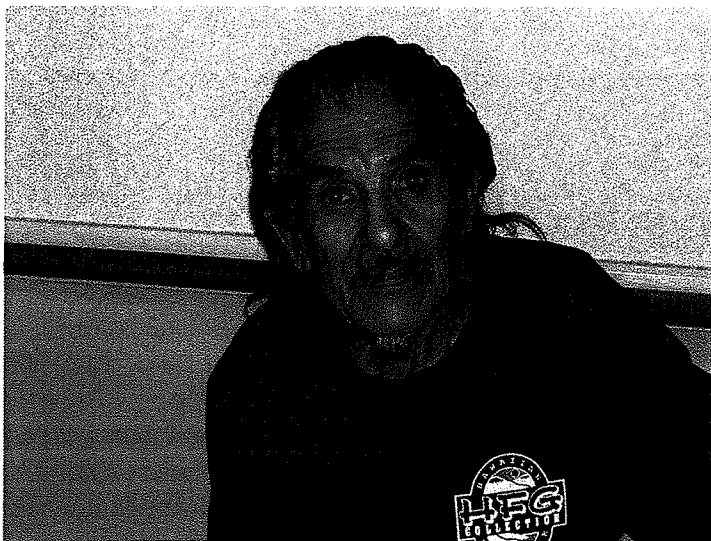
C – My brother is 65. My sister is 63 who lives in Lahaina. We all went Kamehameha III and graduated from Lahainaluna. I am a graduate of Honolulu Business College, worked for Honolulu Star-Bulletin then went to the mainland Berkerly to live. I worked 30 years at Savings & Loans. My sister, Beverly, & I both worked in the mainland for lots of years. I was raised in Honokahau and my grandparents had a Model – A truck. They had a home in the valley which was very nice. They had the old fashion cranking phonograph.

They always had problems w/the water Grandpa, Uncle Phillip, and uncle Loui Chun always fought over the water. The dam that they built controlled all the water in the year 1900 by Baldwin Packers now Maui Land and Pine. My grandfather Joseph Haili had taro patches in Honokohua Valley. Poi was put on the table breakfast, lunch and dinner. Fish was put on the table every weekend by my grandma and grandpa Joseph Haili. They shared their fish and poi to lots of Hawaiian families like the Jessie Nako'oka family, uncle Charlie Aukela family, Peter's, Lindsey, Sato, Kauhane families, all neighbors. The Haili Tutus were very well known in Lahaina. My grandfather Joseph Haili worked for the County of Maui for 35 years. He was also ??? Vetrans for World War I. Buried at Makawao memorial Vetrans' ??? Park.

My grandfather Joseph Kaili Keahi was 100% Hawaiian. A very humble man, soft spoken always smiling had lots of love for his Hawaiian people, always sharing his poi and fish, never a harsh word to his workers and his own family. I consider them # 1 Grandma and Grandpa in my life—him and my grandma Mary. Very very hard workers; they raised a total of 18 children in the Honolua house.

INTERVIEW: Joseph Lai

by Keli'i Tau'a and Kimokeo Kapahulehua
Oct 12, 2005



Interviewers= KT & KK and Consultant=C

KT – What is your name Joe?

C- Joseph Lai

KT – You got a Hawaiian name?

C – No Hawaiian name. Only Chinese name.

KT – What is it?

C – Yee Leong Lai. That's my middle name now.

KK – What does Yee Leong mean?

C – I don't know

KK – Maybe Lichee or something.

KT – When were you born?

KK – 1932///// 1/16/32

KT – Where were you born?

C – I think I was born in Haiku.

KT – Haiku, Maui yeah because there are other Haikus on other islands?

C – I was adopted by the Lai family. The family live up Kula I think the original family.

KT – Now where you live? What's your address?

C – 970 Malanai St. My father-in-law's phone number :Ph. No. 661 – 9282///// Cell –269 – 0552

KT – When did you move to Lahaina. How old were you when you moved to Lahaina?

C – I was 2 and a half yrs. Old.

KT – What can you remember about Lahaina?

KK – All the Pakes were selling crack seeds, manapua, moyashi & boil peanuts(penachi)

Joseph laughs

KK – When I came here in 1963, Front Store by Planet Hollywood, Japanese store before, boil peanuts they had all the jaws(containers outside) filled w/crackseed.

C – That was by Hopwo Store every Sunday selling Okolie, Omako, liberty soled chow lun or call it dry soup. Every Saturday sold manapua and pie were sold

KK – You folks(parents) had a store right here, by the cannery, what was the store name?

C – Lai Tong Store

KT – You worked PT for Pioneer Mill? Herbert Eberly was my boss.

C – Yeah, in 1955. Baldwin Packers.. (Intermediate = Part Time)

KT – What was your job? What did you do?

C – Empty cans, Cannery, stacker, warehousing.

KT - Pineapple

KK – How much you get paid?

C – Dollar quarter an hour. No benefits until I joined the union, ILWU. In 1957, I worked there for 7 yrs. And then Maui Pine for 1 year and a half. That's when Baldwin Packers and Maui Pine merged .

KT – Where did you go to school?

C – Lahainaluna and graduated 1955. Then I worked @ Sheraton Maui 31 & half years as a cook.

KT – With Earl Kukahiko yeah when he was a boarder.

C – I think so.

KK – Only boys boarding school at that time.

C – Only boys but I was a day student.

KT – Did you know Thomas Cummings?

C – Yeah

KT – Thomas told me but you day student so you might not know. He told me they use to let the cattle go down to the river, Kahoma River, they go down to get them to milk the cows.

KT – Have you been down to Kahoma River?

C – I've been down but not with the cattle. I know they had cattle, pig, chicken, vegetables(corn, string beans) and what not down there.

KT – Why did you go down Kahoma River?

C – To play and p/u pepeiao, koa, and milkweed for rabbits, plus swim in the river.

KK – What about the V & 'O'opu? Fresh water 'opih.

C – When I went up, I saw the shrimp and the 'opae and 'o'opu. Over here use to get plenty. Come all the way down.

KT – All the way down to where?

C – All the way down to the ocean where there were plenty of shrimp.

KK –The li'ili'i one yeah. What about the ocean, fish, the papio and mullet use to go up river. What about the ulua? Kumu, mullet & papio

C – Not that I know. Some fishes, mullet go up, red fish.

KT – How far did the fish go up river?

C – To the bridge and sometime higher depending on the tide by Safeway or side of Longs.

KK – What about the birds? Never had Hawaiian birds?

C – Minjiro, myna, doves, sparrow, cardinals and rice birds.

KK – What about Hawaiian birds? Hawn duck, Hawn Stilt?

KK – What about the plants, had Koa trees?

C – Yea, had koa trees, kiawe, monkey pod, tamarine, plum and mango trees, date trees.

KK – What about lama, lauhala, etc.

KK – Had the same train tracks? By Mill road.

C – I think so, modified it. I KNOW FROM TRAIN TRACK DOWN. Ran to Mala Wharf to load sugar and bring in gas to the storage tanks at the mouth of Mala Stream.

KK – You know the gravesite by the ocean by Jodo Mission?

C – The Chinese close to the Wharf and the Japanese close to the Jodo Mission. Had Chinese also on Japanese side.

KK – You get any relatives over there?

C – No, my relatives by the county graveyard. I was adopted in the 1930's.. I Chinese/protuguese

KK – You know how to speak Chinese?

C – Very few words, simple words.

KT – Did you remember growing up seeing the taro patches?

C – Had some up @ Lahainaluna school by private owner

KK – Was it owned by the people or the school?

C – The community had their own garden

KK – You know their names, you know the type of or varieties like lehua, moi, ahakea

C – No I don't

KK – They had poi factory in Lahaina?

C – Yeah. Chung. They all bring the taro to the Chungs.

KK – You guys had poi factory in Honokahau?

C – No. Just the Chungs. The Chuns had one by where auntie Vicky was living.

KK – You went all the way up Kahoma Stream? They had a dam up there?

C – All cane fields. Had few homes, Japanese family. Had dam diverting the water to the Lahainaluna irrigation ditch all the way to Ukumehame ditch. (Honokahau to Lahaina)

KK – The one go lateral yeah?

C – Yeah! Above the cannery was all cane fields. Had few homes, Japanese families, Filipinos, Okinawans, Spanish & Portuguese).

KK – Can you remember when Kahoma had flash flood?

C – The year I don't know, around 30's, 40's, 50's. When the big water came breaking branches and debris all got stuck at the bridge causing the Flash flood to go into the cannery by Pioneer Mill.

KT – Where was the cannery located?

C – Same place as it is today. Before my father(hana'i) used to leave here in 1921 use to have flash floods with water going into the cannery. The land was low up to the Canoe restaurant. All the Mala camp, the land was low. Can see across the cannery now the land is low across the road.

KT – When you were living, where were the important properties that you can remember?

C – I think there was a heiau in front Jesus Coming Soon in the middle of Holao.

KK – What did the workers do after work in the camps. The companies provided housing.

C – They had camp parties in their plantation housing provided by Pioneer Mill w/\$100 subsidize

KK – Was the weather always like it is, dry & hot

C – Yea. Now more dry but now more trees. Mango trees, monkey pod and plum

KT – Who were some important people?

C – Clarence Agena who worked for Pioneer Mill. He worked @ Lahaina Store. He did community works. Japanese Festival "Bon Dance."

KT – What kind of events:

C – I can remember parades. Moon festival, Bon Dance.

KT – What kind of cars/roads. Model T's on partly paved roads

C – I used to drive a jeep on good roads till Honolua then it was dirt roads.

KT – Did you go fishing?

C—Some times I fished @ Mala Wharf catching Papio, Moi, Moana ula, with light reels using opae bait, opelu belly, bread,

KT — Are there any stories you want to pass on?

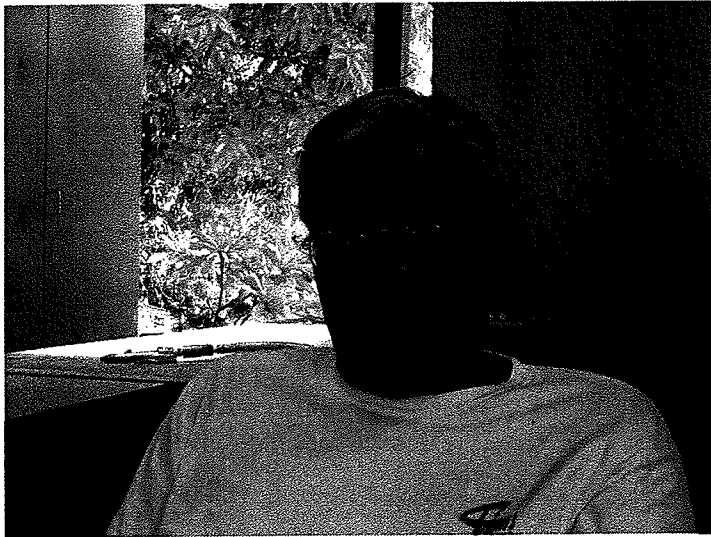
C— Spooky Kine? When at the Wharf, can hear ukulele and singing but when we go there, nobody there. Also, Dad used to hear voices calling him just like me.

KT — What changes would you like to see?

C— Stop building more hotels. When we only had Sheraton & Royal Lahaina, we use to have 100% most of the time but now it goes down 30 to 40%. Now more hotels and cost of living higher. Gotta lay off hotel employees because hotels not full. Too much traffic. Our environment, too many people. Too many commercial fishing, too many boats, too many cars.

INTERVIEW: Keola Sequeira

By Keli'i Tau'a and Kimokeo Kapahulehua
Oct 17, 2005



Interviewers = KT/KK and Consultant = C

KT – How old are you?

C -60

KK-Please give your full-name?

C- Levanne Keola o kalani Sequeira Born Feb. 7, 1945 in Honolulu and adopted by Seq where I lived all my life. Went Kamehameha Schools O'ahu, 1 yr. BYU –O'ahu then 3 half yrs. Air Force. Then returned to Lahaina, joined Police department till retired.

KT – We are specifically tarketng Kahoma but gathering info on neighboring ahupua'a. Can you start sharing about yours?

C – I live @ Pakala, it is adjacent to Mokuhinia on the Ka'anapali side of Honwanji Church. The Church area was the residence of King Kamehameha's governer Hoapili. This land here was for the Kaukau Chiefs (the chiefs that did not have the genealogical bloodlines to move them up the ranks of chiefs.) Hoapili gave this land to Catalina, his blacksmith to live right next to him. Eventually, Catalina sold out to my grandfather who was Russell Newton Sr. From him went to my grandmother Eldredge then to my mother and father Sequeira and then they gave it to me so now I am the kahu of this place. This Eldredge Newtons has been in the family since the 1860's. Dad says I'll give it to you but you can't sell it, only to the family because he wants the land in the family. I respect that and that's why I live here. I'm not the owner, I'm just the kahu.

Moku'ula is right across the street and grandma use to say, father use to go outside the porch and listen and he could here music coming from where the park is located, Mokuhinia and the music was nose flute type which made an impression on me. Although my grand

mother was Mormon, Christian, she had Hawaiian beliefs she really didn't go into it but now that I look back, I can see where she was coming from.

She learned la'au lapa'au from the Opunui family and she was pretty good at it. She had recipes that I don't see people using now. I use to gather the plants with her Her name was Lili Newton Eldredge. She use to gather popolo, ihe, uhaloa, other things on the ground but she impressed upon me that you can get the plants but without the prayers, it will not be any good. She had a combination of plants including sugar can in the medicines.

KT – So the prayers was important?

C – Yeah. She said without the prayers, it won't work.

KK – What about the limu?

C – I'm not to sure but we used to get our limu from Launiupoko. That was the primary place and Hanaka'o'o. We would get ogo, wawae'ole, lipoa. Now no more that fragrance, that iodine smell. They destroyed the park when they put the breakwater in. She didn't talk much about Kihawahine or the mo'o but Grandma warned not to kill the mo'o. Whatever you do, you don't kill the lizards. Of course, in the old days, they don't explain but now when I look back, I can see why. It was an understanding and respect for the spirit.

KK & KT – After showing Keola that maps where the Kahoma housing will be built, he responded

C – That use to be all camps, called Mill Camp. I remember, we used to play in the stream because used to be built up w/ rocks. When use to overflow, use to be flooded especially the cannery where Safeway today is located. Once the Kahoma Flood Control was developed, it eliminated the problem.

KK – You remember fishing in the stream?

Everything mauka of the cannery was all cane fields. Use to have old stone platforms.

C – No. As kids, we saw fishes in there but we never went after them. The old cannery used to be subdivided and used to overflow. In the 70's, we had to close the bridge in Front Street because of the flood and went into the old cannery. Used to have a camp w/ 10 to 12 houses up by Kahoma and an airstrip for the airplanes that use to spray the crops. Had cold running water, Crater Village. When you talking about Mill Camp, you talking about lot's of Japanese that lived up there. That's why they all went to Lahainaluna High School. If you talk to the old-timer Japanese, they going remember that area. Just start walking through that camp and you'll find a lot of people that know the area real good.

1950 – Father had a house mauka side of Dickenson. Plantation House that he rented. Mill Rd was adjacent to the house. Queen Lili'uokalani came and the Royal Hawaiian Band came play for her as she sat on the pune'e. Found pottery that came from the house where the Queen visited.

KT – Who were the outstanding people

C – Was plantation town so Puamana was Haole Camp for plantation hierarchy. When we were growing up, my father was like a supervisor in the plantation, a Portuguese on the dark side so although they were all on a friendly basis, the haoles considered him a step below even though he was in a supervisor position. He was a dark-skinned leader. That kind of thinking existed in the community but my father was one of the leaders in the community.

Another was Judge Freeland, owner of Pioneer Mill and prominent business. The rest was Japanese mom and pop stores, very few Chinese stores. Demello family was prominent, she was good at lomilomi, can take care of huli opu. (Old managers -Moyer family married into Farden family and Chesters who built a house on Front St.

KT – Major events? You building Mo'olele 74 – 75.

C – Reverend Kukahiko who lived @ was highly respected. He was the Hawn exorcist, he did it one time on me. Back in 61, my grandmother was still alive saw that I was not eating and looked pale. Grandma took me to see Rev. Kukahiko, she knew it wasn't physical. Grandma explained what she thought was happening so then he instructed me to place my fingers on the scripture that he opened. After that, he placed his hands on my head and blessed me. After the blessing, he explained that someone was jealous of you and that's why you weren't eating well and was possessed. When I walked out of the house and put my feet on the ground, I felt that something had been lifted. I had a lot of respect for that man. Everybody looked at him as a Christian minister but he know a lot of Hawaiian things. People like him and his son Earl Kukahiko who had a lot of influence up in Lahainaluna. Lot of people respected and looked up to him. Kahoma was alive w/common mango trees. Same type of birds we have today, no native. Kahoma wasn't flowing all the time.

KK –We came last week, flowing. Today, nothing.

C – Yep. Rain in the mountain, flow. My wife and I living here have found the significance of the place. Opposite side of Mokuhinia is Shaw who married one of the Ka'ai women. She was a lady in waiting for Queen Lili'uokalani. There property was on the Olowalu side of Kamehameha Iki Park. The parking lot underneath used to be a pond. When I was a kid, I saw fishes as it filled up there in the pond. Her house was on the makai side of the pond. Lot of people were afraid of her thinking she was a kahuna. Grandma said to respect her but not be afraid of her.

Today, I treat this place as clean as I can not allowing liquor anymore and if people are arguing, I ask them to step outside of the property. My wife pointed out that we are basically living on sacred property so keep it clean so we can have things come through. There are some who are letting alcohol and drugs influencing their lives. Presently, I feel we are like the kaukau ali'i. Do something as our elder. I do have the respect and love for this place, as father said, pass it on in the family. Some people no more roots, moving around. Our family get roots going back hundreds of years. At family reunions, I always remind the family of our roots.

INTERVIEW: Earl Ray Kukahiko

By Keli'i Tau'a and Kimokeo Kapahulehua

Oct 12, 2005



Interviewers= KT/KK and Consultant=C

C – Get two you know (He was referring to Kahoma St. and the other one is Kanahaa by Lahainaluna, the 2 streams come down from each side and she comes narrow coming out over here then goes out to one reaching the bottom.

KT- Let's start from the beginning. What is your full name?

C – Full name is Earl Ray Kanakaonahe Kukahiko.

KT – When were you born?

C – Dec. 16, 1930 in Lahaina. I'll be 75 in Dec. Add: 152 Malanai St. ph: 661-3460.

KT – Thomas Cummings, Bishop Museum Education Director suggested we visit you to give us background on why you folks (students of Lahainaluna) went down to Kahoma Stream when you were students at Lahainaluna. He said they use to get the cows every morning to milk.

C – We went down to pick koa every morning about 5am to collect koa seedlings to feed the cattle. About 100 lbs. If less, had to go back and get more so that it would weigh 100 lbs. That was our regular chores. The luna there was kepani. I graduated in 52 and became a luna. In 51, I had the job already. I became a counselor for the high school boarding students.

KT – What can you tell me about Kahoma?

C – There was a plantation camp down there. What we had to do was cross Kanaha first and then there was that island.

KT – Kanaha was as high as the school?

C – O yeah, way up.

KT – So where does Kahoma start.

C – Below the school. Where that island is there is a cinder pit up there. There is a road that takes you up to Kahoma to go into the valley and to the island in Kahoma. -- owned a portion of that. Frank Silva was the luna for the plantation. He was always the one who would come and talk story. I asked him who owned this land because I knew Lahainaluna use to own all this land down to the ocean.

KT – Who owned Lahainaluna

C – The STATE. Before that was the missionaries. Mr. Silva showed me the map of Kanaha and next to it Kahoma. One day, I wanted to go and see. I wanted to know and I found out get plenty water come down because of these two streams.

KT – So the source of these two streams was Pu'u Kukui?

C – Yea. Every day we talk story (Silva) Nalaelua, from the Keahi Ohana, own a portion up there. We use to send our cows down Kanaha. Mr. Silva said he had a small piece of land down there. They use to raise the taro on the land in Kahoma. Where they were had taro but from Lahainaluna down was the schools. On the other side had a lot of kuleana lands. The Sharpes, Kekuewas, they all own inside there but nobody come back they land all inside there so nobody knows who own's that but in my mind I know who owns that but they no come back. When I talk to the Kekuewa girls, e Ramsay, you guys don't want ???? Their response is they live on O'ahu and not interested. Nobody wants to come back. That's the thing now. The right of way to go on the property. There should be a right of way because when we use to go up, there was a right of way to go inside. They gotta go talk to the school. Anyway, that was the kuleana in there and it was aaall taro patch. We all use to go in there, all families, good friends, aunty Kamehameha, the Amarals, we had a long house, your family over here, your family over there, sleep. The mothers were the ones who prepared the food, it was fun days and all that while the men and children worked the taro patches. Mr. Silva talked to me about a lot of stuff and told me that during the war, Lahainaluna School was used as a hospital. They put in a big sewer and he showed me, it's where they are building now. When they were going to dig a new one, I went up to the school to show the principal, they called the State inspector and they identified the sewer. The bulldozer operator was going to mow it down because the plans didn't show it. The operator Bergau from Hana stopped the job. The himakamaka, the State, the County all came up to check and I let them know that my friend Silva told me about it. After they properly identified the sewer, they changed the manhole plans. Coming back to Kahoma, I didn't know about the two streams Kanaha & Kahoma. That's the ones, the people lived up there and planted gardens near the stream beds. Lots of people used to walk to school from up there since there weren't any buses. Some of the students from that area used to complain because they had to cross two streams, Kahoma & Kanaha.

KT – So when the water was high, they no come school?

C – No can, they no can cross. But the Lahainaluna one they had a phloom to water the cane and that comes from Kahoma.

KT – When Tom Cummings was talking about Kahoma, he said that the students were assigned to go down to Kahoma to plant taro to eat.

C – Well, that was the old days. Yea, my papa was up there and graduated in 1910.

KT – Did he tell you that?

C – Oh yeah. They had all the taro beds. The principal @ that time wanted that. The guys who living up there, that's Lahainaluna property, the plantation went and claimed that and put it on the map. I talked to the guy HANS, and questioned how they own all the lands up there.

095057 Second pod

C – These are the kind of things I learned from my Dad. How to do things the right way and not to hana 'ino the culture. That's why there is a lot of people that call me and I go, sometimes I read the Bible. Lot of people appreciate that. Sometimes I can sense things from the knowledge that I have. Lot of people appreciate. Some people going build a house so they call because they say I am highly recommended. Sometimes they find bones so they took care of it.

KT – We know that when people take advantage, there are ramifications that need to be made.

C – First thing is to Pule to have ke Akua help me. Then I do blessing on them. If unusual things still occur, please call. When I see people in Wailuku, they mention that pule have helped them. Sometimes people, Kepani from Kula and Makawao call and I go and help.

KT – Who were important people in Lahaina.

C – Pua and Ned Lindsey. Pua taught me many things.

KT – Where did she get her knowledge come from?

C – She was Big Island. Ned was great man. They both worked today. 11:07

KT – What are the cultural things passed down to you that people should know?

C – They passed down their knowledge to me. My dad passed to me and Pua.

KT – What was her focus/expertise, la'au, mahi'ai, etc?

C – Hers was more mahi'ai. When I asked, "You sure," her response was that is the way she was brought up. She was really really nice. We worked good together.

KT – Are they older than you?

C – Oh yeah. She was in her 80's when she passed.

KT – What were some of the events you would people to remember?

C – They were good decorators, whenever there was an activity, auntie Pua would get the call. She and the husband would get it done. The things they did was beautiful. Auntie Pua, no matter how big she was, she was a graceful dancer. That's why the daughter Rozelle was a good entertainer.

KT – Now that you bring that up, what about Emma Sharpe?

C – Emma Sharpe was more of an entertainer and not a decorator. That was the difference. Emma good entertainer, Pua good decorator.

KT – Let me go through some Hawaiian cultural things since Lahaina is rich in that area. We know that Kamehameha the Great after conquering Maui came back and resided in Lahaina for a year or more. We know that his canoes beached right on the 'aina/shore. However, the lower part of Lahaina was all wet lands and kalo.

KT – So where was the community? They lived above?

C – RIGHT. Very few people lived down. They were the ones that really helped the King. They were the suppliers of all the food(middle men).

KT – Again, when the foreigners came, the valley people were the ones who supplied the sailors with food and water, all the needs. I appreciate you confirming that it was the lifestyle and kuleana of the West Maui people. All these valleys used to supply the newcomers.

KT – Let's go deeper into culture. Mokuhinia. As you were growing up, what is your memory of Mokuhinia and Moku'ula?

C – My memory was more of Honokohua. I came to Lahainaluna in 1947 as a student and p/u all these things that was going on but my dad and Sam Makekau, fire chief told me that where Waiola Church was all water up to the water pump and to the village of Waine'e. Ships use to come all the way up to Waiola Church to baseball park to Mokuhinia.

KT – In your day, traveling was difficult so you stayed in your ahupua'a.

C – RIGHT.

KT – How long did it take you folks to come to Lahaina?

C – When we use to walk from Honokohua, it use to take us about hour and a half to two hrs. to reach Lahaina. We walked on the rock road. Wasn't macadamized yet since the county took care of the road.

KT -Before the paving, what kind of cars were there?

C – Model T's. Lot's of Model T's & Model A's. We had a Model T.

KT – Was trains running by then?

C – No, No! Trains came after when the sugar came in, it then went out to Honokohua to p/u the pineapple to take to the Lahaina Cannery. Sometime we walked, other times hitch hike.

KT – You boarded up there so it was convenient. What were some of the other influential immigrant cultures.

C – When the Chinese came, some of them settled in Honokohau right where the Church was then they started moving to Lahaina, they were all single men. They were planting opium in the water way back then brought from China. When Pakalolo started, it was in the rabbit food and got all the animals hyppered.

KT – Plantation people Pioneer Mill was - -Pauwela-pineapple from Upcountry Kahului – Pineapple from upcountry

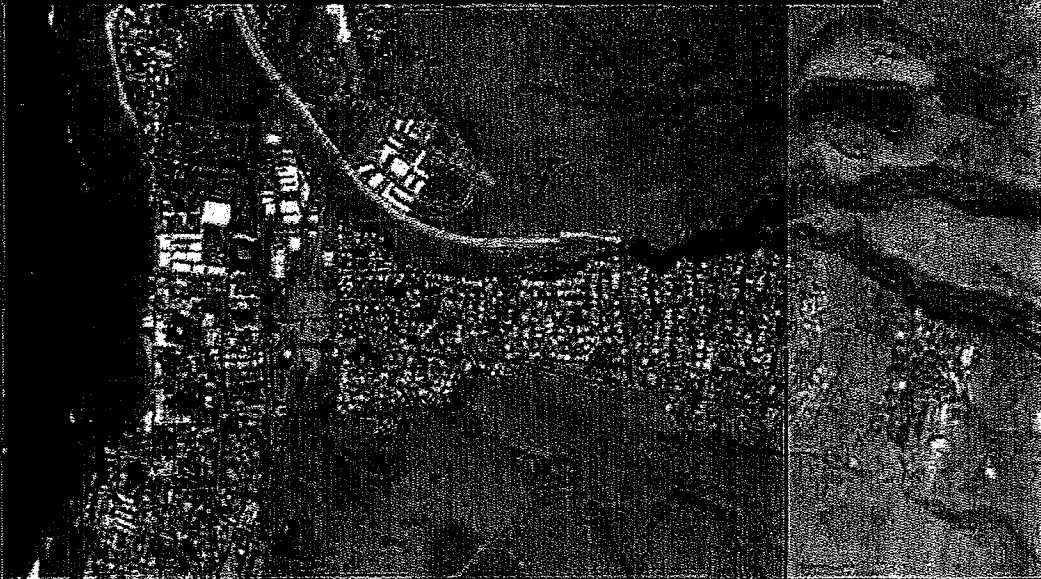
C – When we were born had mid-wives. Name came out Kapalua @ Ritz-Carlton given by Mr. Fleming. Before, it was called Honokohua. There was a scout camp there. Many people who have moved off Maui that lived @ Honokohua ask about Kapalua when they return for a visit and are surprised to find the name change from Honokohua to Kapalua. Our house was the last house @ the corner with the coconut trees that my dad planted next to the store. My father gained his theology training by remaining another year @ Lahainaluna. My dad was a luna in the pineapple field. He served at Paia pineapple & Makena fishing before Fleming invited him home. First day of work, he saddled and prepared the horses. His boss asked, "How did you do that so fast?" His father's response. I learned it @ Lahainaluna. At Paia Church, he learned more about ke Akua.

APPENDIX F.

2007 Traffic Impact Analysis Report

Traffic Impact Report

Kahoma Residential Development



Prepared For
West Maui Land
Company, Inc.

Prepared By
Wilson Okamoto
Corporation

October 2007

TRAFFIC IMPACT REPORT
FOR THE
KAHOMA RESIDENTIAL DEVELOPMENT

Prepared for:

West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, Hawaii 96732

Prepared by:

Wilson Okamoto Corporation
1907 South Beretania Street
Honolulu, Hawaii 96826
WOC Ref: #7481-02

October 2007

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to assess anticipated traffic conditions resulting from the proposed Kahoma Residential Development located east of Honoapiilani Highway in Lahaina on the island of Maui. The project entails the development of 25 special needs multi-family rental units and 70 single-family residential lots.

B. Scope of Study

This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site for the proposed Kahoma Residential Development is located east of Honoapiilani Highway between Lahainaluna Road and the Kahoma Stream. The project site is further identified as Tax Map Keys: (2) 4-5-10: 5 and 6 (see Figure 1). Access to the project site would be via provided via connections to the local roadway network on the west and east ends of the project site.

B. Project Characteristics

The proposed Kahoma Residential Development will be located on an approximately 16.8-acre site bordered by the Kahoma Stream to the north and existing residential homes to the south. The proposed project is expected to be completed by the Year 2011 and includes 25 special needs multi-family rental units and 70 single-family residential lots. The one-bedroom special needs units will provide independent living opportunities to qualified individuals. Access to Kahoma Residential Development will be provided via roadway connections on the west and east ends of the project site. Access to the west end of the project site will be provided via Mill Street and Keawe Street while access at the east end will be provided via Lui Street and Lahainaluna Road. Figure 2 shows the project site plan.

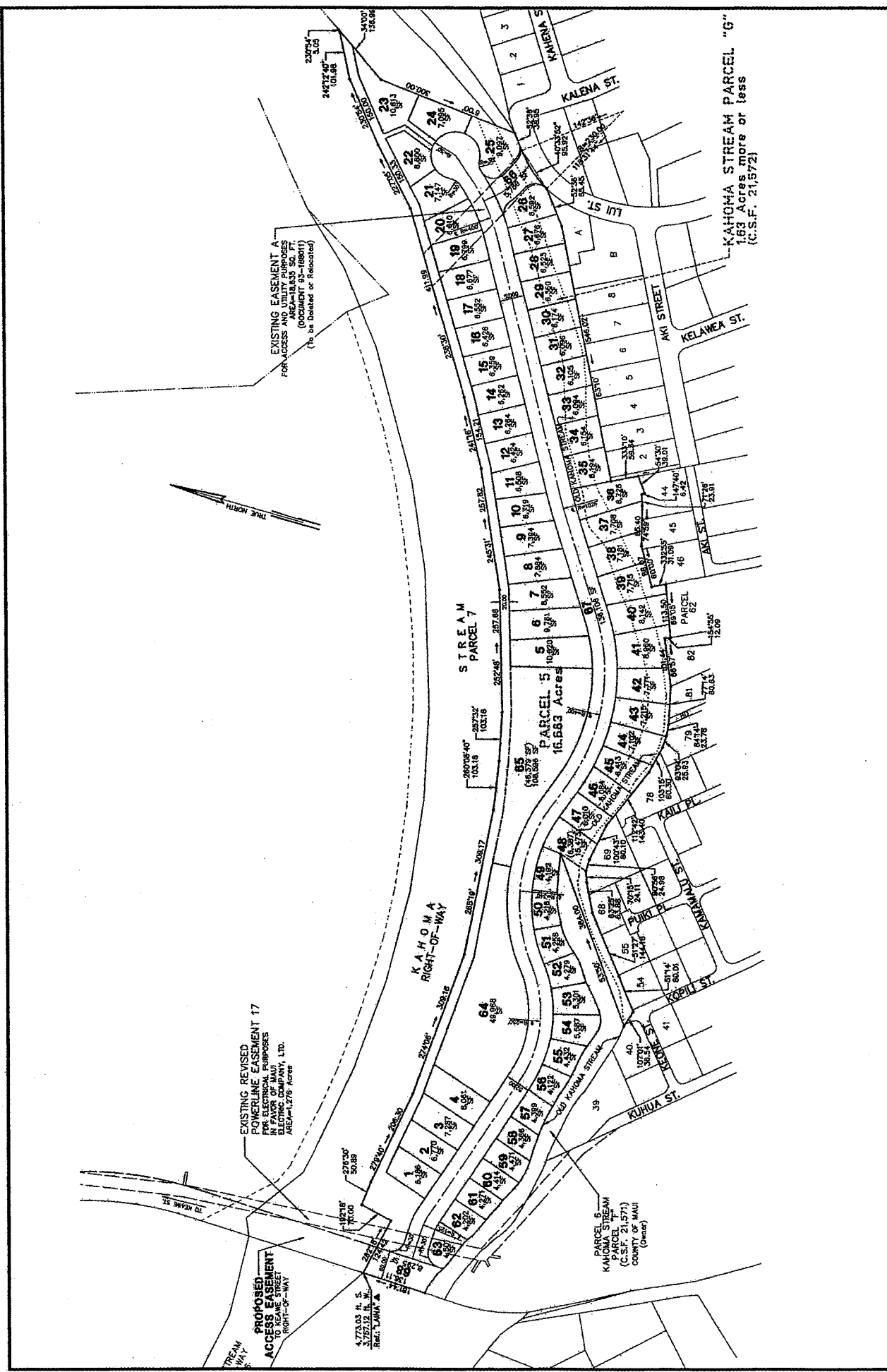

III. EXISTING CONDITIONS

A. General

The proposed project site is located approximately east of Honoapiilani Highway north of Lahainaluna Road. Honoapiilani Highway serves as a major collector roadway through central Maui and along the northwest coast of the island from its origin in Wailuku to its terminus near the north shore of Maui. In the project vicinity, Honoapiilani Highway is generally linked to east-west roadways that serve the surrounding residences, resort areas, agricultural lands, and commercial areas.

B. Area Roadway System

In the vicinity of the proposed project, Honoapiilani Highway is primarily a two-way, four-lane, undivided State of Hawaii roadway generally oriented in the north-south direction. At the signalized intersection with Kapunakea Street on the northern end of the project study area, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Kapunakea Street is generally a two-lane, two-way County of Maui roadway that originates near the coast at Front Street and continues northeast past the intersection with the highway to its terminus at Nahale Place. At the intersection with Honoapiilani Highway, the westbound approach of Kapunakea Street has an exclusive

**WILSON OKAMOTO
CORPORATION
ENGINEERS - PLANNERS**

**KAHOMA RESIDENTIAL DEVELOPMENT
PROJECT SITE PLAN**

left-turn lane and a shared through and right-turn lane while the eastbound approach includes a shared left-turn and through lane, and an exclusive right-turn lane.

South of the intersection with Kapunakea Street, Honoapiilani Highway intersects Keawe Street and the Lahaina Cannery Mall driveway. At this signalized intersection, the northbound approach of the highway has exclusive turning lanes and two through lanes while the southbound approach has an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Keawe Street is generally a two-lane, two-way County of Maui roadway that provides access to an adjacent industrial area. At the intersection with the highway, the Keawe Street approach has an exclusive right-turn lane and a shared left-turn and through lane. The eastbound approach of this intersection is comprised of the Lahaina Cannery Mall driveway which has an exclusive right-turn lane and a shared left-turn and through lane.

South of the intersection with Keawe Street, Honoapiilani Highway intersects Papalaua Street. At this signalized intersection, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Papalaua Street is generally a two-lane, two-way County of Maui roadway generally oriented in the east-west direction between Front Street and the highway. At the intersection with Honoapiilani Highway, the eastbound approach of Papalaua Street has an exclusive right-turn lane and a shared left-turn and through lane while the westbound approach has one lane that serves all traffic movements.

At the southern end of the project study area, Honoapiilani Highway intersects Lahainaluna Road. At this signalized intersection, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Lahainaluna Road is a predominately two-lane, two-way County of Maui roadway generally oriented in the east-west direction between its origin at Front Street and its terminus near Lahainaluna High School. At the intersection with the highway, the westbound approach has exclusive turning lanes and one through lane while the eastbound approach has an exclusive left-turn lane and a shared through and right-turn lane.

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

The field investigations were conducted on September 13 & 20, 2007. The field investigation consisted of manual intersection turning movement count surveys and field observations of traffic conditions in the vicinity. The traffic count surveys were conducted between the morning peak hours of 6:15 AM and 8:30 AM, and between the afternoon peak hours of 3:00 PM and 6:00 PM at the following intersections:

- Honoapiilani Highway and Kapunakea Street
- Honoapiilani Highway, Keawe Street, Lahaina Cannery Mall Driveway
- Honoapiilani Highway and Papalaua Street
- Honoapiilani Highway and Lahainaluna Road

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS).

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F". LOS "A" represents ideal or free-flow traffic operating conditions and LOS "F" represents unacceptable or potentially congested traffic operating conditions. LOS "B", "C", "D", and "E" represent the intermediate traffic operational characteristics between the two extremes of LOS "A" and LOS "F". The LOS definitions are included in Appendix B.

“Volume-to-Capacity” (v/c) ratio is another measure indicating the relative traffic demand to the roadway carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 generally indicates that the traffic demand exceeds the road’s carrying capacity.

2. Existing Peak Hour Traffic

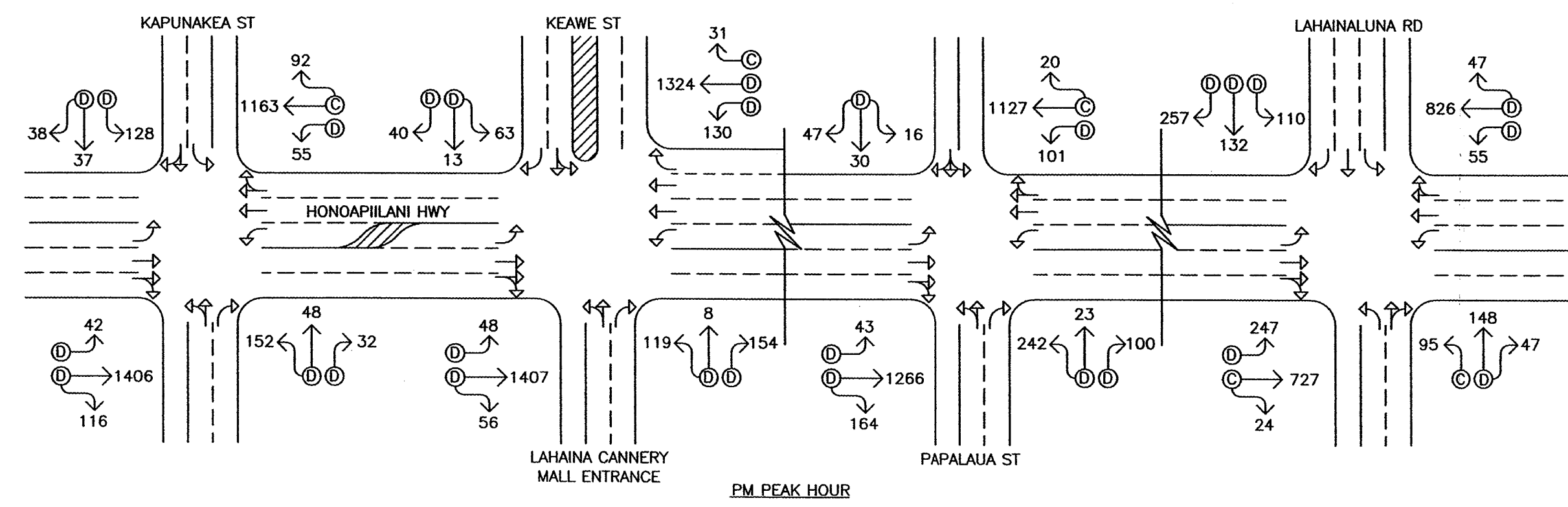
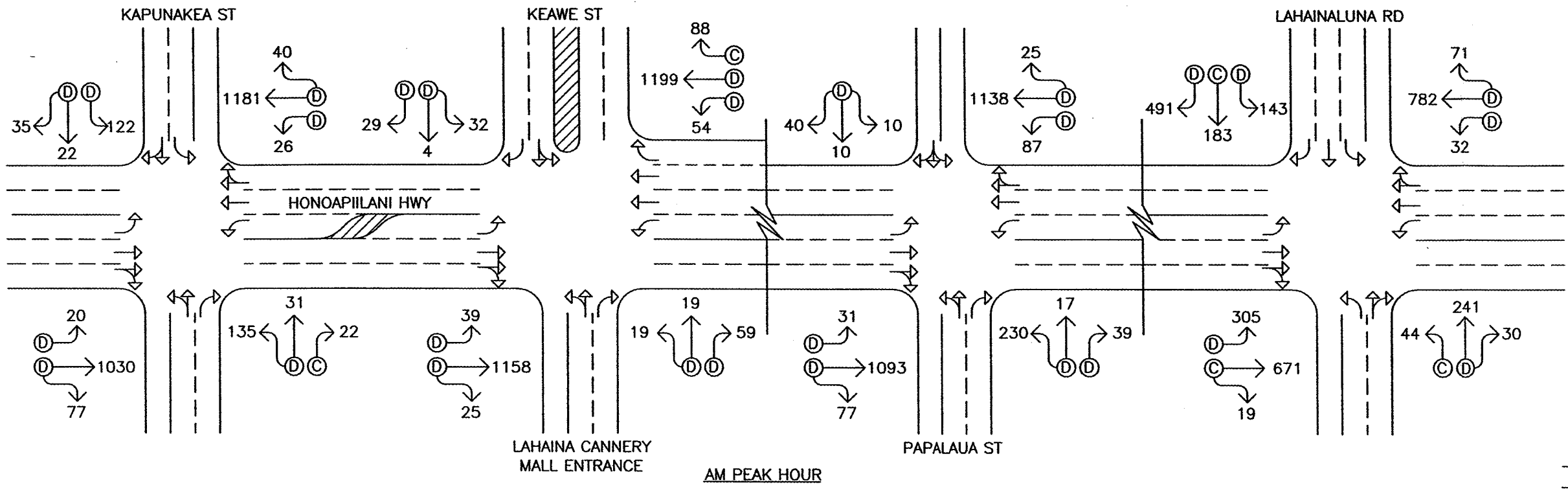
a. General

Figure 3 shows the existing AM and PM peak hour traffic volumes and traffic operating conditions along Honoapiilani Highway in the project vicinity. The morning peak hour of traffic generally occurs between 7:00 AM and 8:00 AM in the project vicinity and represents commuter, as well as, school-related traffic. In the afternoon, the peak hour of traffic generally occurs between the hours of 3:00 PM and 4:00 PM in the project vicinity. Although the peak hours of traffic generally occur around the same time periods at each of the study intersections, the absolute commuter peak hour time periods for each intersection may differ slightly as shown in Table 1.

Table 1: Peak Hours of Traffic

Intersection	AM Peak	PM Peak
Honoapiilani Hwy/ Kapunakea St	7:00 AM-8:00 AM	3:15 PM-4:15 PM
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	7:00 AM-8:00 AM	3:15 PM-4:15 PM
Honoapiilani Hwy/ Lahainaluna Rd	7:00 AM-8:00 AM	3:00 PM-4:00 PM

The analysis is based on the above absolute commuter peak hour time periods for each intersection to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.



LEGEND

90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)

↔ LANE USAGE

Ⓐ LANE GROUP LEVEL OF SERVICE

DATE OF COUNT: September 13 & 20, 2007



KAHOMA RESIDENTIAL DEVELOPMENT

EXISTING AM AND PM PEAK HOURS OF TRAFFIC

b. Honoapiilani Highway and Kapunakea Street

At the intersection with Kapunakea Street, Honoapiilani Highway carries 1,247 vehicles northbound and 1,127 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,310 vehicles traveling northbound and 1,564 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound left-turn traffic movement and the traffic movements on the southbound approach which operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 10-12 vehicles were observed on both approaches during this peak period. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Kapunakea Street approaches of the intersection carry 188 vehicles eastbound and 179 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are slightly higher with 232 vehicles traveling eastbound and 203 vehicles traveling westbound. The critical movements on the Kapunakea Street approaches of the intersection are the eastbound left-turn and westbound left-turn and through traffic movements which operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the Kapunakea Street approaches of the intersection with average queue lengths of 5-7 vehicles observed on both approaches during the AM and PM peak hours of traffic. However, these queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

c. Honoapiilani Highway, Keawe Street, and the Lahaina Cannery Mall Driveway

At the intersection with Keawe Street and the Lahaina Cannery Mall driveway, Honoapiilani Highway carries 1,341 vehicles northbound and 1,222 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,485 vehicles traveling northbound and 1,511 vehicles traveling southbound during the PM peak period. The critical movements on the highway approaches of the intersection are the northbound left-turn and southbound through and right-turn traffic movements which operates at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 8-10 vehicles were observed on both approaches during this peak period. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Keawe Street approach of the intersection carries 65 and 116 vehicles westbound during the AM and PM peak periods, respectively. The traffic movements on the Keawe Street approach operate at LOS "D" during both peak periods of traffic. Traffic queues periodically formed on the Keawe Street approach of the intersection with average queue lengths of 1-2 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

The eastbound approach of the intersection is comprised of the Lahaina Cannery Mall driveway which carries 97 vehicles and 281 vehicles eastbound during the AM and PM peak periods, respectively.

The traffic movements on the driveway approach of the intersection operate at LOS "D" during both peak periods. Traffic queues periodically formed on the driveway approach of the intersection with average queue lengths of 3-5 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

d. Honoapiilani Highway and Papalaua Street

At the intersection with Papalaua Street, Honoapiilani Highway carries 1,250 vehicles northbound and 1,201 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,248 vehicles traveling northbound and 1,473 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound left-turn and southbound through and right-turn traffic movements which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring on the southbound approach of the intersection. Average queue lengths of 8-10 vehicles were observed on this approach during both peak periods and, occasionally, queues from the downstream intersection with Lahainaluna Road extended through the intersection. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Papalaua Street approaches of the intersection carry 286 vehicles eastbound and 60 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 365 vehicles traveling eastbound and 93 vehicles traveling westbound. The critical movements on the Papalaua Street approaches of the intersection are the eastbound left-turn and through traffic movement

and the traffic movements on the westbound approach which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the Papalaua Street approaches of the intersection with the most significant queuing occurring on the eastbound approach of the intersection. Average queue lengths of 5-7 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

e. Honoapiilani Highway and Lahainaluna Road

At the intersection with Lahainaluna Road, Honoapiilani Highway carries 885 vehicles northbound and 995 vehicles southbound during the AM peak period. During the PM peak period, the overall traffic volume is slightly higher with 928 vehicles traveling northbound and 998 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound through and right-turn traffic movement and the southbound left-turn traffic movement which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring on the southbound approach of the intersection. Average queue lengths of 8-10 vehicles were observed on this approach during both peak periods with queues occasionally extending through the upstream intersection with Papalaua Street. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Lahainaluna Road approaches of the intersection carry 315 vehicles eastbound and 817 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is less with 290 vehicles traveling eastbound and 499 vehicles traveling

westbound. The critical movements of the Lahainaluna Road approaches are the westbound left-turn and right-turn traffic movements which operate at LOS "D" during both peak periods. Traffic queues periodically formed on the Lahainaluna Road approaches of the intersection with average queue lengths of 5-7 vehicles observed on both approaches during the AM and PM peak hours of traffic. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit. Table 2 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

Table 2: Peak Hour Trip Generation

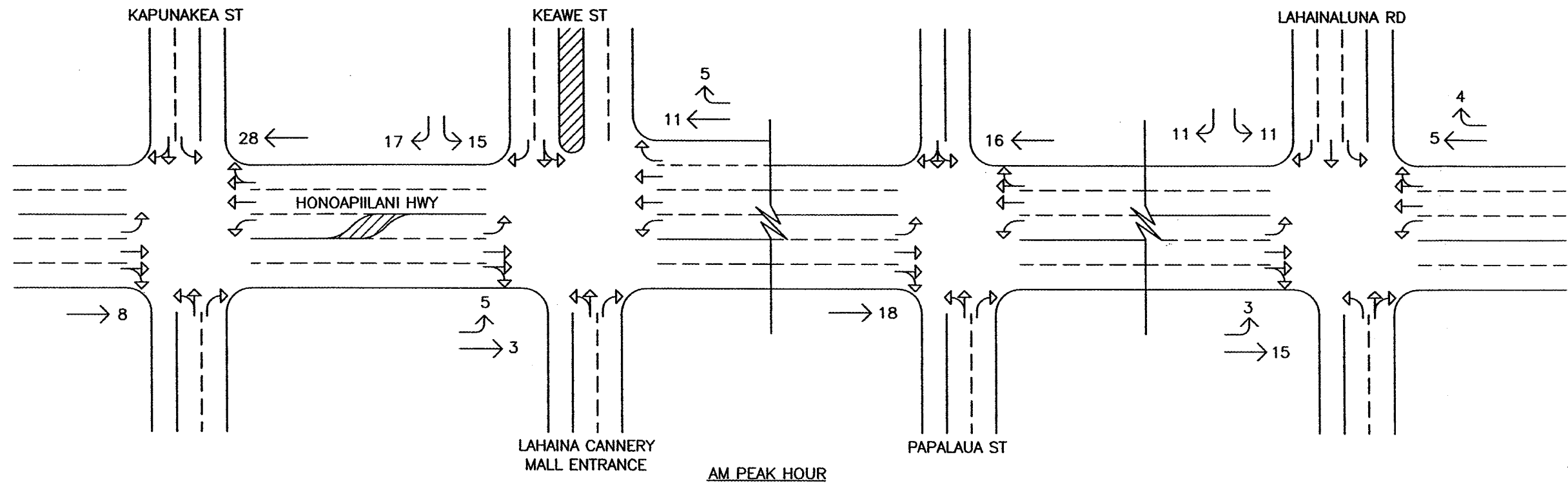
APARTMENT		# of dwelling units = 25
INDEPENDENT VARIABLE:		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	3
	EXIT	10
	TOTAL	13
PM PEAK	ENTER	10
	EXIT	6
	TOTAL	16

Table 2: Peak Hour Trip Generation (Cont'd)

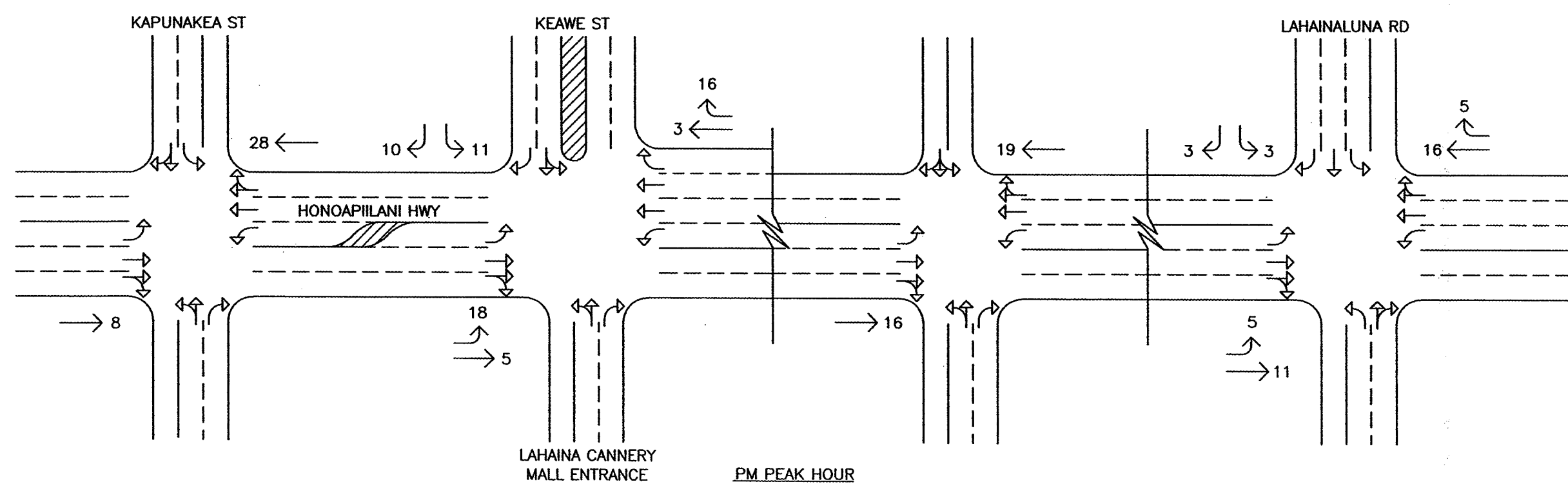
SINGLE-FAMILY DETACHED HOUSING		
INDEPENDENT VARIABLE:		# of dwelling units = 70
		PROJECTED TRIP ENDS
AM PEAK	ENTER	14
	EXIT	44
	TOTAL	58
PM PEAK	ENTER	49
	EXIT	29
	TOTAL	78
TOTALS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	17
	EXIT	54
	TOTAL	71
PM PEAK	ENTER	59
	EXIT	35
	TOTAL	94

2. Trip Distribution

Figure 4 shows the AM and PM peak hour traffic distribution of project site-generated traffic at each of the study intersections. Access to the project site will be provided via roadway connections on the west and east ends of the project site. The directional distribution of traffic was based on the prevalent distribution of traffic along Honoapiilani Highway. As such, 51.8 % were assumed to be traveling northbound and 48.2% were assumed to be traveling southbound during the AM peak period. Similarly, during the PM peak period, 47.8% were assumed to be traveling northbound and 52.2% were assumed to be traveling southbound. These vehicles were then distributed between the two roadway connections from the project site based on the proximity of the dwelling units to the connections and then routed to Honoapiilani Highway via Keawe Street or Lahainaluna Road.



LEGEND
 90° ↻ TRAFFIC MOVEMENT VOLUME (VPH)
 ↻ LANE USAGE



KAHOMA RESIDENTIAL DEVELOPMENT

DISTRIBUTION OF SITE-GENERATED VEHICLES - AM AND PM PEAK HOURS OF TRAFFIC

FIGURE

4

B. Through Traffic Forecasting Methodology

The travel forecast is based upon the average annual traffic growth rate as described in the Maui Long-Range Land Transportation Plan (MLRLTP). The MLRLTP, prepared for the State of Hawaii Department of Transportation in cooperation with the County of Maui Department of Public Works and Planning Department, serves as a guide for the development of the major surface transportation facilities and programs to be implemented on Maui. The Plan identifies strategies and actions that will lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods. Use of the MLRLTP more accurately reflects the anticipated impacts of traffic growth in the region than the use of historical traffic count data. Based upon statewide population, employment, and visitor forecasts to the Year 2020, the MLRLTP estimates that the average daily traffic along Honoapiilani Highway would increase at an average rate of approximately 1.6% per year. Using 2007 as the Base Year, a growth factor of 1.066 was applied to the existing through traffic demands along the highway to achieve the projected Year 2011 traffic demands.

C. Other Considerations

The following are other developments expected to be completed by the Year 2011 when the Kahoma Residential Development is anticipated to occur:

- Maui Breakers project in Mahinahina, which includes 90 multi-family affordable residential units, is expected to be completed in late 2005 or early 2006.
- Villas at Kahana Ridge development includes 117 multi-family residential units and is expected to be completed in Year 2005.
- Lokahi Pacific project in Lahaina with an expected completion in Year 2005. The Lokahi Pacific project includes 12 single-family residential units.
- North Beach Lot 1 project of the Kaanapali Ocean Resort subdivision, which includes a total of 280 timeshare units. At the time of the study, North Beach Lot 1 included 103 units, with the balance of 177 units currently under construction and soon to be completed.
- North Beach Lot 2 of Kaanapali Ocean Resort subdivision, located adjacent to North Beach Lot 1, is currently in the planning stages at this writing, and includes approximately 258 multi-family units with potential lockouts for each unit.

- Honua Kai, also referred to as North Beach Makai, Lot 4, located makai of Honoapiilani Highway in the vicinity of Lower Honoapiilani Road which includes a total of 700 multi-family units to be constructed in five phases, this first of which is expected to be completed by the Year 2011.
- Kaanapali Golf Estates Parcels 22 and 23 residential subdivision located mauka of Honoapiilani highway within the South Beach Mauka are will include 132 single-family recreational homes. Construction is expected to start mid-2005 with completion anticipated by Year 2007.
- Pioneer Farms Phases I and II residential subdivision located in Kaanapali, mauka of Honoapiilani Highway. The proposed project will include 108 residential lots with expected completion by Year 2008.
- Maui Preparatory Academy located mauka of Honoapiilani Highway with access to and from the highway via the Napilihau Street intersection. The project is expected to include a total of 540 students from pre-kindergarten to grade 12 with the expected completion by Year 2013. The project will be completed by three phases. The first two phases will include an enrollment of 198 students total with build-out in Year 2008. Therefore, only 198 students will be included in the trip-generation for this analysis.
- Pulelehua, a planned community located mauka of Honoapiilani Highway in the Mahinahina area. The project is expected to include 895 primary units with a potential of 318 additional Ohana-type units. Build-out for the Pulelehua project is expected to occur by the Year 2011.
- Residences at Kapalua Bay project located in Kapalua on the makai side of Honoapiilani Highway. The proposed project entails the redevelopment of the existing Kapalua Bay Hotel to include approximately 155, 2- and 3-bedroom units with expected completion by Year 2008.
- Villages at Lealii, a residential development by the Housing and Community Development Corporation of Hawaii that includes a total of 4,846 dwelling units, 2,006 single-family units and 2,840 multi-family units. Based on available data, it is assumed that approximately 104 residential units will be developed by Year 2011.
- Kihune, a residential development located in Napili that includes a total of 20 dwelling units. The proposed project is expected to be completed by Year 2011.
- Land Tech, a residential development located in Kaanapali. The proposed project entails 18 dwelling units with expected completion by Year 2011.
- Plantation Inn, a residential development located in Lahaina. The proposed project entails 14 dwelling units with expected completion by 2011.
- Royal Lahaina Resort project located in Kaanapali on the makai side of Honoapiilani Highway. The proposed project entails the revitalization of the existing resort to include approximately 330 hotel units in a 12-story tower and 125 condominium/hotel units in 11 new building with expected completion by Year 2009.

- Honolua Ridge is a 56-lot agricultural subdivision located within the Kapalua Resort area directly east of the existing Plantation Estates subdivision and the Plantation Golf Course. Currently, three homes are under construction. It is anticipated that a total of 12 homes will be constructed by Year 2011.
- Kaanapali 2020, a development to include approximately 2,800 residential dwelling units located on the slopes of the West Maui Mountains between Honokowai Stream and the Lahaina Civic Center, is expected to be completed by Year 2027. Construction of Phase I of the overall development is expected to start in Year 2007, and be completed by Year 2015. For the purpose of this study, approximately 50% of Phase I is assumed to be completed by the Year 2011.
- Westin Kaanapali Ocean Resort, Lot 3, also referred to as North Beach Makai, Lot 3, will include approximately 390 timeshare units located adjacent and immediately north of the existing Westin Kaanapali Ocean Resort, Lot 2. Buildout of the project is uncertain at this writing. However, for the purposes of this study, 75% of the total number of units are assumed to be completed by Year 2011.
- Kapalua Resort Site 6-0 is located adjacent to Lower Honoapiilani Road in Kapalua and includes the development of 58, 1-, 2-, and 3-bedroom units and approximately 35,000 square feet of light industrial uses. Construction is expected to be completed by Year 2008.
- Kapalua Central Resort is south of Office Road between Honoapiilani Highway and Lower Honoapiilani Road in Kapalua and includes the development of 196 residential homes, 61,008 square feet of commercial use, and 10,355 square feet of office use. Construction is expected to be completed by Year 2010.
- The Lahaina Cannery Mall is located adjacent to Honoapiilani Highway south of Kapunakea Street. The proposed expansion project includes an additional 33,160 square feet of development that is expected to be completed by the Year 2008.

The traffic generated by the above projects, as applicable, were estimated based on the generation rates and procedures identified in the Institute of Transportation Engineers publication on trip generation for specific land use types, and other traffic studies associated with each proposed development. The determined traffic generation was applied to the ambient traffic growth, thus incorporating these additional applicable projects in the baseline traffic conditions. The purpose of including traffic demands from these other developments is to obtain a more realistic traffic forecast model and to ensure that any adverse traffic operational impacts can be properly addressed. Thus, the traffic analysis would include the cumulative traffic demands on the roadways in the vicinity of the project at its build-out. Should there be additional developments not accounted for in the analysis, the average annual

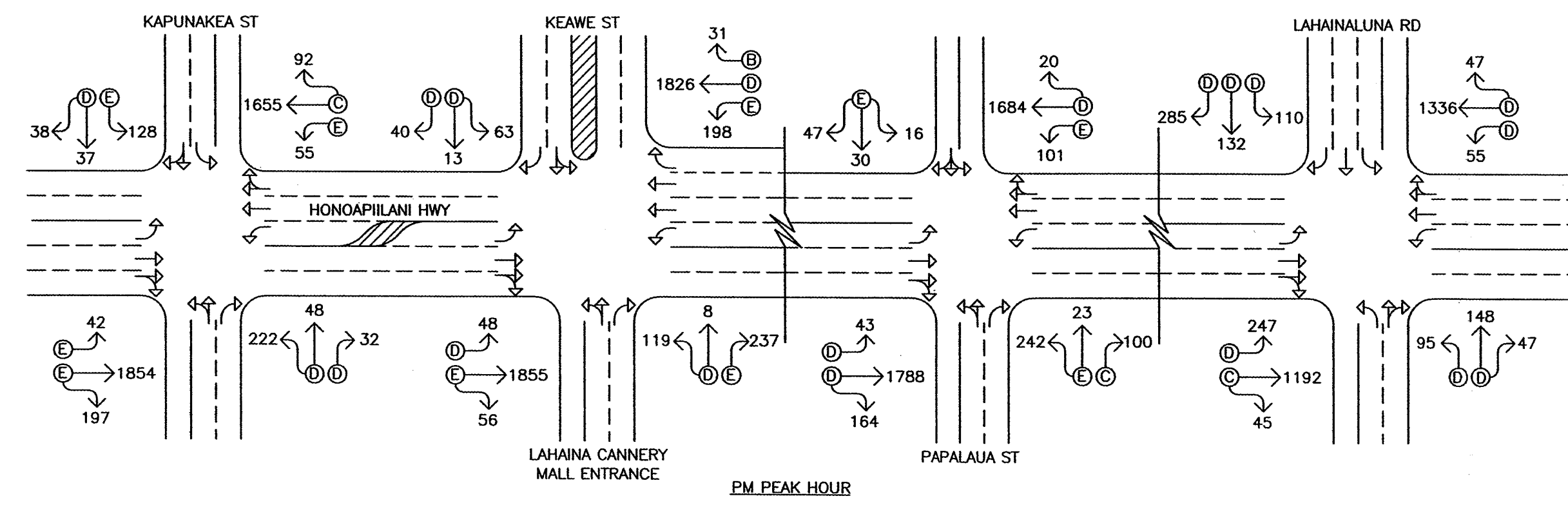
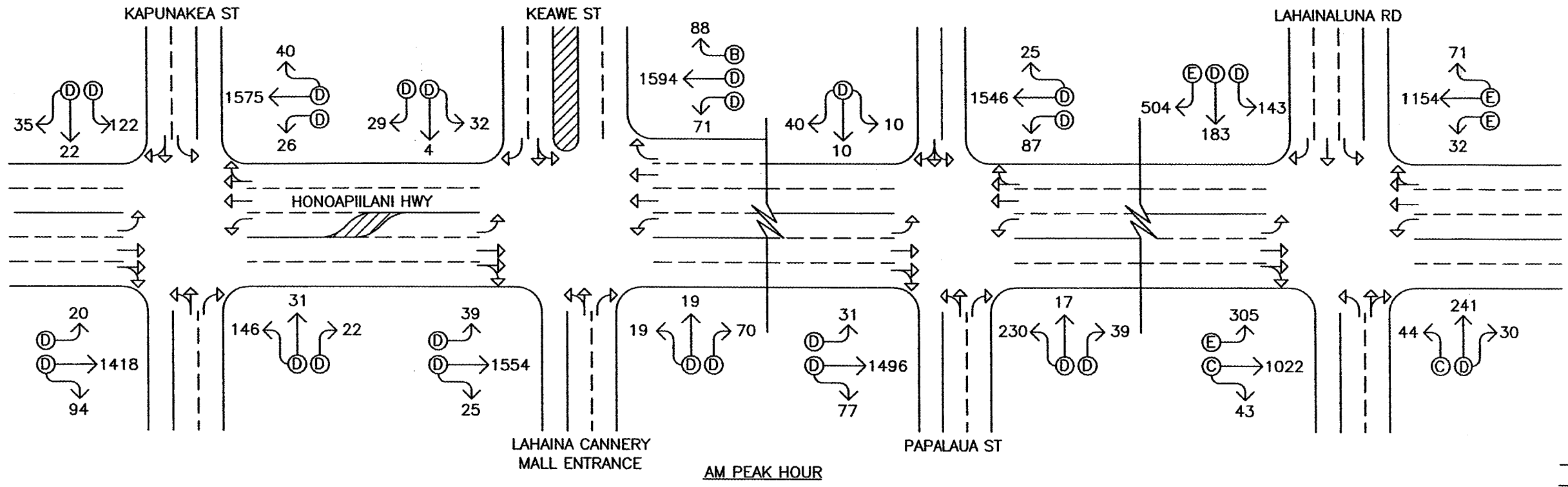
ambient traffic growth rate utilized in the traffic forecast is expected to encompass the increase traffic demands resulting from these unknown developments. Should there be no additional developments other than those stated above, including the average annual ambient growth rate would represent a conservative traffic analysis in terms of future traffic projections.

D. Traffic Operations Without Proposed Project

The projected Year 2011 AM and PM peak hour traffic volumes and operating conditions without the development of the proposed Kahoma Residential Development are shown on Figure 5 and summarized in Table 3. The levels of service shown in Table 3 include the projected growth in ambient traffic, as well as, the development of other projects in the vicinity. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 3: Existing and Projected (Without Project) Levels of Service

Intersection	Critical Traffic Movement		AM		PM	
			Exist	Year 2011 w/out Proj	Exist	Year 2011 w/out Proj
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D
	Westbound	LT	D	D	D	E
	Northbound	LT	D	D	D	E
	Southbound	LT	D	D	D	E
		TH-RT	D	D	D	E
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	Eastbound	LT-TH	D	D	D	D
		RT	D	D	D	E
	Westbound	LT-TH	D	D	D	D
		RT	D	D	D	D
	Northbound	LT	D	D	D	E
	Southbound	TH-RT	D	D	D	E



LEGEND

90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)

↔ LANE USAGE

Ⓐ LANE GROUP LEVEL OF SERVICE



KAHOMA RESIDENTIAL DEVELOPMENT

YEAR 2011 AM AND PM PEAK HOURS OF TRAFFIC WITHOUT PROJECT

FIGURE

5

Table 3: Existing and Projected (Without Project) Levels of Service (Cont'd)

Intersection	Critical Traffic Movement		AM		PM	
			Exist	Year 2011 w/out Proj	Exist	Year 2011 w/out Proj
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	D	E
	Westbound	LT-TH-RT	D	D	D	E
	Northbound	LT	D	D	D	E
	Southbound	TH-RT	D	D	D	E
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D
		RT	D	E	D	D
	Northbound	TH-RT	D	E	D	D
	Southbound	LT	D	E	D	D

Under Year 2011 without project conditions, traffic operations in the project vicinity without the development of the project are expected, in general, to deteriorate from existing conditions during both peak periods of traffic due to ambient traffic growth and the development of other projects in the vicinity. The westbound right-turn traffic movement and the critical traffic movements on the northbound and southbound approaches of the intersection of Honoapiilani Highway with Lahainaluna Road are expected to deteriorate from LOS "D" to LOS "E" during the AM peak period. During the PM peak period, the critical traffic movements on the westbound, northbound, and southbound approaches of the intersection of Honoapiilani Highway with Kapunakea Street, as well as, the eastbound right-turn traffic movement and the critical traffic movements on the northbound and southbound approaches of the intersection with Keawe Street and the Lahaina Cannery Mall driveway are anticipated to deteriorate from LOS "D" to LOS "E." Similarly, the critical traffic movements at the intersection with Papalaua Street are anticipated to deteriorate from LOS "D" to LOS "E" during the PM peak period.

E. Traffic Operations With Proposed Project

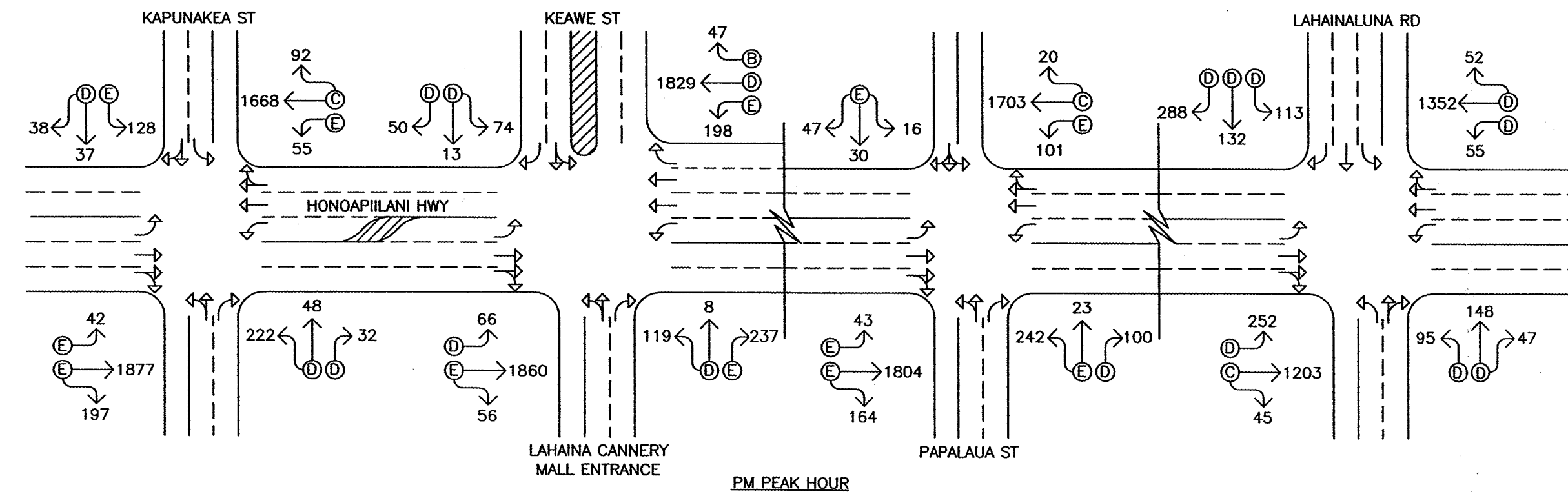
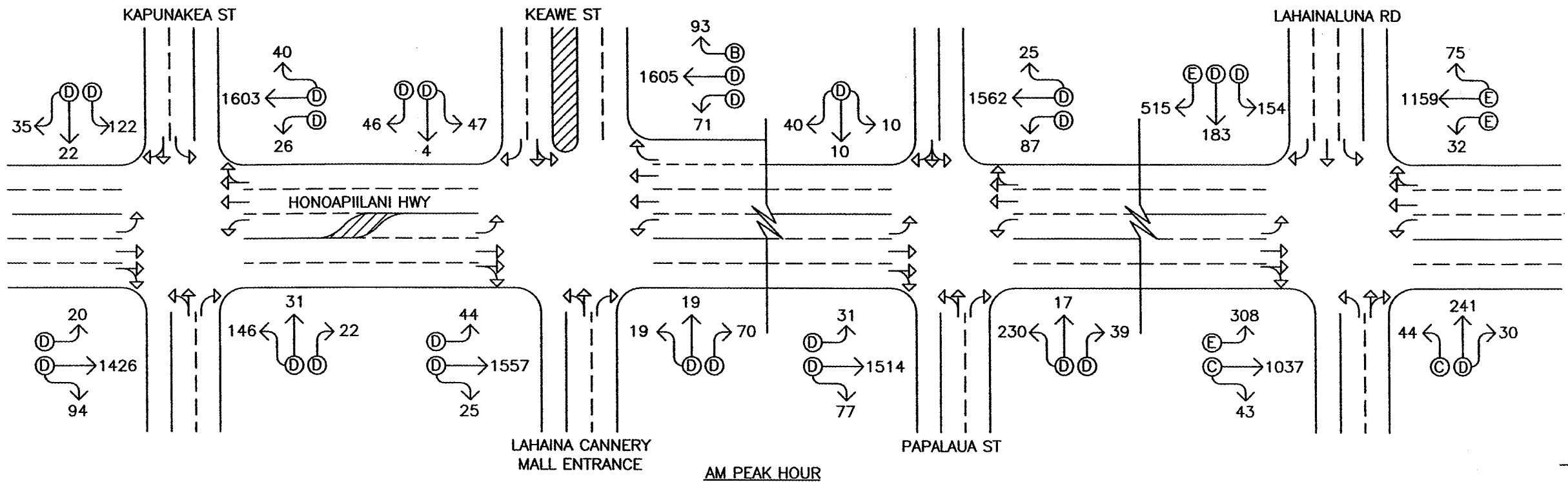
The cumulative AM and PM peak hour traffic conditions resulting from the projected external traffic and the proposed Kahoma Residential Development are shown on Figure 6. The cumulative volumes consist of site-generated traffic superimposed over projected Year 2011 traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2011 cumulative AM and PM peak hour traffic conditions with the Kahoma Residential Development are summarized in Table 4. The existing and projected Year 2011 without project levels of service are included for comparison purposes. LOS calculations are included in Appendix E.

Table 4: Existing and Projected (Without and With Project) Levels of Service

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2011		Exist	Year 2011	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D	D	D
	Westbound	LT	D	D	D	D	E	E
	Northbound	LT	D	D	D	D	E	E
	Southbound	LT	D	D	D	D	E	E
		TH-RT	D	D	D	D	E	E
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	Eastbound	LT-TH	D	D	D	D	D	D
		RT	D	D	D	D	E	E
	Westbound	LT-TH	D	D	D	D	D	D
		RT	D	D	D	D	D	D
	Northbound	LT	D	D	D	D	E	E
	Southbound	TH-RT	D	D	D	D	E	E
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	D	D	E	E
	Westbound	LT-TH-RT	D	D	D	D	E	E
	Northbound	LT	D	D	D	D	E	E
	Southbound	TH-RT	D	D	D	D	E	E



LEGEND

90 → TRAFFIC MOVEMENT VOLUME (VPH)

↔ LANE USAGE

Ⓐ LANE GROUP LEVEL OF SERVICE



KAHOMA RESIDENTIAL DEVELOPMENT

YEAR 2011 AM AND PM PEAK HOURS OF TRAFFIC WITH PROJECT

FIGURE

6

Table 4: Existing and Projected (Without and With Project) Levels of Service (Cont'd)

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2011		Exist	Year 2011	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D	D	D
		RT	D	E	E	D	D	D
	Northbound	TH-RT	D	E	E	D	D	D
	Southbound	LT	D	E	E	D	D	D

Traffic operations in the vicinity of the proposed project are expected to remain similar to Year 2011 without project conditions. The critical movements at all of the study intersections are anticipated to continue operating at levels of service similar to without project conditions. Low levels of service are anticipated for the critical movements at intersection of the highway with Lahainaluna Road during the AM peak period, as well as, at the other three study intersections during the PM peak period without and with the proposed project due to the high volume of turning traffic at Lahainaluna Road and through traffic along Honoapiilani Highway. However, there are future plans to extend Keawe Street and connect it to Lahainaluna Road to provide an alternate route between the residential neighborhoods mauka of the highway. This alternate route is anticipated to reduce traffic at the intersection of Honoapiilani Highway with Lahainaluna Road thereby improving operating conditions at this intersection, as well as, reduce through traffic along Honoapiilani Highway north of Lahainaluna Road alleviating congestion along this corridor. In conjunction with the extension, intersection modifications are anticipated at the intersection with Keawe Street to accommodate the anticipated increase in traffic at that intersection. The westbound approach of Keawe Street is expected to be modified to provide exclusive turning lanes and one through lane. The projected Year 2011 AM and PM peak hour traffic conditions with the proposed Kahoma Residential Development and the construction of the Keawe Street Extension are summarized in Table 5. The projected Year 2011 with project operating conditions without the extension is provided for comparison purposes. LOS calculations are included in Appendix F.

**Table 5: Projected Year 2011 With Project (Without and With the Extension)
Levels of Service**

Intersection	Critical Traffic Movement		AM		PM	
			w/out Ext	w/Ext	w/out Ext	w/Ext
Honoapiilani Hwy/ Kapunakea St	Eastbound	LT-TH	D	D	D	D
	Westbound	LT	D	D	E	E
	Northbound	LT	D	D	E	E
	Southbound	LT	D	D	E	E
TH-RT		D	D	E	E	
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy*	Eastbound	LT-TH	D	D	D	D
		RT	D	D	E	D
	Westbound	LT	D	D	D	D
		TH		D		D
		RT	D	D	D	D
	Northbound	LT	D	D	E	D
Southbound	TH-RT	D	D	E	D	
Honoapiilani Hwy/ Papalaua St	Eastbound	LT-TH	D	D	E	E
	Westbound	LT-TH-RT	D	D	E	E
	Northbound	LT	D	D	E	E
	Southbound	TH-RT	D	D	E	E
Honoapiilani Hwy/ Lahainaluna Rd	Westbound	LT	D	D	D	D
		RT	E	D	D	D
	Northbound	TH-RT	E	D	D	D
	Southbound	LT	E	D	D	D

*Intersection modifications implemented.

With the construction of the Keawe Street Extension, traffic operations at the study intersections along Honoapiilani Highway are expected, in general, to improve from without and with project (without extension) conditions. The most significant improvements are anticipated at the intersections of the highway with Keawe Street and Lahainaluna Road where the critical traffic movements are anticipated to operate at LOS "D" or better during both peak periods.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the proposed project to be incorporated during the design phase:

1. Maintain sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Maintain adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Maintain adequate on-site loading and off-loading services areas and prohibit off-site loading operations.

VII. CONCLUSION

The proposed Kahoma Residential Development is not expected to have a significant impact on traffic operations in the vicinity of the project site. The critical traffic movements at the study intersections are anticipated to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the intersections along Honoapiilani Highway are expected to increase by less than 2% during both peak periods of traffic with the proposed residential development. These increases in the total traffic volumes are in the range of daily volume fluctuations along the highway and represent a minimal increase in the overall traffic volumes. In addition, there are future plans to extend Keawe Street to provide an alternate route between the residential neighborhoods mauka of the highway thereby alleviating traffic conditions along the highway.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D4-3889, D4-3890
Counted: EK, ER
Weather: Clear

File Name : KapHonoAM
Site Code : 00000001
Start Date : 9/20/2007
Page No : 1

Start Time	Groups Printed- Unshifted															
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:15 AM	3	153	7	163	21	1	12	34	5	253	13	271	16	4	6	26
06:30 AM	1	141	10	152	13	3	14	30	3	273	10	286	18	5	5	28
06:45 AM	8	231	13	252	47	3	10	60	9	256	7	272	18	4	6	28
Total	12	525	30	567	81	7	36	124	17	782	30	829	52	13	17	82
07:00 AM	3	256	18	277	26	6	7	39	5	276	12	293	21	3	11	35
07:15 AM	6	289	18	313	48	8	6	62	9	255	4	268	33	13	6	52
07:30 AM	3	309	27	339	32	5	9	46	6	318	9	333	35	9	4	48
07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53
Total	20	1030	77	1127	122	22	35	179	26	1181	40	1247	135	31	22	188
08:00 AM	3	227	15	245	30	4	8	42	9	249	20	278	24	6	8	38
08:15 AM	9	223	31	263	31	4	6	41	9	214	12	235	28	5	6	39
Grand Total	44	2005	153	2202	264	37	85	386	61	2426	102	2589	239	55	53	347
Apprch %	2	91.1	6.9		68.4	9.6	22		2.4	93.7	3.9		68.9	15.9	15.3	
Total %	0.8	36.3	2.8	39.9	4.8	0.7	1.5	7	1.1	43.9	1.8	46.9	4.3	1	1	6.3

Start Time	Groups Printed- Unshifted															
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:15 AM	3	256	18	277	26	6	7	39	5	276	12	293	21	3	11	35
07:15 AM	6	289	18	313	48	8	6	62	9	255	4	268	33	13	6	52
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07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53
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07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53
Total	20	1030	77	1127	122	22	35	179	26	1181	40	1247	135	31	22	188
08:00 AM	3	227	15	245	30	4	8	42	9	249	20	278	24	6	8	38
08:15 AM	9	223	31	263	31	4	6	41	9	214	12	235	28	5	6	39
Grand Total	44	2005	153	2202	264	37	85	386	61	2426	102	2589	239	55	53	347
Apprch %	2	91.1	6.9		68.4	9.6	22		2.4	93.7	3.9		68.9	15.9	15.3	
Total %	0.8	36.3	2.8	39.9	4.8	0.7	1.5	7	1.1	43.9	1.8	46.9	4.3	1	1	6.3

Start Time	Groups Printed- Unshifted															
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
06:15 AM	3	256	18	277	26	6	7	39	5	276	12	293	21	3	11	35
07:15 AM	6	289	18	313	48	8	6	62	9	255	4	268	33	13	6	52
07:30 AM	3	309	27	339	32	5	9	46	6	318	9	333	35	9	4	48
07:45 AM	8	176	14	198	16	3	13	32	6	332	15	353	46	6	1	53
Total	20	1030	77	1127	122	22	35	179	26	1181	40	1247	135	31	22	188
08:00 AM	3	227	15	245	30	4	8	42	9	249	20	278	24	6	8	38
08:15 AM	9	223	31	263	31	4	6	41	9	214	12	235	28	5	6	39
Grand Total	44	2005	153	2202	264	37	85	386	61	2426	102	2589	239	55	53	347
Apprch %	2	91.1	6.9		68.4	9.6	22		2.4	93.7	3.9		68.9	15.9	15.3	
Total %	0.8	36.3	2.8	39.9	4.8	0.7	1.5	7	1.1	43.9	1.8	46.9	4.3	1	1	6.3

Start Time	Groups Printed- Unshifted															
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3889, D4-3890
 Counted: EK, ER
 Clear

File Name : KapHonoPM
 Site Code : 00000001
 Start Date : 9/20/2007
 Page No : 1

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Kapunakea Street Westbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	3	303	20	326	23	7	5	35	12	278	20	310	43	14	9	66	737
03:15 PM	10	349	33	392	31	8	6	45	16	288	17	321	37	11	9	57	815
03:30 PM	12	354	25	391	47	10	14	71	16	295	28	339	40	14	7	61	862
03:45 PM	5	307	20	332	29	7	10	46	13	299	26	338	47	10	6	63	779
Total	30	1313	98	1441	130	32	35	197	57	1160	91	1308	167	49	31	247	3193
04:00 PM	15	396	38	449	21	12	8	41	10	281	21	312	28	13	10	51	853
04:15 PM	7	310	36	353	35	8	12	55	15	264	31	310	51	10	9	70	788
04:30 PM	5	322	25	352	31	7	9	47	12	284	24	320	37	10	12	59	778
04:45 PM	10	262	31	303	33	3	16	52	15	295	27	337	42	15	6	63	755
Total	37	1290	130	1457	120	30	45	195	52	1124	103	1279	158	48	37	243	3174
05:00 PM	13	264	36	313	20	11	10	41	13	268	31	312	45	16	8	69	735
05:15 PM	9	255	40	304	33	6	9	48	20	238	33	291	31	8	11	50	693
05:30 PM	7	273	35	315	28	11	8	47	12	239	23	274	32	12	2	46	682
05:45 PM	3	237	31	271	22	8	7	37	12	195	14	221	43	11	2	56	585
Total	32	1029	142	1203	103	36	34	173	57	940	101	1098	151	47	23	221	2695
Grand Total	99	3632	370	4101	353	98	114	565	166	3224	295	3685	476	144	91	711	9062
Apprch %	2.4	88.6	9		62.5	17.3	20.2		4.5	87.5	8		66.9	20.3	12.8		
Total %	1.1	40.1	4.1	45.3	3.9	1.1	1.3	6.2	1.8	35.6	3.3	40.7	5.3	1.6	1	7.8	

Start Time	Honoapiilani Highway Southbound												Honoapiilani Highway Northbound											
	Kapunakea Street Westbound				Honoapiilani Highway Southbound				Kapunakea Street Eastbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound							
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total							
03:15 PM	10	349	33	392	31	8	6	45	16	288	17	321	37	11	9	57	815							
03:30 PM	12	354	25	391	47	10	14	71	16	295	28	339	40	14	7	61	862							
03:45 PM	5	307	20	332	29	7	10	46	13	299	26	338	47	10	6	63	779							
Total	30	1313	98	1441	130	32	35	197	57	1160	91	1308	167	49	31	247	3193							
04:00 PM	15	396	38	449	21	12	8	41	10	281	21	312	28	13	10	51	853							
04:15 PM	7	310	36	353	35	8	12	55	15	264	31	310	51	10	9	70	788							
04:30 PM	5	322	25	352	31	7	9	47	12	284	24	320	37	10	12	59	778							
04:45 PM	10	262	31	303	33	3	16	52	15	295	27	337	42	15	6	63	755							
Total	37	1290	130	1457	120	30	45	195	52	1124	103	1279	158	48	37	243	3174							
05:00 PM	13	264	36	313	20	11	10	41	13	268	31	312	45	16	8	69	735							
05:15 PM	9	255	40	304	33	6	9	48	20	238	33	291	31	8	11	50	693							
05:30 PM	7	273	35	315	28	11	8	47	12	239	23	274	32	12	2	46	682							
05:45 PM	3	237	31	271	22	8	7	37	12	195	14	221	43	11	2	56	585							
Total	32	1029	142	1203	103	36	34	173	57	940	101	1098	151	47	23	221	2695							
Grand Total	99	3632	370	4101	353	98	114	565	166	3224	295	3685	476	144	91	711	9062							
Apprch %	2.4	88.6	9		62.5	17.3	20.2		4.5	87.5	8		66.9	20.3	12.8									
Total %	1.1	40.1	4.1	45.3	3.9	1.1	1.3	6.2	1.8	35.6	3.3	40.7	5.3	1.6	1	7.8								

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:15 PM

Start Time	Honoapiilani Highway Southbound												Honoapiilani Highway Northbound											
	Kapunakea Street Westbound				Honoapiilani Highway Southbound				Kapunakea Street Eastbound				Honoapiilani Highway Northbound				Kapunakea Street Eastbound							
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total							
03:15 PM	10	349	33	392	31	8	6	45	16	288	17	321	37	11	9	57	815							
03:30 PM	12	354	25	391	47	10	14	71	16	295	28	339	40	14	7	61	862							
03:45 PM	5	307	20	332	29	7	10	46	13	299	26	338	47	10	6	63	779							
04:00 PM	15	396	38	449	21	12	8	41	10	281	21	312	28	13	10	51	853							
Total	42	1406	116	1564	128	37	38	203	55	1163	92	1310	152	48	32	232	3309							
% App. Total	2.7	89.9	7.4		63.1	18.2	18.7		4.2	88.8	7		65.5	20.7	13.8									
PHF	.700	.888	.763	.871	.681	.771	.679	.715	.859	.972	.821	.966	.809	.857	.800	.921	.960							

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3888
Counted:TO
Weather:Clear

File Name : KeaHonoAM
Site Code : 00000001
Start Date : 9/20/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound			Keawe Street Westbound			Honoapiilani Highway Northbound			Keawe Street Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
06:15 AM	8	168	3	2	2	12	9	258	18	1	2	5	8	488
06:30 AM	5	169	3	5	0	3	8	282	21	1	0	8	9	505
06:45 AM	10	244	4	4	1	11	14	257	24	4	2	8	14	583
Total	23	581	10	11	3	26	31	797	63	6	4	21	31	1576
07:00 AM	8	279	7	5	0	2	14	288	16	3	0	12	15	634
07:15 AM	10	323	6	7	0	7	14	257	26	4	4	16	24	674
07:30 AM	8	341	8	9	1	8	12	321	16	4	4	13	21	745
07:45 AM	13	215	4	11	3	12	14	333	30	8	11	18	37	672
Total	39	1158	25	32	4	29	54	1199	88	19	19	59	97	2725
08:00 AM	12	247	10	11	2	9	15	266	26	3	5	26	34	632
08:15 AM	17	239	11	11	4	13	15	217	20	5	6	15	26	573
Grand Total	91	2225	56	65	13	77	115	2479	197	33	34	121	188	5506
Approch %	3.8	93.8	2.4	41.9	8.4	49.7	4.1	88.8	7.1	17.6	18.1	64.4	3.4	
Total %	1.7	40.4	1	1.2	0.2	1.4	2.1	45	3.6	0.6	0.6	2.2		

Start Time	Honoapiilani Highway Southbound			Keawe Street Westbound			Honoapiilani Highway Northbound			Keawe Street Eastbound			Int. Total	
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
07:00 AM	8	279	7	5	0	2	14	288	16	3	0	12	15	634
07:15 AM	10	323	6	7	0	7	14	257	26	4	4	16	24	674
07:30 AM	8	341	8	9	1	8	12	321	16	4	4	13	21	745
07:45 AM	13	215	4	11	3	12	14	333	30	8	11	18	37	672
Total Volume	39	1158	25	32	4	29	54	1199	88	19	19	59	97	2725
% App. Total	3.2	94.8	2	49.2	6.2	44.6	4	89.4	6.6	19.6	19.6	60.8		
PHF	.750	.849	.781	.727	.333	.604	.964	.900	.733	.594	.432	.819	.655	.914

Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter:D4-3888
 Counted:TO
 Weather:Clear

File Name : KeaHonoPM
 Site Code : 00000001
 Start Date : 9/20/2007
 Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound						Keawe Street Westbound						Honoapiilani Highway Northbound						Keawe Street Eastbound						
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
03:00 PM	9	300	18	327	31	6	15	52	30	305	8	343	20	3	33	56	778								
03:15 PM	16	359	6	381	17	1	13	31	29	281	4	314	17	2	43	62	788								
03:30 PM	10	354	14	378	22	2	12	36	43	337	10	390	42	1	34	77	881								
03:45 PM	7	298	25	330	18	5	10	33	19	288	10	317	34	4	38	76	756								
Total	42	1311	63	1416	88	14	50	152	121	1211	32	1364	113	10	148	271	3203								
04:00 PM	15	396	11	422	6	5	5	16	39	418	7	464	26	1	39	66	968								
04:15 PM	6	321	4	331	20	2	6	28	30	320	9	359	27	2	41	70	788								
04:30 PM	5	331	17	353	22	5	11	38	32	318	1	351	23	2	35	60	802								
04:45 PM	8	266	17	291	12	0	13	25	40	268	2	310	22	0	28	50	676								
Total	34	1314	49	1397	60	12	35	107	141	1324	19	1484	98	5	143	246	3234								
05:00 PM	6	249	18	273	17	4	14	35	20	270	6	296	29	1	33	63	667								
05:15 PM	5	270	14	289	13	2	8	23	31	275	3	309	21	0	41	62	683								
05:30 PM	2	279	16	297	15	0	7	22	32	291	5	328	17	2	25	44	691								
05:45 PM	3	243	11	257	5	0	6	11	26	253	4	283	12	0	31	43	594								
Total	16	1041	59	1116	50	6	35	91	109	1089	18	1216	79	3	130	212	2635								
Grand Total	92	3666	171	3929	198	32	120	350	371	3624	69	4064	290	18	421	729	9072								
Approch %	2.3	93.3	4.4	43.3	56.6	9.1	34.3	3.9	9.1	89.2	1.7	44.8	39.8	2.5	57.8	8									
Total %	1	40.4	1.9	43.3	2.2	0.4	1.3	3.9	4.1	39.9	0.8	44.8	3.2	0.2	4.6	8									

Start Time	Honoapiilani Highway Southbound						Keawe Street Westbound						Honoapiilani Highway Northbound						Keawe Street Eastbound					
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	
03:15 PM	16	359	6	381	17	1	13	31	29	281	4	314	17	2	43	62	788							
03:30 PM	10	354	14	378	22	2	12	36	43	337	10	390	42	1	34	77	881							
03:45 PM	7	298	25	330	18	5	10	33	19	288	10	317	34	4	38	76	756							
Total Volume	48	1407	56	1511	63	13	40	116	130	1324	31	1485	119	8	154	281	3393							
% App. Total	3.2	93.1	3.7	43.3	54.3	11.2	34.5	3.9	8.8	89.2	2.1	44.8	42.3	2.8	54.8	8								
PHF	.750	.888	.560	.895	.716	.650	.769	.806	.756	.792	.775	.800	.708	.500	.895	.912	.876							

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:15 PM

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D4-3889

Counted: ER

Weather: Clear

File Name : HonoPap AM
Site Code : 00000002
Start Date : 9/13/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
06:15 AM	1	0	12	13	0	3	2	5	10	0	0	0	10	37	0	7	44	72
06:30 AM	1	0	20	21	1	0	1	2	13	0	2	2	15	33	3	10	46	84
06:45 AM	2	0	25	27	1	1	2	4	14	0	5	5	19	40	3	4	47	97
Total	4	0	57	61	2	4	5	11	37	0	7	7	44	110	6	21	137	253
07:00 AM	4	0	19	23	2	2	6	10	21	0	6	6	27	50	4	13	67	127
07:15 AM	6	0	26	32	2	2	9	13	15	0	3	3	18	55	6	5	66	129
07:30 AM	9	0	17	26	4	4	12	20	19	0	9	9	28	64	1	8	73	147
07:45 AM	12	0	15	27	2	2	13	17	32	0	7	7	39	61	6	13	80	163
Total	31	0	77	108	10	10	40	60	87	0	25	25	112	230	17	39	286	566
08:00 AM	12	0	27	39	6	2	6	14	25	0	5	5	30	44	3	14	61	144
08:15 AM	12	0	22	34	5	6	5	16	23	0	6	6	29	44	4	18	66	145
Grand Total	59	0	183	242	23	22	56	101	172	0	43	43	215	428	30	92	550	1108
Apprch %	24.4	0	75.6	21.8	22.8	21.8	55.4	9.1	80	0	20	20	19.4	77.8	5.5	16.7	80	163
Total %	5.3	0	16.5	21.8	2.1	2	5.1	9.1	15.5	0	3.9	3.9	19.4	38.6	2.7	8.3	49.6	566

Start Time	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound					
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1																		
Peak Hour for Entire Intersection Begins at 07:30 AM																		
07:30 AM	9	0	17	26	4	4	12	20	19	0	9	9	28	64	1	8	73	147
07:45 AM	12	0	15	27	2	2	13	17	32	0	7	7	39	61	6	13	80	163
08:00 AM	12	0	27	39	6	2	6	14	25	0	5	5	30	44	3	14	61	144
08:15 AM	12	0	22	34	5	6	5	16	23	0	6	6	29	44	4	18	66	145
Total Volume	45	0	81	126	17	14	36	67	99	0	27	27	126	213	14	53	280	599
% App. Total	35.7	0	64.3	80.8	25.4	20.9	53.7	83.8	78.6	0	21.4	21.4	80.8	76.1	5	18.9	87.5	919
PHF	.938	.000	.750	.808	.708	.583	.692	.838	.773	.000	.750	.750	.808	.832	.583	.736	.875	.919

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : HonoPap PM
 Site Code : 00000002
 Start Date : 9/13/2007
 Page No : 1

Counter:D4-3889
 Counted:ER
 Weather:Clear

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	11	0	19	30	4	7	14	25	20	0	2	22	69	5	26	100	177
03:15 PM	12	0	48	60	4	7	10	21	24	0	9	33	50	7	27	84	198
03:30 PM	5	0	50	55	4	11	14	29	26	0	1	27	58	6	22	86	197
03:45 PM	15	0	47	62	4	5	9	18	31	0	8	39	65	5	25	95	214
Total	43	0	164	207	16	30	47	93	101	0	20	121	242	23	100	365	786
04:00 PM	13	0	50	63	5	6	18	29	11	0	7	18	61	5	23	89	199
04:15 PM	5	0	34	39	7	9	12	28	18	0	5	23	65	6	21	92	182
04:30 PM	8	0	40	48	8	9	8	25	18	0	5	23	60	3	16	79	175
04:45 PM	11	0	66	77	6	5	13	24	8	0	6	14	42	0	23	65	180
Total	37	0	190	227	26	29	51	106	55	0	23	78	228	14	83	325	736
05:00 PM	6	0	57	63	14	3	7	24	22	0	4	26	69	6	30	105	218
05:15 PM	4	0	53	57	4	4	11	19	16	0	8	24	59	2	21	82	182
05:30 PM	5	0	67	72	4	4	3	11	15	0	3	18	53	2	17	72	173
05:45 PM	3	0	58	61	4	4	8	16	17	0	6	23	50	7	15	72	172
Total	18	0	235	253	26	15	29	70	70	0	21	91	231	17	83	331	745
Grand Total	98	0	589	687	68	74	127	269	226	0	64	290	701	54	266	1021	2267
Approach %	14.3	0	85.7	30.3	25.3	27.5	47.2	11.9	77.9	0	22.1	12.8	68.7	5.3	26.1	45	
Total %	4.3	0	26		3	3.3	5.6		10	0	2.8		30.9	2.4	11.7		

Start Time	Groups Printed- Unshifted																
	Honoapiilani Highway Southbound				Papalaua Street Westbound				Honoapiilani Highway Northbound				Papalaua Street Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	12	0	48	60	4	7	10	21	24	0	9	33	50	7	27	84	198
03:15 PM	5	0	50	55	4	11	14	29	26	0	1	27	58	6	22	86	197
03:30 PM	15	0	47	62	4	5	9	18	31	0	8	39	65	5	25	95	214
03:45 PM	13	0	50	63	5	6	18	29	11	0	7	18	61	5	23	89	199
Total Volume	45	0	195	240	17	29	51	97	92	0	25	117	234	23	97	354	808
% App. Total	18.8	0	81.2	30.3	17.5	29.9	52.6	11.9	78.6	0	21.4	12.8	66.1	6.5	27.4	45	
PHF	.750	.000	.975	.952	.850	.659	.708	.836	.742	.000	.694	.750	.900	.821	.898	.932	.944

WILSON OKAMOTO CORPORATION

1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D4-3888, D4-3891

Counted:ZW, EK

Weather:Clear

File Name : HonoLah AM
Site Code : 00000001
Start Date : 9/13/2007
Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound						Lahainaluna Road Westbound						Honoapiilani Highway Northbound						Lahainaluna Road Eastbound															
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		App. Total		Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
06:15 AM	20	110	5	135	27	27	49	103	12	176	10	198	13	45	2	60	496																	
06:30 AM	19	83	7	109	24	26	85	135	14	217	15	246	4	18	7	29	519																	
06:45 AM	62	112	10	184	21	38	90	149	15	195	28	238	17	34	1	52	623																	
Total	101	305	22	428	72	91	224	387	41	588	53	692	34	97	10	141	1638																	
07:00 AM	86	125	4	215	33	44	115	192	7	172	19	198	19	71	14	104	709																	
07:15 AM	105	214	8	327	33	53	119	205	9	202	18	229	6	64	4	74	835																	
07:30 AM	73	196	4	273	44	47	143	234	7	175	23	205	11	68	6	85	797																	
07:45 AM	41	136	3	180	33	39	114	186	9	233	11	253	8	38	6	52	671																	
Total	305	671	19	995	143	183	491	817	32	782	71	885	44	241	30	315	3012																	
08:00 AM	33	92	7	132	35	43	82	160	12	154	9	175	9	10	5	24	491																	
08:15 AM	42	146	7	195	16	25	47	88	14	171	10	195	8	33	4	45	523																	
Grand Total	481	1214	55	1750	266	342	844	1452	99	1695	143	1937	95	381	49	525	5664																	
Apprch %	27.5	69.4	3.1	30.9	18.3	23.6	58.1	25.6	5.1	87.5	7.4	34.2	18.1	72.6	9.3	9.3																		
Total %	8.5	21.4	1		4.7	6	14.9		1.7	29.9	2.5		1.7	6.7	0.9																			

Start Time	Honoapiilani Highway Southbound						Lahainaluna Road Westbound						Honoapiilani Highway Northbound						Lahainaluna Road Eastbound															
	Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		Left		Thru		Right		App. Total		Int. Total	
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total	
07:00 AM	86	125	4	215	33	44	115	192	7	172	19	198	19	71	14	104	709																	
07:15 AM	105	214	8	327	33	53	119	205	9	202	18	229	6	64	4	74	835																	
07:30 AM	73	196	4	273	44	47	143	234	7	175	23	205	11	68	6	85	797																	
07:45 AM	41	136	3	180	33	39	114	186	9	233	11	253	8	38	6	52	671																	
Total Volume	305	671	19	995	143	183	491	817	32	782	71	885	44	241	30	315	3012																	
% App. Total	30.7	67.4	1.9		17.5	22.4	60.1		3.6	88.4	8		14	76.5	9.5		.902																	
PHF	.726	.784	.594	.761	.813	.863	.858	.873	.889	.839	.772	.875	.579	.849	.536	.757																		

Peak Hour Analysis From 06:15 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 07:00 AM

WILSON OKAMOTO CORPORATION
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3888, D4-3891
 Counted: ZW, EK
 Weather: Clear

File Name : HonoLah PM
 Site Code : 00000001
 Start Date : 9/13/2007
 Page No : 1

Groups Printed- Unshifted

Start Time	Honoapiilani Highway Southbound				Lahainaluna Road Westbound				Honoapiilani Highway Northbound				Lahainaluna Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	62	180	4	246	27	39	56	122	15	190	11	216	37	41	13	91	675
03:15 PM	79	184	5	268	31	32	60	123	15	218	7	240	24	46	15	85	716
03:30 PM	36	178	7	221	24	22	69	115	17	221	9	247	15	41	7	63	646
03:45 PM	70	185	8	263	28	39	72	139	8	197	20	225	19	20	12	51	678
Total	247	727	24	998	110	132	257	499	55	826	47	928	95	148	47	290	2715
04:00 PM	69	112	6	187	14	35	65	114	9	225	9	243	22	38	6	66	610
04:15 PM	80	146	8	234	24	25	50	99	4	218	13	235	19	63	4	86	654
04:30 PM	68	173	5	246	22	38	70	130	18	188	17	223	13	52	2	67	666
04:45 PM	76	176	8	260	30	34	57	121	6	220	13	239	16	55	4	75	695
Total	293	607	27	927	90	132	242	464	37	851	52	940	70	208	16	294	2625
05:00 PM	56	137	6	199	20	31	50	101	18	223	13	254	18	40	5	63	617
05:15 PM	69	159	2	230	23	36	48	107	10	201	11	222	11	33	5	49	608
05:30 PM	34	155	2	191	14	29	50	93	13	172	13	198	19	47	7	73	555
05:45 PM	31	91	3	125	16	33	43	92	11	160	12	183	18	28	6	52	452
Total	190	542	13	745	73	129	191	393	52	756	49	857	66	148	23	237	2232
Grand Total	730	1876	64	2670	273	393	690	1356	144	2433	148	2725	231	504	86	821	7572
Approch %	27.3	70.3	2.4	35.3	20.1	29	50.9	17.9	5.3	89.3	5.4	36	28.1	61.4	10.5	10.8	
Total %	9.6	24.8	0.8		3.6	5.2	9.1		1.9	32.1	2		3.1	6.7	1.1		

Start Time	Honoapiilani Highway Southbound				Lahainaluna Road Westbound				Honoapiilani Highway Northbound				Lahainaluna Road Eastbound				
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	62	180	4	246	27	39	56	122	15	190	11	216	37	41	13	91	675
03:15 PM	79	184	5	268	31	32	60	123	15	218	7	240	24	46	15	85	716
03:30 PM	36	178	7	221	24	22	69	115	17	221	9	247	15	41	7	63	646
03:45 PM	70	185	8	263	28	39	72	139	8	197	20	225	19	20	12	51	678
Total Volume	247	727	24	998	110	132	257	499	55	826	47	928	95	148	47	290	2715
% App. Total	24.7	72.8	2.4	35.3	22	26.5	51.5	17.9	5.9	89	5.1	36	32.8	51	16.2	10.8	
PHF	.782	.982	.750	.931	.887	.846	.892	.897	.809	.934	.588	.939	.642	.804	.783	.797	.948

Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 03:00 PM

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: 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 depends 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.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

APPENDIX C

**CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	135	31	22	122	22	35	26	1181	40	20	1030	77
Lane Width	12.0		12.0	12.0		12.0	12.0		12.0	12.0		12.0
RTOR Vol	2			4			4			8		

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	39.0				27.0		54.0	
Yellow	4.0				4.0		4.0	
All Red	1.0				1.0		1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	385	1333	0.49	0.29	40.7	D	40.0	D
R	457	1583	0.05	0.29	34.7	C		
Westbound								
L	290	1004	0.58	0.29	44.1	D		
TR	491	1700	0.15	0.29	35.8	D	41.6	D
Northbound								
L	391	1956	0.08	0.20	44.0	D		
TR	1561	3903	0.89	0.40	44.8	D	44.7	D
Southbound								
L	391	1956	0.06	0.20	43.8	D		
TR	1553	3883	0.85	0.40	41.9	D	42.0	D

Intersection Delay = 43.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	152	48	32	128	37	38	55	1163	92	42	1406	116
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			3			4			9			12

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		38.0				19.0	63.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1310	0.59	0.28	44.2	D	43.1	D
R	446	1583	0.07	0.28	35.6	D		
Westbound								
L	255	906	0.70	0.28	51.9	D		
TR	487	1729	0.20	0.28	37.1	D	46.6	D
Northbound								
L	275	1956	0.21	0.14	51.7	D		
TR	1811	3881	0.71	0.47	30.0	C	31.0	C
Southbound								
L	275	1956	0.17	0.14	51.4	D		
TR	1810	3879	0.96	0.47	52.4	D	52.4	D

Intersection Delay = 43.4 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	19	19	59	32	4	29	54	1199	88	39	1158	25
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			6			3			9			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		33.0				31.5	55.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT	390	1597	0.15	0.24	40.2	D	40.6	D
R	387	1583	0.21	0.24	40.9	D		

Westbound

LT	334	1368	0.17	0.24	40.5	D	40.1	D
R	387	1583	0.11	0.24	39.7	D		

Northbound

L	456	1956	0.13	0.23	41.1	D		
T	1612	3920	0.84	0.41	39.8	D	39.0	D
R	719	1750	0.12	0.41	24.7	C		

Southbound

L	456	1956	0.10	0.23	40.7	D		
TR	1607	3909	0.85	0.41	41.1	D	41.1	D

Intersection Delay = 40.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	119	8	154	63	13	40	130	1324	31	48	1407	56
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			15			4			3			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	31.0				28.0	61.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
LT	281	1223	0.50	0.23	46.6	D	45.8	D
R	364	1583	0.42	0.23	45.1	D		
Westbound								
LT	251	1095	0.37	0.23	44.8	D	43.7	D
R	364	1583	0.12	0.23	41.4	D		
Northbound								
L	406	1956	0.40	0.21	46.9	D		
T	1771	3920	0.93	0.45	46.9	D	46.4	D
R	791	1750	0.04	0.45	20.7	C		
Southbound								
L	406	1956	0.13	0.21	43.7	D		
TR	1762	3900	0.92	0.45	44.2	D	44.2	D

Intersection Delay = 45.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1138	25	31	1093	77
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			4			4			3			8

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		25.0	12.0			25.5	57.5	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	416	1780	0.67	0.27	47.9	D	46.5	D
R	434	1583	0.09	0.27	36.6	D		
Westbound								
LTR	234	1264	0.29	0.19	48.0	D	48.0	D
Northbound								
L	369	1956	0.27	0.19	47.2	D		
TR	1665	3909	0.79	0.43	36.3	D	37.1	D
Southbound								
L	369	1956	0.11	0.19	45.5	D		
TR	1655	3885	0.92	0.43	47.5	D	47.4	D

Intersection Delay = 43.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1127	20	43	1266	164
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			10			5			2			16

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	27.0	12.0			23.5	57.5		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	407	1781	0.70	0.29	48.2	D	45.3	D
R	457	1583	0.21	0.29	36.6	D		
Westbound								
LTR	242	1212	0.43	0.20	48.6	D	48.6	D
Northbound								
L	340	1956	0.31	0.17	49.2	D		
TR	1666	3911	0.73	0.43	34.0	C	35.2	D
Southbound								
L	340	1956	0.14	0.17	47.3	D		
TR	1643	3858	0.93	0.43	47.8	D	47.7	D

Intersection Delay = 42.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	TR		L	TR		L	TR	
Volume	44	241	30	143	183	491	32	782	71	305	671	19
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			123			7			2

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru					Thru		A	
Right					Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru					Thru		A	A
Right					Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	44.0			17.0	19.0	40.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	386	1770	0.15	0.40	25.9	C		
TR	598	1834	0.59	0.33	39.5	D	37.6	D
Westbound								
L	269	1770	0.61	0.40	43.6	D		
T	607	1863	0.35	0.33	34.9	C	46.2	D
R	516	1583	0.82	0.33	52.9	D		
Northbound								
L	246	1956	0.15	0.13	52.8	D		
TR	1148	3875	0.84	0.30	50.4	D	50.5	D
Southbound								
L	522	1956	0.77	0.27	52.8	D		
TR	1707	3906	0.53	0.44	28.2	C	35.7	D

Intersection Delay = 42.5 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	110	132	257	55	826	47	247	727	24
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			64			5			2

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	5.0	38.0			30.0	8.0	44.0	
Yellow	0.0	4.0			0.0	0.0	4.0	
All Red	0.0	1.0			0.0	0.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	381	1770	0.31	0.36	33.5	C		
TR	507	1801	0.47	0.28	40.8	D	38.4	D
Westbound								
L	305	1770	0.40	0.36	36.8	D		
T	524	1863	0.28	0.28	38.1	D	39.1	D
R	446	1583	0.48	0.28	41.1	D		
Northbound								
L	435	1956	0.14	0.22	42.2	D		
TR	1268	3891	0.73	0.33	42.4	D	42.4	D
Southbound								
L	551	1956	0.48	0.28	41.0	D		
TR	1503	3902	0.54	0.39	32.5	C	34.6	C

Intersection Delay = 38.5 (sec/veh) Intersection LOS = D

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	146	31	22	122	22	35	26	1575	40	20	1418	94
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			2			4			4			10

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	36.0				19.0	65.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	355	1332	0.55	0.27	44.4	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.64	0.27	49.5	D		
TR	453	1699	0.15	0.27	38.0	D	46.1	D
Northbound								
L	275	1956	0.11	0.14	50.8	D		
TR	1881	3907	0.95	0.48	48.4	D	48.4	D
Southbound								
L	275	1956	0.08	0.14	50.5	D		
TR	1872	3887	0.89	0.48	38.2	D	38.3	D

Intersection Delay = 43.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig	LT R			L TR			L TR			L TR		
Volume	222	48	32	128	37	38	55	1655	92	42	1854	197
Lane Width	12.0		12.0	12.0		12.0	12.0		12.0	12.0		12.0
RTOR Vol	3			4			9			20		

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.5					7.0	74.5	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	101	1956	0.54	0.05	68.6	E		
TR	2148	3892	0.81	0.55	27.0	C	28.2	C
Southbound								
L	101	1956	0.44	0.05	65.1	E		
TR	2135	3869	1.00	0.55	70.5	E	70.4	E

Intersection Delay = 52.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	19	19	70	32	4	29	71	1594	88	39	1554	25
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			3			9			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	28.0				27.0	65.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	329	1588	0.18	0.21	44.3	D	45.1	D
R	328	1583	0.29	0.21	45.6	D		
Westbound								
LT	281	1354	0.20	0.21	44.6	D	44.2	D
R	328	1583	0.13	0.21	43.7	D		
Northbound								
L	391	1956	0.20	0.20	45.3	D		
T	1887	3920	0.94	0.48	45.0	D	43.8	D
R	843	1750	0.10	0.48	19.2	B		
Southbound								
L	391	1956	0.11	0.20	44.3	D		
TR	1884	3912	0.93	0.48	43.2	D	43.2	D

Intersection Delay = 43.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	119	8	237	63	13	40	198	1826	31	48	1855	56
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			4			3			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		28.0				21.5	70.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	252	1213	0.56	0.21	50.7	D	54.8	D
R	328	1583	0.71	0.21	57.2	E		
Westbound								
LT	222	1068	0.42	0.21	47.8	D	46.5	D
R	328	1583	0.13	0.21	43.8	D		
Northbound								
L	312	1956	0.67	0.16	58.9	E		
T	2047	3920	0.94	0.52	41.3	D	42.7	D
R	914	1750	0.03	0.52	15.7	B		
Southbound								
L	312	1956	0.16	0.16	49.2	D		
TR	2039	3904	0.98	0.52	58.8	E	58.6	E

Intersection Delay = 50.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1546	25	31	1496	77
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			4			4			3			8

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	24.0	11.0			21.5	63.5		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	393	1780	0.71	0.26	51.6	D	49.9	D
R	410	1583	0.10	0.26	38.1	D		
Westbound								
LTR	210	1184	0.32	0.18	49.3	D	49.3	D
Northbound								
L	312	1956	0.31	0.16	50.8	D		
TR	1840	3912	0.95	0.47	48.1	D	48.2	D
Southbound								
L	312	1956	0.11	0.16	48.7	D		
TR	1832	3894	0.95	0.47	48.8	D	48.8	D

Intersection Delay = 48.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1684	20	43	1788	164
Lane Width	12.0		12.0	12.0			12.0	12.0		12.0	12.0	
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		23.0	11.0			14.0	72.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	353	1781	0.81	0.25	61.8	E	56.4	E
R	399	1583	0.24	0.25	40.6	D		
Westbound								
LTR	159	932	0.66	0.17	62.5	E	62.5	E
Northbound								
L	203	1956	0.52	0.10	59.8	E		
TR	2087	3914	0.86	0.53	31.1	C	32.7	C
Southbound								
L	203	1956	0.22	0.10	56.1	E		
TR	2067	3875	0.99	0.53	59.3	E	59.2	E

Intersection Delay = 47.8 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	143	183	504	32	1154	71	305	1022	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			126			7			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru		A			Thru		A	A
Right		A			Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	5.0	42.0			9.0	20.0	49.0	
Yellow	0.0	4.0			0.0	0.0	4.0	
All Red	0.0	1.0			0.0	0.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	366	1770	0.16	0.39	27.2	C		
TR	571	1834	0.62	0.31	41.7	D	39.7	D
Westbound								
L	251	1770	0.65	0.39	47.8	D		
T	580	1863	0.36	0.31	36.5	D	53.9	D
R	492	1583	0.88	0.31	64.5	E		
Northbound								
L	130	1956	0.28	0.07	61.1	E		
TR	1412	3889	0.96	0.36	63.3	E	63.2	E
Southbound								
L	420	1956	0.81	0.21	62.5	E		
TR	1993	3899	0.59	0.51	23.6	C	32.3	C

Intersection Delay = 47.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/out proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	110	132	285	55	1336	47	247	1192	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			71			5			5

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	33.5			24.0	7.5	55.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	336	1770	0.35	0.32	37.4	D		
TR	447	1801	0.53	0.25	45.1	D	42.6	D
Westbound								
L	261	1770	0.47	0.32	41.5	D		
T	462	1863	0.32	0.25	41.8	D	44.4	D
R	393	1583	0.61	0.25	47.6	D		
Northbound								
L	348	1956	0.17	0.18	47.3	D		
TR	1590	3902	0.91	0.41	47.3	D	47.3	D
Southbound								
L	456	1956	0.57	0.23	47.5	D		
TR	1806	3901	0.72	0.46	30.6	C	33.4	C

Intersection Delay = 41.0 (sec/veh) Intersection LOS = D

APPENDIX E

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	146	31	22	122	22	35	26	1603	40	20	1426	94
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			2			4			4			10

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		36.0				18.0	66.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	354	1327	0.55	0.27	44.5	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.67	0.27	51.0	D		
TR	453	1700	0.16	0.27	38.1	D	47.1	D
Northbound								
L	261	1956	0.11	0.13	51.7	D		
TR	1910	3907	0.95	0.49	48.2	D	48.2	D
Southbound								
L	261	1956	0.08	0.13	51.4	D		
TR	1900	3887	0.88	0.49	36.7	D	36.9	D

Intersection Delay = 43.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	222	48	32	128	37	38	55	1668	92	42	1877	197
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			3			4			9			20

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	38.5				6.5	75.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	94	1956	0.59	0.05	72.3	E		
TR	2162	3892	0.81	0.56	26.7	C	28.1	C
Southbound								
L	94	1956	0.47	0.05	66.3	E		
TR	2149	3869	1.01	0.56	74.8	E	74.6	E

Intersection Delay = 54.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	19	19	70	47	4	46	71	1605	93	44	1557	25
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			5			9			3

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		28.0				27.0	65.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	326	1570	0.18	0.21	44.3	D	45.1	D
R	328	1583	0.29	0.21	45.6	D		
Westbound								
LT	270	1304	0.30	0.21	45.8	D	45.3	D
R	328	1583	0.20	0.21	44.5	D		
Northbound								
L	391	1956	0.20	0.20	45.3	D		
T	1887	3920	0.94	0.48	46.5	D	45.1	D
R	843	1750	0.11	0.48	19.2	B		
Southbound								
L	391	1956	0.13	0.20	44.5	D		
TR	1884	3912	0.93	0.48	43.5	D	43.5	D

Intersection Delay = 44.4 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	119	8	237	74	13	50	198	1829	47	66	1860	56
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			4			3			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		27.5				21.5	71.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	235	1156	0.60	0.20	52.9	D	56.5	E
R	322	1583	0.73	0.20	58.6	E		
Westbound								
LT	215	1054	0.50	0.20	49.5	D	47.8	D
R	322	1583	0.18	0.20	44.7	D		
Northbound								
L	312	1956	0.67	0.16	58.9	E		
T	2062	3920	0.93	0.53	39.9	D	41.2	D
R	920	1750	0.05	0.53	15.6	B		
Southbound								
L	312	1956	0.22	0.16	49.8	D		
TR	2054	3905	0.98	0.53	55.4	E	55.2	E

Intersection Delay = 48.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	230	17	39	10	10	40	87	1562	25	31	1514	77
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	4			4			3			8		

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A	A			NB Left	A		
Thru	A	A			Thru	A		
Right	A	A			Right	A		
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	24.0	11.0			21.0	64.0		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	393	1780	0.71	0.26	51.6	D	49.9	D
R	410	1583	0.10	0.26	38.1	D		
Westbound								
LTR	210	1184	0.32	0.18	49.3	D	49.3	D
Northbound								
L	304	1956	0.32	0.16	51.3	D		
TR	1855	3912	0.95	0.47	48.3	D	48.4	D
Southbound								
L	304	1956	0.11	0.16	49.1	D		
TR	1846	3894	0.95	0.47	49.5	D	49.5	D

Intersection Delay = 49.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	242	23	100	16	30	47	101	1703	20	43	1804	164
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			10			5			2			16

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A	A		NB Left	A		
Thru		A	A		Thru		A	
Right		A	A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	23.0	11.0			13.5	72.5		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	353	1781	0.81	0.25	61.8	E	56.4	E
R	399	1583	0.24	0.25	40.6	D		
Westbound								
LTR	159	932	0.66	0.17	62.5	E	62.5	E
Northbound								
L	196	1956	0.54	0.10	60.9	E		
TR	2102	3914	0.86	0.54	31.1	C	32.7	C
Southbound								
L	196	1956	0.23	0.10	56.6	E		
TR	2081	3875	0.99	0.54	60.0	E	59.9	E

Intersection Delay = 48.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	154	183	515	32	1159	75	308	1067	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			129			8			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A	A	
Thru			A		Thru		A	A
Right			A		Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	42.5			6.5	22.0	49.0
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	371	1770	0.16	0.39	26.8	C		
TR	577	1834	0.61	0.31	41.2	D	39.2	D
Westbound								
L	255	1770	0.69	0.39	50.7	D		
T	586	1863	0.36	0.31	36.1	D	55.3	E
R	498	1583	0.89	0.31	66.2	E		
Northbound								
L	94	1956	0.38	0.05	64.9	E		
TR	1411	3888	0.97	0.36	66.3	E	66.3	E
Southbound								
L	413	1956	0.83	0.21	65.6	E		
TR	2051	3899	0.60	0.53	22.6	C	32.0	C

Intersection Delay = 48.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID:
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	113	132	288	55	1352	52	252	1203	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			72			5			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A	A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A	A			SB Left	A	A	
Thru		A			Thru		A	A
Right		A			Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	5.0	33.5			23.5	7.5	55.5	
Yellow	0.0	4.0			0.0	0.0	4.0	
All Red	0.0	1.0			0.0	0.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	336	1770	0.35	0.32	37.4	D		
TR	447	1801	0.53	0.25	45.1	D	42.6	D
Westbound								
L	261	1770	0.48	0.32	42.0	D		
T	462	1863	0.32	0.25	41.8	D	44.6	D
R	393	1583	0.61	0.25	47.8	D		
Northbound								
L	340	1956	0.17	0.17	47.7	D		
TR	1603	3900	0.92	0.41	47.9	D	47.9	D
Southbound								
L	449	1956	0.59	0.23	48.4	D		
TR	1820	3901	0.72	0.47	30.3	C	33.4	C

Intersection Delay = 41.2 (sec/veh) Intersection LOS = D

APPENDIX F

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2011 PEAK HOUR TRAFFIC ANALYSIS
WITH PROJECT AND KEAWE STREET EXTENSION**

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	146	31	22	122	22	35	26	1603	40	20	1426	94
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			2			4			4			10

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	36.0				18.0	66.0		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	354	1327	0.55	0.27	44.5	D	43.7	D
R	422	1583	0.05	0.27	36.9	D		
Westbound								
L	253	949	0.67	0.27	51.0	D		
TR	453	1700	0.16	0.27	38.1	D	47.1	D
Northbound								
L	261	1956	0.11	0.13	51.7	D		
TR	1910	3907	0.95	0.49	48.2	D	48.2	D
Southbound								
L	261	1956	0.08	0.13	51.4	D		
TR	1900	3887	0.88	0.49	36.7	D	36.9	D

Intersection Delay = 43.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Kapunakea Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	1	2	0	1	2	0
LGConfig		LT	R	L	TR		L	TR		L	TR	
Volume	222	48	32	128	37	38	55	1668	92	42	1877	197
Lane Width		12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			3			4			9			20

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		38.5				6.5	75.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	369	1295	0.77	0.29	54.6	D	52.7	D
R	451	1583	0.07	0.29	35.2	D		
Westbound								
L	204	717	0.84	0.29	76.2	E		
TR	493	1729	0.19	0.29	36.7	D	62.2	E
Northbound								
L	94	1956	0.59	0.05	72.3	E		
TR	2162	3892	0.81	0.56	26.7	C	28.1	C
Southbound								
L	94	1956	0.47	0.05	66.3	E		
TR	2149	3869	1.01	0.56	74.8	E	74.6	E

Intersection Delay = 54.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	
Volume	19	19	70	107	4	237	71	1414	93	160	1441	25
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			24			9			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	34.5				26.0	59.5		
Yellow	4.0				4.0	4.0		
All Red	1.0				1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	419	1638	0.14	0.26	38.9	D	39.7	D
R	405	1583	0.23	0.26	40.1	D		
Westbound								
L	342	1340	0.42	0.26	42.7	D		
T	476	1863	0.01	0.26	37.5	D	48.2	D
R	405	1583	0.70	0.26	51.1	D		
Northbound								
L	377	1956	0.21	0.19	46.1	D		
T	1728	3920	0.91	0.44	43.7	D	42.7	D
R	771	1750	0.12	0.44	22.4	C		
Southbound								
L	377	1956	0.47	0.19	49.3	D		
TR	1724	3911	0.94	0.44	49.9	D	49.8	D

Intersection Delay = 46.3 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	
Volume	119	8	237	113	13	124	198	1755	47	180	1746	56
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			12			5			6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		29.0				23.5	67.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	291	1356	0.48	0.21	47.7	D	52.1	D
R	340	1583	0.69	0.21	54.8	D		
Westbound								
L	231	1075	0.61	0.21	52.4	D		
T	400	1863	0.04	0.21	42.0	D	49.0	D
R	340	1583	0.41	0.21	46.4	D		
Northbound								
L	340	1956	0.61	0.17	54.8	D		
T	1960	3920	0.94	0.50	44.1	D	44.6	D
R	875	1750	0.05	0.50	17.3	B		
Southbound								
L	340	1956	0.56	0.17	53.0	D		
TR	1952	3904	0.97	0.50	52.8	D	52.8	D

Intersection Delay = 49.0 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM Peak
 Project ID: With Keawe St Ext
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig		LT	R		LTR		L	TR		L	TR	
Volume	230	17	39	10	10	40	87	1371	25	31	1458	77
Lane Width		12.0	12.0		12.0		12.0	12.0		12.0	12.0	
RTOR Vol			4			4			3			8

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A	A			NB Left	A		
Thru	A	A			Thru		A	
Right	A	A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A				Thru		A	
Right	A				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	24.0	12.0			22.0	62.0		
Yellow	0.0	4.0			4.0	4.0		
All Red	0.0	1.0			1.0	1.0		

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	406	1780	0.69	0.27	49.5	D	48.0	D
R	422	1583	0.09	0.27	37.3	D		
Westbound								
LTR	213	1198	0.31	0.18	49.2	D	49.2	D
Northbound								
L	319	1956	0.30	0.16	50.3	D		
TR	1796	3911	0.86	0.46	37.4	D	38.2	D
Southbound								
L	319	1956	0.11	0.16	48.3	D		
TR	1788	3893	0.95	0.46	49.9	D	49.8	D

Intersection Delay = 44.6 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Papalaua Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	0	1	2	0	1	2	0
LGConfig	LT R			LTR			L TR			L TR		
Volume	242	23	100	16	30	47	101	1629	20	43	1729	164
Lane Width	12.0 12.0			12.0			12.0 12.0			12.0 12.0		
RTOR Vol	10			5			2			16		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		23.5	11.5			15.0	70.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	365	1781	0.78	0.26	57.7	E	53.1	D
R	410	1583	0.24	0.26	39.8	D		
Westbound								
LTR	170	978	0.62	0.17	58.4	E	58.4	E
Northbound								
L	217	1956	0.49	0.11	58.1	E		
TR	2029	3914	0.85	0.52	32.1	C	33.6	C
Southbound								
L	217	1956	0.21	0.11	55.1	E		
TR	2009	3874	0.98	0.52	59.2	E	59.1	E

Intersection Delay = 47.7 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: AM PEAK
 Project ID: With Keawe St Ext
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	44	241	30	94	183	324	32	1159	75	192	1097	43
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			3			81			8			4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru		A			Thru		A	A
Right		A			Right		A	A
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	38.0			22.0	7.5	52.5
Yellow		0.0	4.0			0.0	0.0	4.0
All Red		0.0	1.0			0.0	0.0	1.0

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	327	1770	0.18	0.36	29.9	C		
TR	516	1834	0.68	0.28	47.0	D	44.6	D
Westbound								
L	213	1770	0.51	0.36	40.7	D		
T	524	1863	0.40	0.28	39.8	D	42.4	D
R	446	1583	0.63	0.28	45.1	D		
Northbound								
L	319	1956	0.11	0.16	48.3	D		
TR	1512	3888	0.90	0.39	47.5	D	47.5	D
Southbound								
L	427	1956	0.50	0.22	47.2	D		
TR	1733	3900	0.73	0.44	32.4	C	34.5	C

Intersection Delay = 41.5 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.21

Analyst: CL
 Agency:
 Date: 10/9/07
 Period: PM PEAK
 Project ID: With Keawe St Ext
 E/W St: Lahainaluna Road

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2011 w/ proj
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	2	0	1	2	0
LGConfig	L	TR		L	T	R	L	TR		L	TR	
Volume	95	148	47	74	132	214	55	1352	52	138	1242	45
Lane Width	12.0	12.0		12.0	12.0	12.0	12.0	12.0		12.0	12.0	
RTOR Vol			5			54			5			5

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru			A		Thru		A	
Right			A		Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		5.0	32.0			27.0	56.0	
Yellow		0.0	4.0			4.0	4.0	
All Red		0.0	1.0			1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	321	1770	0.37	0.31	38.8	D		
TR	427	1801	0.56	0.24	46.9	D	44.2	D
Westbound								
L	246	1770	0.33	0.31	35.4	D		
T	442	1863	0.33	0.24	43.1	D	42.5	D
R	375	1583	0.47	0.24	45.2	D		
Northbound								
L	391	1956	0.15	0.20	44.7	D		
TR	1618	3900	0.91	0.41	46.3	D	46.2	D
Southbound								
L	391	1956	0.37	0.20	47.3	D		
TR	1619	3902	0.83	0.41	39.4	D	40.1	D

Intersection Delay = 43.2 (sec/veh) Intersection LOS = D

APPENDIX F-1.

2010 Supplemental Traffic Report



7481-04
January 26, 2010

Mr. Rory Frampton
West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, HI 96732

Subject: Kahoma Residential Development - Supplemental Report

Dear Mr. Frampton:

As requested, we prepared a supplemental report to address changes to the proposed project, as well as, include additional intersections in the analyses.

Project Location and Description

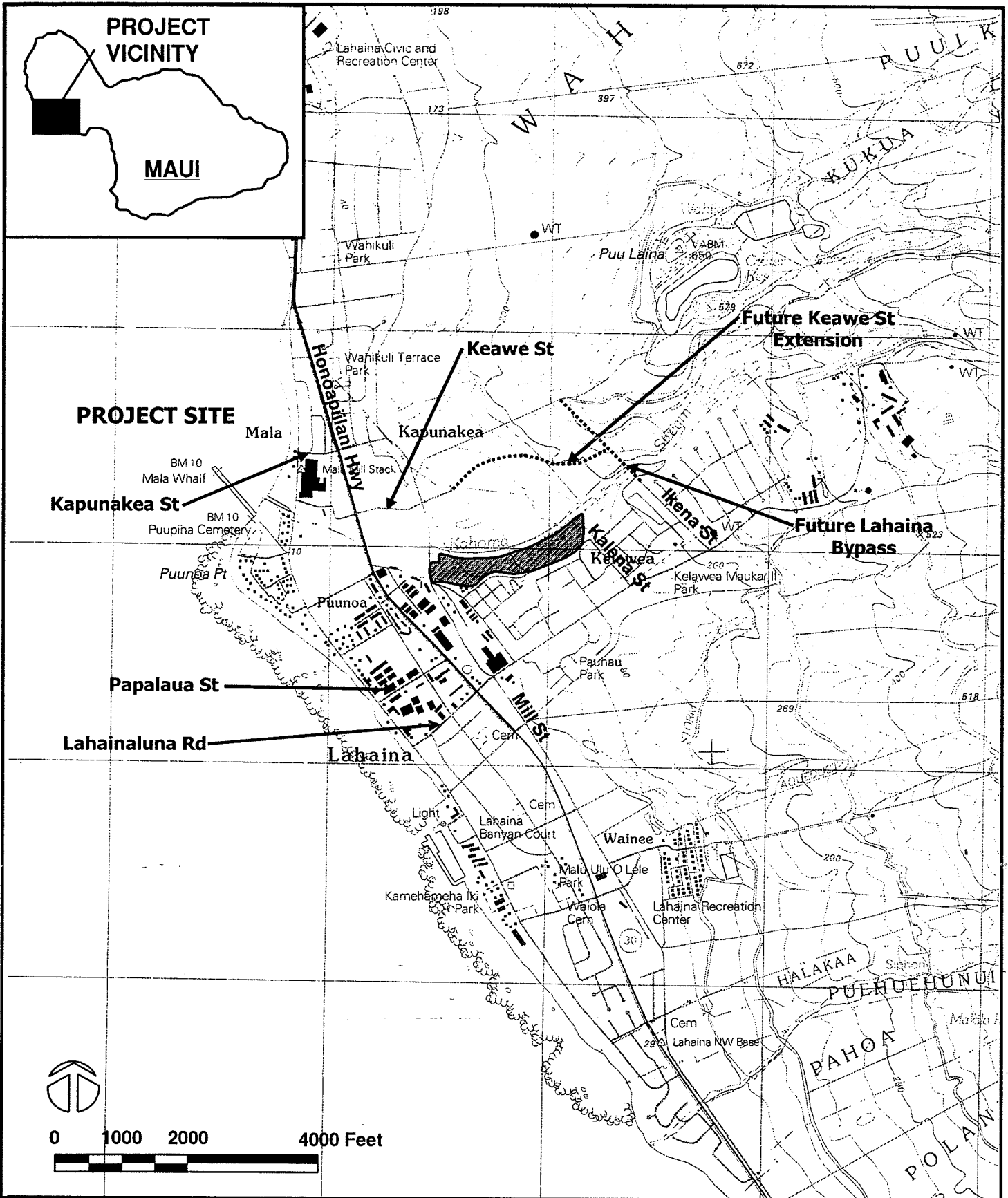
The proposed Kahoma Residential Development will be located on an approximately 16.8-acre site bordered by the Kahoma Stream to the north and existing residential homes to the south. A Traffic Impact Report was prepared for the proposed project in October 2007. Since then, the number of residential units in the project has been reduced slightly. The development will include 25 special needs multi-family rental units and 62 single-family residential lots. Access will still be provided via roadway connections on the west and east ends of the project site via Mill Street (off Keawe Street) and Kalena Street (off Lahainaluna Road). The proposed project is expected to be completed and occupied by the Year 2013. Figure 1 shows the project location and vicinity and Figure 2 shows the updated project site plan.

Field Investigation

The West Maui Land Company, Inc. retained a local company to collect supplemental traffic count data in the project vicinity on October 3-10, 2009. The field investigations consisted of manual intersection turning movement count surveys between the morning peak hours of 6:00 AM and 9:00 AM, and between the afternoon peak hours of 2:30 PM and 6:00 PM at the following intersections:

- Honoapiilani Highway, Keawe Street, and Lahaina Cannery Mall Driveway
- Keawe Street and Mill Street
- Honoapiilani Highway and Lahainaluna Road
- Lahainaluna Road and Kalena Street

Appendix A includes the traffic count data.

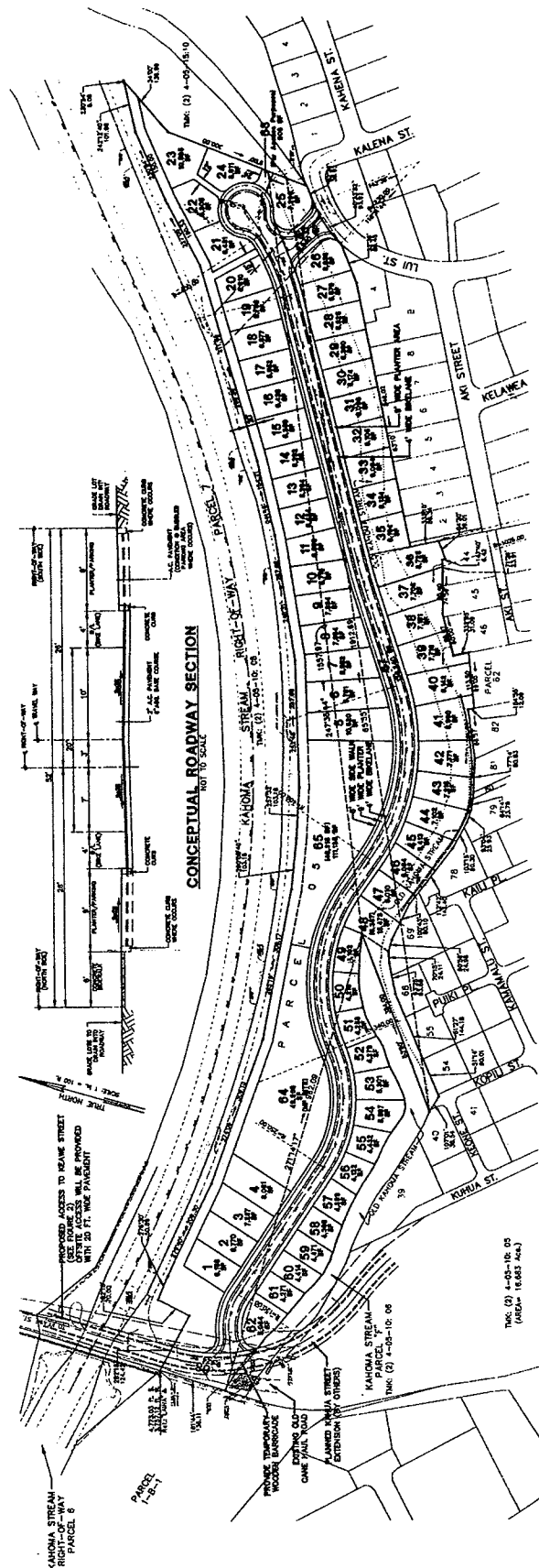




WILSON OKAMOTO CORPORATION
 ENGINEERS - PLANNERS

KAHOMA RESIDENTIAL DEVELOPMENT

Location Map and Vicinity Map

FIGURE
1




WILSON OKAMOTO CORPORATION
 ENGINEERS - PLANNERS

KAHOMA RESIDENTIAL DEVELOPMENT
PROJECT SITE PLAN



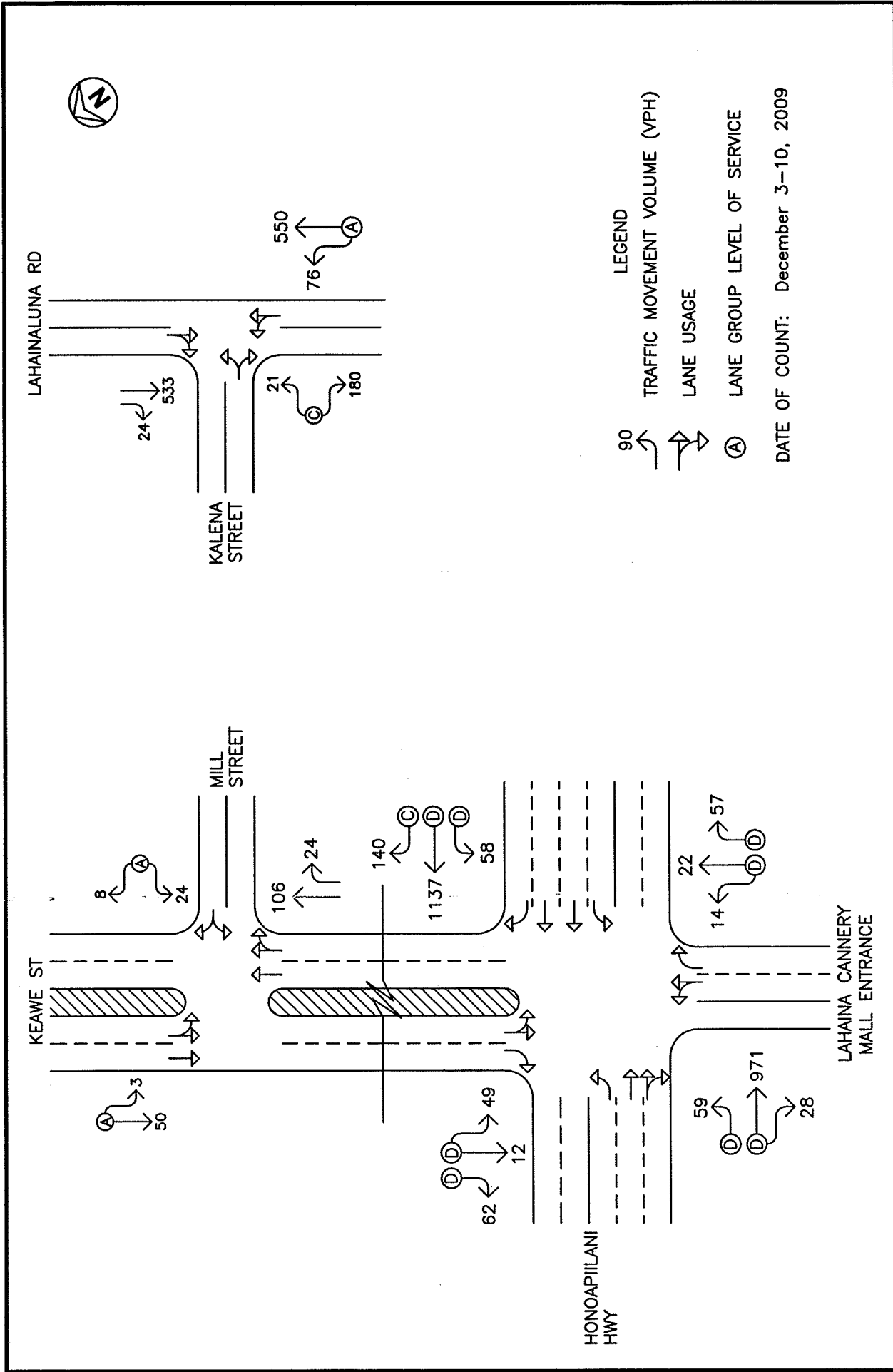
7481-04
Letter to Mr. Rory Frampton
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Existing Traffic Conditions

Figures 3 and 4 show the Year 2010 AM and PM peak hour traffic volumes and traffic operating conditions at the subject intersections in the project vicinity. The morning peak hour of traffic generally occurs between 7:15 AM and 8:15 AM in the project vicinity while the afternoon peak hour of traffic generally occurs between the hours of 3:45 PM and 4:45 PM in the project vicinity. LOS calculations are included in Appendix B.

At the signalized intersection with Keawe Street and the Lahaina Cannery Mall driveway, the northbound approach of the Honoapiilani Highway has exclusive turning lanes and two through lanes while the southbound approach has an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. The westbound approach of Keawe Street has an exclusive right-turn lane and a shared left-turn and through lane. The eastbound approach of this intersection is comprised of the Lahaina Cannery Mall driveway which has an exclusive right-turn lane and a shared left-turn and through lane. During the AM peak period, the highway carries 1,335 vehicles northbound and 1,058 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,393 vehicles traveling northbound and 1,326 vehicles traveling southbound during the PM peak period. The Keawe Street approach of the intersection carries 123 vehicles and 369 vehicles westbound during the AM and PM peak periods, respectively, while the Lahaina Cannery Mall driveway carries 93 vehicles and 265 vehicles eastbound during the AM and PM peak periods, respectively. The critical traffic movements at the intersection are the northbound left-turn and southbound through and right-turn traffic movements along the highway which operate at LOS "D" during both peak periods of traffic and the traffic movements on the westbound approach of Keawe Street which operate at LOS "D" during both peak periods.

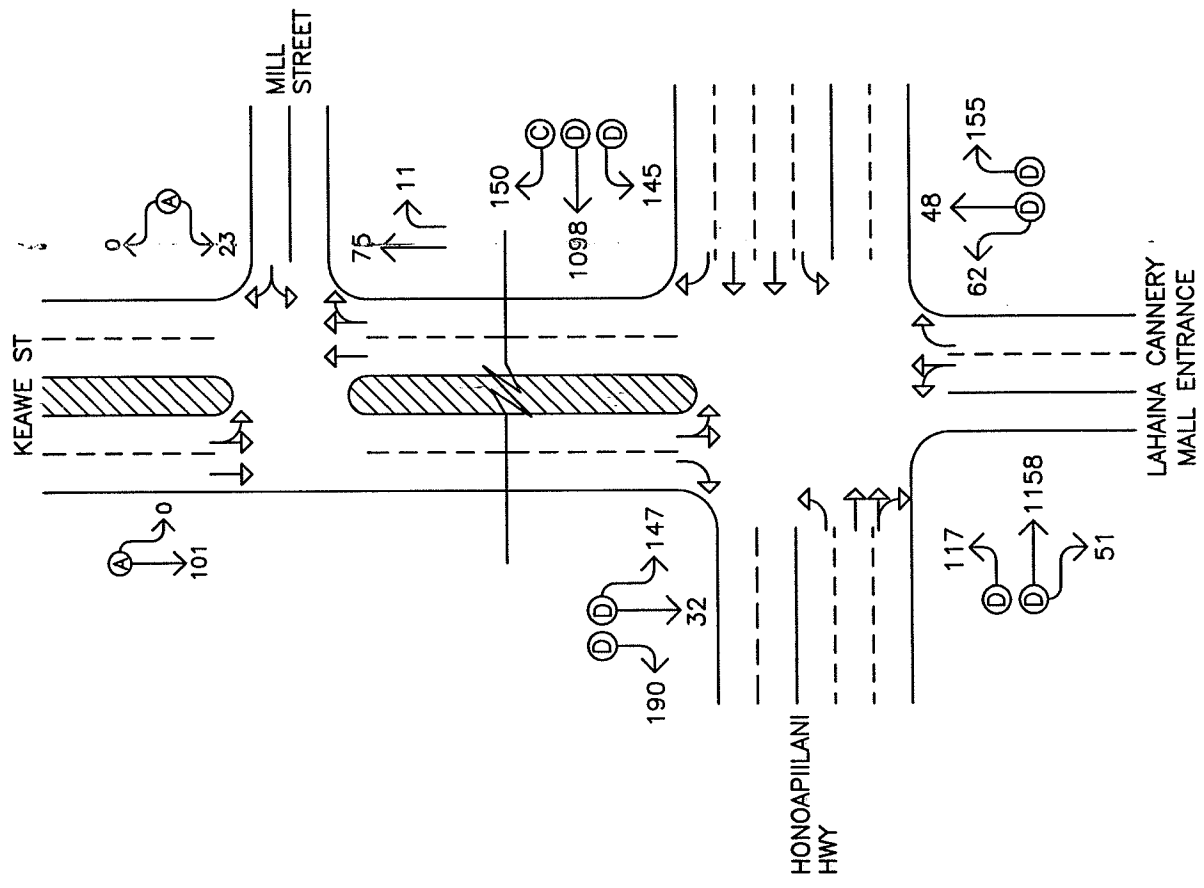
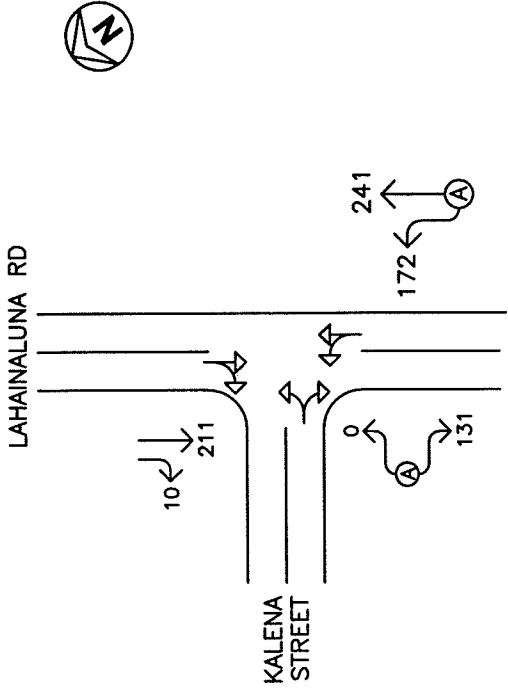
East of the intersection with Honoapiilani Highway, Keawe Street intersects Mill Street. At this unsignalized intersection, both approaches of Keawe Street have two lanes that serve all traffic movements. The northbound approach of Mill Street has one stop-controlled lane that serves all traffic movements. The southbound approach of the intersection is comprised of a gated access road. As such, for the purpose of this report, the intersection of Keawe Street and Mill Street is assessed as a T-intersection. During the AM peak period, Keawe Street carries 130 vehicles eastbound and 53 vehicles westbound. The overall traffic volume during the PM peak period is approximately the same with 86 vehicles traveling eastbound and 101 vehicles traveling westbound. The Mill Street approach of the intersection carries 32 vehicles and 23 vehicles during the AM and PM peak periods, respectively. The critical traffic movements at



KAHOMA RESIDENTIAL SUBDIVISION

EXISTING AM PEAK HOUR OF TRAFFIC

FIGURE 3



- LEGEND
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - Ⓐ LANE GROUP LEVEL OF SERVICE

DATE OF COUNT: December 3-10, 2009



KAHOMA RESIDENTIAL SUBDIVISION

EXISTING PM PEAK HOUR OF TRAFFIC

FIGURE
4



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Access to the east end of the project site will be provided via Kalena Street off Lahainaluna Road. At the intersection with Kalena Street, the eastbound approach of Lahainaluna Road has one lane that serves left-turn and through traffic movements while the westbound approach has one lane that serves through and right-turn traffic movements. The stop-controlled approach of Kalena Street has one lane that serves left-turn and right-turn traffic movements. During the AM peak period, Lahainaluna Road carries 626 vehicles eastbound and 557 vehicles westbound. Traffic volumes during the PM peak period are less with 413 vehicles traveling eastbound and 221 vehicles traveling westbound. The Kalena Street approach of the intersection carries 201 vehicles and 131 vehicles southbound during the AM and PM peak periods. The critical traffic movements at the intersection are the eastbound approach which operates at LOS "A" during both peak periods and the southbound approach which operates at LOS "C" and LOS "A" during the AM and PM peak periods, respectively.

Trip Generation and Distribution

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 8th Edition," 2008. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit. Table 1 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

Table 1: Peak Hour Trip Generation

APARTMENT INDEPENDENT VARIABLE:		# of dwelling units = 25
		PROJECTED TRIP ENDS
AM PEAK	ENTER	3
	EXIT	10
	TOTAL	13
PM PEAK	ENTER	10
	EXIT	6
	TOTAL	16



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Table 1: Peak Hour Trip Generation (Cont'd)

SINGLE-FAMILY DETACHED HOUSING		
INDEPENDENT VARIABLE:		# of dwelling units = 62
		PROJECTED TRIP ENDS
AM PEAK	ENTER	13
	EXIT	40
	TOTAL	53
PM PEAK	ENTER	43
	EXIT	25
	TOTAL	68
TOTALS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	16
	EXIT	50
	TOTAL	66
PM PEAK	ENTER	53
	EXIT	31
	TOTAL	84

Due to the reduction in single-family residential units in the current development plan, the volume of trips generated by the proposed project is expected to be less than originally projected by the October 2007 TIAR.

As described in the October 2007 TIAR, the directional distribution of traffic was based on the prevalent distribution of traffic along Honoapiilani Highway with site-generated vehicles distributed between the two roadway connections from the project site based on the proximity of the dwelling units to the connections and then routed to Honoapiilani Highway via Keawe Street or Lahainaluna Road via Kalena Street.

Through Traffic Forecasting Methodology

As described in the October 2007 TIAR, the travel forecast is based upon the average annual traffic growth rate as described in the Maui Long-Rang Land Transportation Plan (MLRLTP). The MLRLTP estimates that the average daily traffic along Honoapiilani Highway would increase at an average rate of approximately 1.6% per year. Using 2009 as the Base Year, a growth factor of 1.066 was applied to the existing through traffic demands along the highway to achieve the projected Year 2013 traffic demands.



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Other Considerations

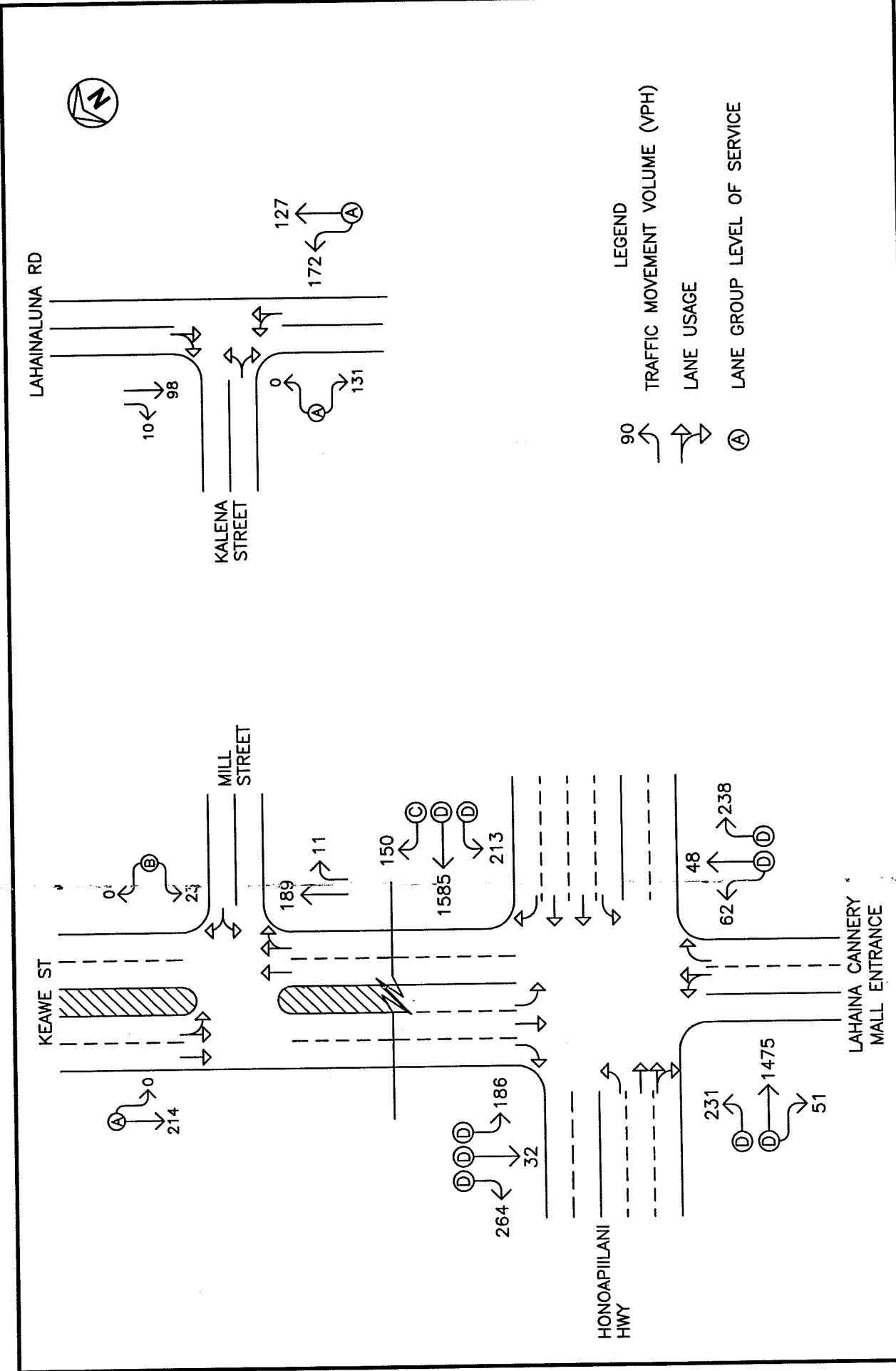
As described in the October 2007 TIAR, there are other developments in the project vicinity expected to be completed before or at the same time as the Kahoma Residential Development. Similar to the original TIAR, the traffic generated by these projects was incorporated into without project conditions with the exception of the Keawe Street Extension. When the October 2007 TIAR was prepared, the schedule for the Keawe Street extension was not known and, therefore, not incorporated into without project conditions. Since then, construction has begun on Phase 1A of the Lahaina Bypass Road and, as such, the extension is expected to be constructed by the completion of the proposed Kahoma Residential Development. As such, for the purpose of this report, the Keawe Street Extension project was also incorporated into without project conditions. In conjunction with the extension, intersection modifications are expected at the intersection of Honoapiilani Highway with Keawe Street to provide exclusive turning lanes and one through lane on the westbound approach.

Year 2013 Conditions

The projected Year 2013 AM and PM peak period traffic volumes and operating conditions without and with the proposed project are shown in Figures 5 to 8, and summarized in Table 2. The baseline Year 2010 operating conditions are provided for comparison purposes. LOS calculations are included in Appendix C.

Table 2: Existing and Projected (Without and With Project) LOS Traffic Operating Conditions

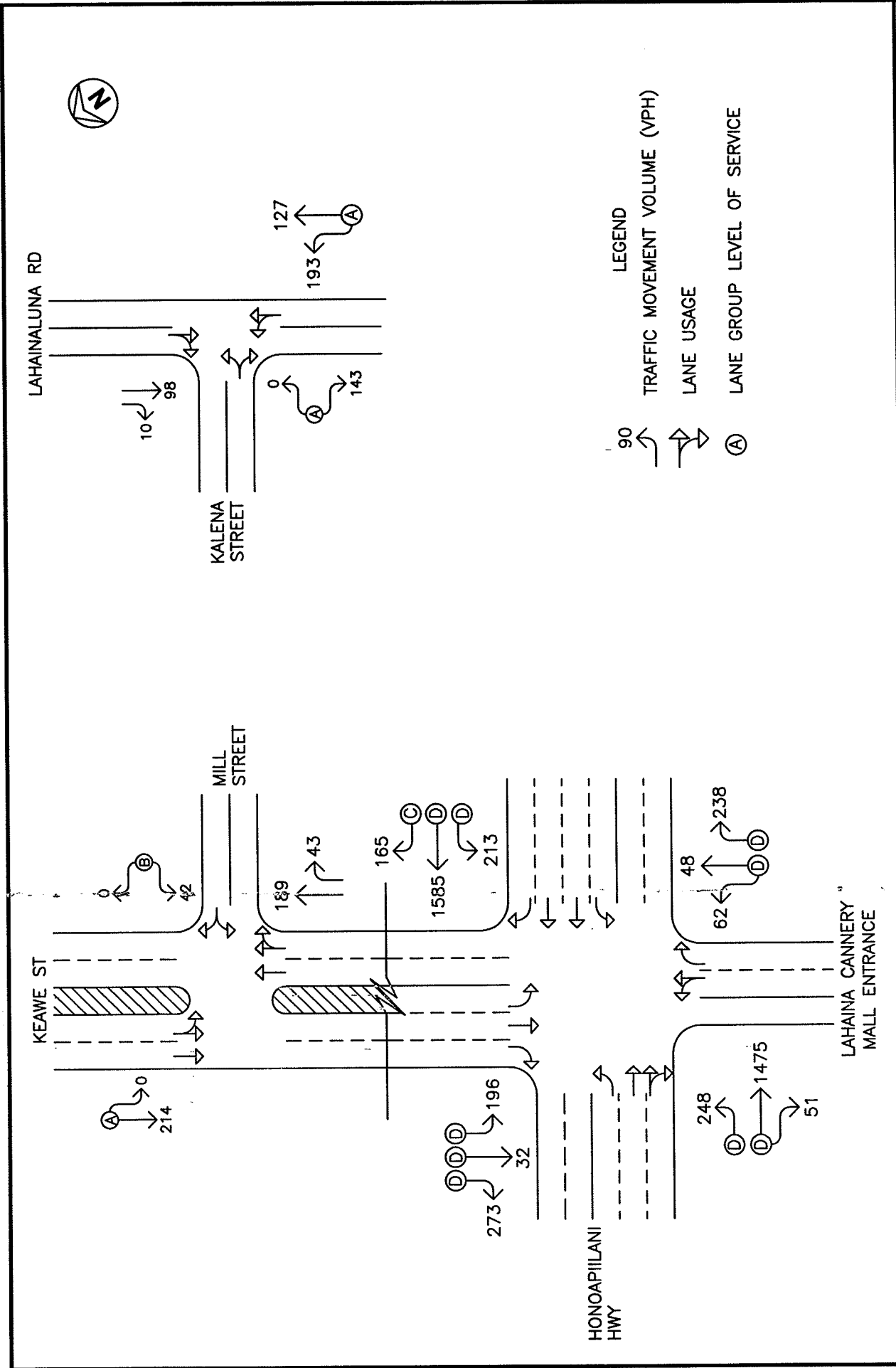
Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2013		Exist	Year 2013	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Keawe St	EB	LT-TH	D	D	D	D	D	
		RT	D	D	D	D	D	
	WB	LT	D	D	D	D	D	D
		TH		D	D		D	D
		RT	D	D	D	D	D	



KAHOMA RESIDENTIAL SUBDIVISION
 YEAR 2013 PM PEAK HOUR OF TRAFFIC
 WITHOUT PROJECT

LEGEND
 90 → TRAFFIC MOVEMENT VOLUME (VPH)
 → LANE USAGE
 (A) LANE GROUP LEVEL OF SERVICE





KAHOMA RESIDENTIAL SUBDIVISION

YEAR 2013 PM PEAK HOUR OF TRAFFIC WITH PROJECT

FIGURE 8



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Table 2: Existing and Projected (Without and With Project) LOS Traffic Operating Conditions (Cont'd)

Intersection	Critical Traffic Movement		AM			PM		
			Exist	Year 2013		Exist	Year 2013	
				w/out Proj	w/ Proj		w/out Proj	w/ Proj
Honoapiilani Hwy/ Keawe St (Cont'd)	NB	LT	D	D	D	D	D	D
	SB	TH-RT	D	C	C	D	D	D
Keawe St/ Mill St	WB	LT-TH	A	A	A	A	A	A
	NB	LT-RT	A	B	B	A	B	B
Lahainaluna Rd/Kalena St	EB	LT-TH	A	A	A	A	A	A
	SB	LT-RT	C	B	B	A	A	A

Traffic conditions at the three study intersections are expected to remain similar to existing conditions under Year 2013 conditions without and with the proposed project. Although traffic volumes are expected to increase due to ambient growth in traffic, development of other projects in the vicinity, and the completion of the proposed Kahoma Residential Development, the proposed improvements at the intersection Honoapiilani Highway with Keawe Street to provide exclusive turning lanes on the westbound approach are expected to alleviate projected conditions at that intersection. In addition, the construction of Phase 1A of the Lahaina Bypass Road and extension of Keawe Street are expected to alleviate existing traffic conditions along Lahainaluna Road due to the provision of an alternate route mauka of the highway. In addition, Year 2010 existing conditions at the intersection of Honoapiilani Highway with Lahainaluna Road were compared with the baseline conditions from the October 2007 TIAR to verify if the previous analyses were still valid. The comparison indicated that Year 2010 traffic volumes were similar to or less than those utilized for the October 2007 TIAR. As such, the proposed Kahoma Residential Development is not expected to have a significant impact on traffic operations in the vicinity and the recommendations included in the October 2007 TIAR are still applicable to this project.



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Should you have any questions or require additional information, please contact Mr. Pete Pascua or myself at 946-2277.

Sincerely,

A handwritten signature in black ink, which appears to read "Cathy Leong". The signature is fluid and cursive, with the first name being more prominent.

Cathy Leong, P.E.

APPENDIX A
TRAFFIC COUNT DATA

APPENDIX B

**CAPACITY ANALYSES CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS**

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	14	22	57	49	12	62	58	1137	140	59	971	28
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			6			6			14			3

Duration 1.00 Area Type: All other areas

		Signal Operations							
		1	2	3	4	5	6	7	8
Phase Combination									
EB	Left	A				NB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
WB	Left	A				SB	Left	A	
	Thru	A					Thru	A	
	Right	A					Right	A	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		33.0					31.5	55.5	
Yellow		4.0					4.0	4.0	
All Red		1.0					1.0	1.0	
Cycle Length: 135.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	407	1666	0.12	0.24	39.8	D	40.2	D
R	387	1583	0.18	0.24	40.5	D		
Westbound								
LT	342	1399	0.22	0.24	41.0	D	40.8	D
R	387	1583	0.18	0.24	40.5	D		
Northbound								
L	456	1956	0.15	0.23	41.2	D		
T	1612	3920	0.82	0.41	38.9	D	37.8	D
R	719	1750	0.20	0.41	25.7	C		
Southbound								
L	456	1956	0.15	0.23	41.3	D		
TR	1605	3905	0.73	0.41	35.2	D	35.5	D

Intersection Delay = 37.1 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Existing
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	0	1	1	1	2	1	1	2	0
LGConfig		LT	R		LT	R	L	T	R	L	TR	
Volume	62	48	155	147	32	190	145	1098	150	117	1158	51
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			16			19			15			5

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		39.0				29.0	52.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	318	1101	0.38	0.29	39.1	D	38.6	D
R	457	1583	0.33	0.29	38.2	D		
Westbound								
LT	350	1211	0.65	0.29	46.5	D	43.5	D
R	457	1583	0.48	0.29	40.4	D		
Northbound								
L	420	1956	0.39	0.21	46.0	D		
T	1510	3920	0.82	0.39	41.0	D	40.3	D
R	674	1750	0.23	0.39	28.1	C		
Southbound								
L	420	1956	0.31	0.21	45.0	D		
TR	1501	3898	0.89	0.39	46.7	D	46.6	D

Intersection Delay = 43.0 (sec/veh) Intersection LOS = D

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		106	24		3	50	
Peak-Hour Factor, PHF		0.64	0.64		0.74	0.74	
Hourly Flow Rate, HFR		165	37		4	67	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		2	0		0	2	
Configuration		T	TR		LT	T	
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		24		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		32		10			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB 1	WB 4	Northbound			Southbound		
			7 LT	8 LR	9	10	11	12
Lane Config								
v (vph)		4		42				
C(m) (vph)		1367		782				
v/c		0.00		0.05				
95% queue length		0.01		0.17				
Control Delay		7.6		9.9				
LOS		A		A				
Approach Delay				9.9				
Approach LOS				A				

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW

Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume		75	11	0	101	
Peak-Hour Factor, PHF		0.80	0.80	0.90	0.90	
Hourly Flow Rate, HFR		93	13	0	112	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		2	0		0	2
Configuration		T	TR		LT	T
Upstream Signal?		No			No	

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	23		0			
Peak Hour Factor, PHF	0.60		0.60			
Hourly Flow Rate, HFR	38		0			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound			Southbound		
	1	4 LT	7	8 LR	9	10	11	12
v (vph)		0		38				
C(m) (vph)		1483		820				
v/c		0.00		0.05				
95% queue length		0.00		0.15				
Control Delay		7.4		9.6				
LOS		A		A				
Approach Delay				9.6				
Approach LOS				A				

APPENDIX C

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2013 PEAK HOUR TRAFFIC ANALYSIS**

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 w/out project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	R
Volume	14	22	68	109	12	253	75	1528	140	175	1242	28
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			25			14			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		32.5				25.5	62.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	409	1698	0.12	0.24	40.2	D	40.9	D
R	381	1583	0.21	0.24	41.3	D		
Westbound								
L	325	1352	0.37	0.24	43.5	D		
T	449	1863	0.03	0.24	39.2	D	48.1	D
R	381	1583	0.66	0.24	50.7	D		
Northbound								
L	369	1956	0.22	0.19	46.7	D		
T	1800	3920	0.94	0.46	48.2	D	46.2	D
R	804	1750	0.17	0.46	21.6	C		
Southbound								
L	369	1956	0.53	0.19	50.7	D		
TR	1795	3908	0.78	0.46	33.3	C	35.4	D

Intersection Delay = 41.9 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 w/out project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	R
Volume	62	48	238	186	32	264	213	1585	150	231	1475	51
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			26			15			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		33.0				27.0	60.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	371	1517	0.31	0.24	42.2	D	45.5	D
R	387	1583	0.58	0.24	47.2	D		
Westbound								
L	292	1193	0.67	0.24	52.2	D		
T	455	1863	0.07	0.24	39.3	D	49.9	D
R	387	1583	0.65	0.24	49.6	D		
Northbound								
L	391	1956	0.57	0.20	50.8	D		
T	1742	3920	0.96	0.44	53.9	D	51.4	D
R	778	1750	0.18	0.44	22.8	C		
Southbound								
L	391	1956	0.62	0.20	52.4	D		
TR	1734	3902	0.92	0.44	45.6	D	46.5	D

Intersection Delay = 48.9 (sec/veh) Intersection LOS = D

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2013 w/out project
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume			222	24	3	301	
Peak-Hour Factor, PHF			0.64	0.64	0.74	0.74	
Hourly Flow Rate, HFR			346	37	4	406	
Percent Heavy Vehicles			--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes			2	0	0	2	
Configuration			T	TR		LT T	
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		24		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		32		10			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB 1	WB 4 LT	Northbound			Southbound		
			7	8 LR	9	10	11	12
Lane Config								
v (vph)		4		42				
C(m) (vph)		1172		503				
v/c		0.00		0.08				
95% queue length		0.01		0.27				
Control Delay		8.1		12.8				
LOS		A		B				
Approach Delay				12.8				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2013 w/out project
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		189	11		0	214	
Peak-Hour Factor, PHF		0.80	0.80		0.90	0.90	
Hourly Flow Rate, HFR		236	13		0	237	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		2	0		0	2	
Configuration		T	TR		LT	T	
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		23		0			
Peak Hour Factor, PHF		0.60		0.60			
Hourly Flow Rate, HFR		38		0			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB 1	WB 4	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		0		38				
C(m) (vph)		1314		612				
v/c		0.00		0.06				
95% queue length		0.00		0.20				
Control Delay		7.7		11.3				
LOS		A		B				
Approach Delay				11.3				
Approach LOS				B				

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: AM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 w/ project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	R
Volume	14	22	68	123	12	269	75	1528	145	179	1242	28
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			7			27			14			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		33.5				25.0	61.5	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	422	1700	0.11	0.25	39.4	D	40.1	D
R	393	1583	0.21	0.25	40.5	D		
Westbound								
L	335	1352	0.41	0.25	43.3	D		
T	462	1863	0.03	0.25	38.4	D	48.1	D
R	393	1583	0.68	0.25	51.0	D		
Northbound								
L	362	1956	0.23	0.19	47.1	D		
T	1786	3920	0.95	0.46	50.6	D	48.3	D
R	797	1750	0.18	0.46	21.9	C		
Southbound								
L	362	1956	0.55	0.19	51.7	D		
TR	1780	3908	0.79	0.46	33.8	C	36.1	D

Intersection Delay = 43.2 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.4

Analyst: CL
 Agency:
 Date: 1/22/10
 Period: PM PEAK
 Project ID:
 E/W St: Keawe Street

Inter.:
 Area Type: All other areas
 Jurisd:
 Year : Year 2013 w/ Project
 N/S St: Honoapiilani Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	1	1	2	1	1	2	0
LGConfig		LT	R	L	T	R	L	T	R	L	TR	R
Volume	62	48	238	196	32	273	213	1585	165	248	1475	51
Lane Width		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vol			24			27			17			5

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		33.0				27.0	60.0	
Yellow		4.0				4.0	4.0	
All Red		1.0				1.0	1.0	

Cycle Length: 135.0 secs

Intersection Performance Summary

Appr/ Lane Gp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	371	1517	0.31	0.24	42.2	D	45.5	D
R	387	1583	0.58	0.24	47.2	D		
Westbound								
L	292	1193	0.71	0.24	54.4	D		
T	455	1863	0.07	0.24	39.3	D	51.4	D
R	387	1583	0.67	0.24	50.6	D		
Northbound								
L	391	1956	0.57	0.20	50.8	D		
T	1742	3920	0.96	0.44	53.9	D	51.2	D
R	778	1750	0.20	0.44	23.0	C		
Southbound								
L	391	1956	0.67	0.20	54.3	D		
TR	1734	3902	0.92	0.44	45.6	D	46.8	D

Intersection Delay = 49.1 (sec/veh) Intersection LOS = D

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: AM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2013 w/ project
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		222	33		3	301	
Peak-Hour Factor, PHF		0.64	0.64		0.74	0.74	
Hourly Flow Rate, HFR		346	51		4	406	
Percent Heavy Vehicles		--	--		2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		2	0		0	2	
Configuration		T	TR		LT	T	
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		54		8			
Peak Hour Factor, PHF		0.75		0.75			
Hourly Flow Rate, HFR		72		10			
Percent Heavy Vehicles		2		2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB 1	WB 4	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		4		82				
C(m) (vph)		1158		468				
v/c		0.00		0.18				
95% queue length		0.01		0.64				
Control Delay		8.1		14.3				
LOS		A		B				
Approach Delay				14.3				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.4

TWO-WAY STOP CONTROL SUMMARY

Analyst: CL
 Agency/Co.:
 Date Performed: 1/22/2010
 Analysis Time Period: PM Peak
 Intersection:
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: Year 2013 w/ project
 Project ID:
 East/West Street: Keawe St
 North/South Street: Mill St
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume		189	43	0	214	
Peak-Hour Factor, PHF		0.80	0.80	0.90	0.90	
Hourly Flow Rate, HFR		236	53	0	237	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		2	0	0	2	
Configuration		T	TR		LT T	
Upstream Signal?		No			No	

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	42		0			
Peak Hour Factor, PHF	0.60		0.60			
Hourly Flow Rate, HFR	69		0			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
		LT		LR				
v (vph)		0		69				
C(m) (vph)		1270		595				
v/c		0.00		0.12				
95% queue length		0.00		0.39				
Control Delay		7.8		11.8				
LOS		A		B				
Approach Delay				11.8				
Approach LOS				B				

APPENDIX F-2.

2011 Supplemental Traffic Report



KENNETH K. KUROKAWA, P.E.
TERRANCE S. ARASHIRO, P.E.
DONOHUE M. FUJII, P.E.
STANLEY T. WATANABE
IVAN K. NAKATSUKA, P.E.
ADRIENNE W. L. H. WONG, P.E., LEED AP

RECEIVED JAN 21 2011

#11-005
January 19, 2011

Ms. Heidi Bigelow
West Maui Land Company, Inc.
33 Lono Avenue, Suite 450
Kahului, Hawaii 96732

Dear Ms. Bigelow:

**Subject: Supplemental Traffic Assessment
for the Kahomoa Residential Development
TMK: (2) 4-5-010:005 & 006
Kihei, Maui, Hawaii**

This traffic assessment supplements the October 2007 Traffic Impact Report (TIR) for the Kahoma Residential Development and the January 26, 2010 Kahoma Residential Development - Supplemental Report both prepared by the Wilson Okamoto Corporation. The October 2007 TIR proposed that the Kahoma Residential Development will be developed with 25 multi-family dwelling units and 70 single family dwelling units. The January 26, 2010 supplemental report assumed that the development would include 25 multi-family dwelling units and 62 single-family dwelling units. Currently, the project has been revised to contain 68 single-family dwelling units.

Project Description

The revised Kahoma Residential Development is proposing to develop 68 single-family dwelling units on a 16.8 acre site bordered by the Kahoma Flood Channel to the north, the existing Lahaina plantation housing to the south and a former cane haul road (also known as Mill Street) to the west.

Existing Roadways

Honoapiilani Highway

Honoapiilani Highway is a north-south, two-way, two-lane, undivided roadway between Prison Street. North of Prison Street, Honoapiilani Highway widens to become a two-way, four-lane, undivided roadway. Regionally, Honoapiilani Highway begins in Central Maui, runs around the "Pali" and through West Maui.



Ms. Heidi Bigelow
West Maui Land Company, Inc.

January 19, 2011

Keawe Street

Keawe Street is an east-west, two-way, four-lane, roadway. To the east, Keawe Street provides access to the Lahaina Gateway Mall via two (2) driveways and the Lahaina Business Park where it terminates. Ultimately, Keawe Street will also provide access to the Hawaii Housing Finance and Development Corporation (HHFDC) Villages of Leialii and will be extended eastward providing access to the Lahaina Bypass Road. To the west, it is a driveway into the Lahaina Cannery Mall.

Lahainaluna Road

Lahainaluna Road is an east-west, two-way, two-lane, undivided roadway. To the east of Honoapiilani Highway, Lahainaluna Road provides access to a residential area, Princess Nahienaena Elementary School, Lahaina Intermediate School and Lahainaluna High School. To the west, Lahainaluna Road provides access to businesses before terminating at its intersection with Front Street.

Study Scope

The focus of this traffic assessment will be on the trip generation potential of the Project to determine whether it meets the minimum trip generation criteria recommended by Institute of Transportation Engineers (ITE). The Manual of Transportation Engineering Studies, dated 2000, published by ITE, which states:

“... in lieu of other locally established thresholds, a traffic access/impact study should be conducted whenever a proposed development will generate 100 or more added (new) peak direction trips to or from the site during the adjacent roadway’s peak hours or the development’s peak hours.”

Trip Generation

The Institute of Transportation Engineers (ITE) publishes trip rates, Trip Generation, 7th Edition based upon historical data from similar land uses. The traffic from the 68 single-family dwelling units was generated using the ITE trip rates.

Table 1 shows an estimate of traffic generated by the proposed development during the AM and PM peak hours of traffic. Table 2 compares the trips generated by the October 2007 TIR, the January 26, 2010 Supplemental Report and the revised Kahoma Residential Development.

Ms. Heidi Bigelow
West Maui Land Company, Inc.

January 19, 2011

Table 1 Trip Generation

Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
68 Single Family Dwelling Units (ITE Code 210)	15	44	58	47	28	75

Table 2 Trip Generation Comparison

Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
October 2007 Traffic Impact Report	17	54	71	59	35	94
January 26, 2010, Supplemental Report	16	50	66	53	31	84
68 Single Family Dwelling Units	15	44	58	47	28	75

Conclusions

The following are the conclusions of the traffic assessment study.

- The Project is anticipated to generate 58 total trips during the AM peak hour of traffic and 75 during the PM peak hour of traffic which is less traffic than the October 2007 TIR and the January 2010 Supplemental Report.
- The recommendations contained in the October 2007 TIR and the January 2010 Supplemental Report is conservative since the revised Kahoma Residential Development will generate less trips.
- The preparation of a Traffic Impact Assessment Report is not required as the Project does not meet the minimum trip generation criteria of 100 new trips in the peak direction which is recommended by ITE regarding the preparation of a Traffic Impact Assessment Report.



Ms. Heidi Bigelow
West Maui Land Company, Inc.

January 19, 2011

We appreciate the opportunity to prepare this Supplemental Traffic Assessment for the Project. Should you require clarification, please feel free to call me at (808) 533-3646.

Sincerely,

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

By

KEITH K. NIIYA, P.E.
Chief Transportation/Traffic Engineer

KKV:ml

Z:\2011\11-005\Kahome Residential Dev\W Maui Land - Supp Traffic Assmt 011911.docx

APPENDIX G.
Preliminary Civil Engineering
and Drainage and Erosion
Control Report

PRELIMINARY
CIVIL ENGINEERING
AND
DRAINAGE AND SOIL EROSION CONTROL REPORT
FOR
KAHOMA RESIDENTIAL SUBDIVISION

LAHAINA, MAUI, HAWAII

TAX MAP KEY: (2) 4-5-10:005

PREPARED FOR:

WEST MAUI LAND COMPANY, INC.
33 LONO AVENUE, SUITE 450
KAHULUI, HAWAII - 96732

PREPARED BY:



CIVIL ENGINEERING • LAND SURVEYING • CONSTRUCTION MANAGEMENT & INSPECTIONAL SERVICES

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII - 96793
JOB 05-105

OCTOBER 19, 2007
REVISED: DECEMBER 14, 2009
REVISED: OCTOBER 1, 2010
REVISED: NOVEMBER 8, 2010

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I. **PURPOSE:**

The purpose of this preliminary report is to investigate the infrastructure requirements for the proposed project. This report will present a brief description of the existing conditions and discuss anticipated improvements for roadway, drainage, water and sewer systems that are required by the appropriate governmental agencies.

II. **PROPOSED PROJECT:**

The proposed project involves the subdivision of a 16.683 acre property that is identified as Parcel 05 of Tax Map Key (2) 4-5-10. The conceptual subdivision layout is shown on Figure 8. It is subdivided into 76 lots that primarily include sixty eight (68) lots for single-family residences; one (1) for park use; one (1) for drainage pond; three (3) for access and utility purposes; and three (3) lots for roadway purposes. The single-family lots have areas ranging from 5,054 to 12,973 square feet.

Appurtenant to the proposed subdivision are grading, roadway, water, sewer and drainage systems that will be designed and constructed in accordance with the requirements of governmental agencies that review this type of development. The proposed improvements are discussed in their respective sections of this report.

III. LOCATION AND ACCESS:

A. LOCATION:

The project site is located in Lahaina, Maui, Hawaii. It is particularly situated on the southern side of Kahoma Stream Flood Control channel. Refer to Figures 1 and 2. Across the stream channel is Lahaina Business Park; while to the south of the proposed project are single-family residential subdivisions.

B. ACCESS:

Lui Street provides present access to the project site. This street joins Kalena Street which is in turn connected to Lahainaluna Road. Lahainaluna Road, which is the major access to the adjacent residential subdivisions, connects to Honoapiilani Highway that links West Maui to other parts of the island.

C. PROPOSED ROADWAY IMPROVEMENTS:

The future subdivision will be serviced internally by a 52-foot roadway that is planned to be privately owned and maintained. The upper (east) end will be connected to Lui Street, while the lower (west) end will tie into the existing old cane haul road that connects to Keawe Street. Refer to Figure 2. The existing road will be repaved to provide at least 20 feet wide pavement in compliance with Subsection 18.20.040B.3 of the Maui County Code.

A typical section of the proposed onsite roadway is shown on Figure 8. It includes a 6-foot wide concrete sidewalk along the northern side of the right-of-way; 9-foot wide planter on each side of the road; 4-foot wide bike lane along

each side of the 20-foot wide paved travelway; and concrete curbs. The proposed roadway will also include traffic calming features such as speed humps; signage; and pavement markings. It is also planned that parallel parking stalls (bubbled parking area) will be provided within the planter areas where space is available.

IV. EXISTING SOILS AND TOPOGRAPHY:

A. SOIL:

The U.S. Department of Agriculture Soil Conservation Service's Soils Survey of the Island of Kauai, Oahu, Maui, Molokai and Lanai [2], classifies the soils within the project site as Wahikuli Very Stony Silty Clay (WdB), 3 to 7 percent slopes and Rock Land (rRK) as shown on Figure 3. WdB, which occupies almost the entire site, is characterized as having moderate permeability, slow runoff and slight erosion hazard. It belongs to Wahikuli soil series that consist of well-drained soils on uplands on the island of Maui at elevations ranging from nearly sea level to 600 feet. These soils developed in material weathered from basic igneous rock.

rRK, which is found on the eastern tip of the project site, is made up of areas where exposed rock covers 25 to 90 percent of the land surface. This land type is nearly level to very steep.

B. TOPOGRAPHY:

The existing topography of the project site is shown on Figure 7.

The existing ground has elevations ranging from 32 feet to 145 feet above mean sea level. In general, the ground surface slopes down in a westerly direction from the east end to the west end of the project site, at an average slope of about 4½ percent.

V. WASTEWATER SYSTEM:

A. EXISTING:

The existing wastewater system serving the adjacent residential subdivisions and nearby developments is part of the County's Lahaina Sewerage System. A portion of the system that collects wastewater flows generated by existing developments in the vicinity of the project site is shown on Figure 5. The collected wastewater is transmitted by a series of force mains and gravity sewerlines to the Lahaina Wastewater Reclamation Facility above the intersection of Honoapiilani Highway and Lower Honoapiilani Road, about 5 miles north of the project site.

B. PROJECTED WASTEWATER FLOW:

Based on the Wastewater Flow Standards [8], the estimated average wastewater flow generated by the proposed development is as follows:

Single-Family Residence = 68 lots x 350 gpd = 23,800 gallons per day

Total Average Wastewater Flow = 23,800 gallons per day

C. PROPOSED WASTEWATER SYSTEM:

The proposed wastewater system will consist of onsite and offsite systems. The onsite system is conceptually laid out on Figure 9; while the offsite system is schematically shown on Figure 5A.

The proposed onsite system will consist of 6" and 8" PVC sewer pipes and sewer manholes. Each proposed lot will be served by a single service lateral in compliance with the requirements of the Wastewater Reclamation Division (WWRD) of the Department of Environmental Management.

The proposed offsite system will consist of 8" PVC sewer pipes that will convey the project's wastewater flow to the existing 10-inch sewerline on Keawe Street as shown on Figure 5A. The offsite 8" sewerline will be laid out along the old cane haul road. An easement is needed from Kaanapali Land Management Corporation, who owns the old cane haul road. It may also require approval from the U.S. Army Corps of Engineers for crossing and/or anchoring the sewerline to the existing bridge over the Kahoma Stream Channel.

VI. WATER SYSTEM:

A. EXISTING:

There are existing waterlines that currently serve the existing developments in the vicinity of the project site. Refer to Figure 6. The system consists of water mains with sizes ranging from 2-inch to 12-inch pipes. The system that serves the residential subdivisions south of the project is fed by the existing 0.5 and 1.0 M.G. concrete water reservoirs on the upper reaches of Lahainaluna Road; while water for the existing developments across Kahoma Stream Channel

is supplied by the 1.5 MG Wahikuli storage tank which is located above Wahikuli Road.

B. PROJECTED WATER REQUIREMENTS:

1. Domestic:

According to Table 100-18, Domestic Consumption Guidelines, of the Department of Water Supply (DWS) Standards, the average daily domestic demand for single-family residences is 600 gallons per unit, respectively. Hence the average daily demand for the proposed project is as follows:

Single Family	= 68 x 600 gals./lot	= 40,800 gpd
Total Average Daily Demand		= 40,800 gpd

The maximum daily demand will be about 61,200 gpd which is 1.5 times the average daily demand (Table 100-20, Demand Factors).

2. Fire Flow:

The fire flow requirements (Table 100-19, Fire Flow Requirements) for the proposed single-family residential site is 1,000 gallons per minute (gpm). Fire hydrant will be at no more than 350 feet apart.

C. PROPOSED WATER SYSTEM IMPROVEMENTS:

With a relatively small residential development like this, the size of the distribution line is usually governed by the fire flow requirements. The needed

fire flow of 1,000 gpm for the single-family residential units will be used to size the main distribution line. Thus, an 8-inch waterline, which can deliver about 1,565 gpm at a velocity of 10 feet per second, is sufficient to provide the needed fire flow.

The conceptual water system is laid out on Figure 10. It consists of both onsite and offsite facilities. The onsite component includes 8-inch waterline, fire hydrants and service laterals. Individual single-family lots will be served by 5/8" water meters. The park site (Lot 70) will be served by a larger meter, tentatively 1½" meter, for both domestic and landscape watering purposes. Lot 69 which contains the drainage pond should also be provided with a water meter for irrigation. In keeping with the guidelines of the DWS Standards, the proposed fire hydrants will be spaced at no more than 350 feet apart.

Both ends of the onsite system will be tied-in to the existing waterline network serving the area. The upper end will be connected to the existing 8" and 4" waterlines at the intersection of Kahena and Kalena Streets through Lui Street. The lower end of the onsite system will be connected to the existing 12-inch waterline on Keawe Street via an 8-inch pipe across Kahoma Stream Channel and along the old cane haul road as shown on Figure 6. Similar with the offsite sewerline, this offsite waterline needs an easement from Kaanapali Land Management Corporation and may need approval by the U.S. Army Corps of Engineers.

VII. **DRAINAGE, GRADING AND SOIL EROSION:**

A. **GENERAL:**

The preliminary Drainage Study, in general, is based on the requirements, formulas, charts and tables of the Rules of the Design of Storm Drainage Facilities of the County of Maui [1] hereinafter referred to as County Drainage Standards; whereas, the Best Management Practices to control soil erosion are in accordance with the Construction Best Management Practices (BMPs) for the County of Maui [2] hereinafter referred to as "County Standard BMPs".

B. **FLOODING HAZARD:**

The site is found on Panels 0361E and 0362E map revised September 25, 2009, of the Flood Insurance Rate Map (FIRM) for the County of Maui. Refer to Figures 4 and 4A. The site is situated within Flood Designation Zone X where areas are subject to minimal flooding or areas determined to be outside the 0.2% annual chance flood plain. Therefore the proposed project does not need flood development permit as may be required by Chapter 19.62, Flood Hazard Areas, of the Maui County Code.

C. **EXISTING DRAINAGE CONDITIONS:**

The present onsite drainage flow pattern is generally characterized by sheet flow across the project site in a westerly direction discharging into Kahoma Stream channel at the upstream side of the existing cane haul bridge. The surface runoff enters the stream by flowing over the top of the concrete channel.

The site is part of the Kahoma Stream watershed.

D. STORM RUNOFF QUANTITIES:

Hydrologic calculations are given in Appendix A - Preliminary Drainage Calculations. According to the County Drainage Standards, the 10-year, 1-hour storm is used for design of surface drainage facilities such as roadway gutter flow, while the 50-year, 1-hour duration is used for the design of culverts and retention basins or drainage ponds.

Based on the preliminary drainage calculations (Appendix A), the overall project site is anticipated to increase the existing 1-hour rainfall storm as follows:

10-year Runoff Rate:	12.6 cfs, from 14.0 to 26.6 cfs
50-year Runoff Rate:	15.8 cfs, from 17.5 to 33.3 cfs
50-year Runoff Volume:	40,210 cf, from 44,675 to 84,885 cf

E. CONCEPTUAL DRAINAGE PLAN:

The drainage system scheme is laid out on Figure 11. The main feature of the proposed system is the construction of an onsite surface (open) retention basin or drainage pond that will be sized, at a minimum, to retain the 50-year, 1-hour storm runoff volume increase that is anticipated to be generated by the proposed project site. Storing the volume increase is expected to maintain the runoff volume leaving the project site below or at pre-development level.

Aside from the open-cut drainage pond, the proposed drainage system will also include catch basins and/or grated drain inlets to collect runoff; non-perforated pipes to convey runoff to the drainage pond; and drain manholes. It will also include the rerouting of the existing 30" and 36" drainlines between Lui Street and the Kahoma Stream Channel.

The proposed drainage pond will be constructed on Lot 69 as shown on Figure 11 while the conceptual grading plan is shown on Figure 12. The pond should be provided with the following:

1. Maintenance access where the side slopes are steeper than 4:1.
2. A chainlink fence along the perimeter.
3. Overflow spillway should the anticipated design storm is exceeded.
4. A freeboard of two (2) feet to provide a safety measure for the occurrence of a storm with intensity greater than the design storm.

F. GRADING REQUIREMENTS:

Grading for the proposed development will be performed in compliance with the applicable requirements of the Maui County Grading Ordinance. It is expected that grading will be essentially associated with the construction of the proposed roadways and developing building pads on each lot. This will involve grading almost the whole site that includes development of the drainage pond; cut and fill areas between the lots with minimum slopes at 2 horizontal to 1 vertical (2:1), if sufficient space is available; otherwise, grade adjustment walls will have to be constructed along the lot boundaries to obtain level surfaces for the future residential buildings especially on Lots 55 to 68.

A grading and grubbing permit must be obtained from the Development Services Administration (DSA) of the County of Maui prior to commencing land disturbance activities. Associated submittals for the permit application are Grading Plans, Soil Erosion Control Plan or Best Management Practices, Drainage Plan and Drainage Report.

G. BEST MANAGEMENT PRACTICES:

Requirements for the temporary control of soil erosion and dust during site improvement will be outlined and shown on the construction plans during the design development for the project. Some of the temporary control measures will be as follows:

1. Installation of BMP such as silt fence, gravel bag berms or other approved sediment trapping devices at the downstream side of the grading area and sediment pits.
2. Installation of dust control fence surrounding the project site.
3. Control dust by means of water trucks or by installing temporary sprinkler systems or both if necessary.
4. Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
5. All exposed areas shall be paved, grassed, or permanently landscaped as soon as finished grading is completed.
6. Storm runoff will be diverted away from graded areas to natural drainageways during construction by means of sand bag berms or lined temporary swales.
7. Time of construction will be minimized.
8. Only areas that are needed for new improvements will be cleared.
9. Early construction of drainage control features.
10. Construction of pit for proposed drainage ponds prior to mass grading of project site. The pits will be temporarily utilized as sediment catchment during construction.

11. 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 County Standard BMPs.

The grading area is expected to be larger than 1.0 acre. Hence, NPDES General Permit Coverage Authorizing Discharges of Storm Water associated with construction activities will need to be obtained from the State Department of Health, Clean Water Branch, prior to any land disturbance at the project site.

H. CONCLUSION:

Based on this preliminary drainage study, the proposed development will increase the existing storm runoff due to addition of impervious surfaces such as building roofs, pavement and concrete walkways. Despite the increase in runoff, the proposed development is not anticipated to have adverse drainage effects on adjacent and downstream properties. In keeping with the guidelines of the County Drainage Standards, the proposed drainage improvements will include the impoundment of the 50-year, 1-hour storm runoff volume increase to be generated by the future development. The future onsite drainage pond will result in a zero runoff increase for the 50-year storm to downstream properties and will also have the effect of reducing the potential for sediments contained in the runoff from entering the ocean.

Soil erosion and dust control measures (BMPs) will be instituted during development of the proposed project. These measures will include BMPs in compliance with County Standard BMPs and Section 20.08.035 of the Maui County Code. Additionally, NPDES General Permit Coverage Authorizing Discharge of Storm Water Associated with Construction Activities will be obtained from the Clean Water Branch of the State Department of Health prior to any land disturbance. Conditions of the permit will be implemented during site construction.

IX. CONSTRUCTION PLAN APPROVALS:

Approval of construction plans and appropriate permits for site grading and infrastructural improvements of the proposed project will be obtained from the Department of Public Works; Department of Environmental Management; Department of Water Supply; Fire Prevention Bureau; State Department of Health, Wastewater and Clean Water Branches; and the U.S. Army Corps of Engineers. The various infrastructures 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
7. Water System Standards, Department of Water Supply, County of Maui, 2002.
8. Wastewater Flow Standards, Wastewater Reclamation Division, Department of Public Works & Environmental Management, February 2, 2000.

APPENDIX A

KAHOMA RESIDENTIAL SUBDIVISION LAHAINA, MAUI, HAWAII TMK: (2) 4-5-10:005

PRELIMINARY DRAINAGE CALCULATIONS

December 2009

Revised: October 1, 2010

Revised: November 8, 2010

- I. Reference: Rules for the Design of Storm Drainage Facilities in the County of Maui, April 14, 1995
- II. Purpose: To determine the overall pre and post development storm runoff discharges.
- III. Hydrologic Criteria:
 - A. 10-Year, 1-Hour: for design of surface facilities such as gutter
1-Hr. Rainfall Value = 2.0"
 - B. 50-Year, 1-Hour: for design of retention ponds and roadway culverts
1-Hr. Rainfall Value = 2.5"
- 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 (See Figure 13)

Calculations employing this method were performed on computer using hydrologic software "Hydraflow Hydrographs 2004" by Intelisolve. The Standard Rational Method is used to calculate storm runoff peak discharge rates while the Modified Rational Method is employed to determine storm runoff volumes. The intensity duration frequency (IDF) curves were developed by inputting into the program the intensity values for 5, 15, 30 and 60 minutes duration corresponding to the 10-year and 50-year, 1-hour rainfall amounts as determined from Plate 2.

2. Runoff Coefficient, C:

Existing Condition:

$$C = 0.30 \text{ (Unimproved)}$$

Future Condition:

$$C = 0.55 \text{ (Residential)}$$

$$= 0.80 \text{ (Roadway)}$$

$$= 0.22 \text{ (Park/Open Space)}$$

Determine weighted runoff coefficient, C_w , of project site at developed conditions:

$$C_w = \frac{A_1 \times C_1 + A_2 \times C_2 + A_3 \times C_3}{A_1 + A_2 + A_3}$$

Where:

$$A_1 = 12.21 \text{ Acs. (Residential)}$$

$$A_2 = 3.23 \text{ Acs. (Roadway)}$$

$$A_3 = 1.44 \text{ Acs. (Open Space/Park)}$$

$$C_w = \frac{12.21 \times 0.55 + 3.23 \times 0.80 + 1.44 \times 0.22}{16.88}$$

$$= \frac{9.616}{16.88}$$

$$= 0.57$$

3. Time of Concentration, Tc:

Length of Flow = 2,600 ft.

Average Slope = 4.5%

Tc = 30 min. (Poor Grass)

4. Storm Runoff Quantity:

(Refer to attached Hydrograph Report)

1-Hour Storm Peak Discharge Rate:

	<u>Existing</u>	<u>Future</u>	<u>Increase</u>
10-Year	= 14.0 cfs	= 26.6 cfs	= 12.6 cfs
50-Year	= 17.5 cfs	= 33.3 cfs	= 15.8 cfs

5. Runoff Volume (50-Year, 1-Hour Storm):

(Refer to attached Hydrograph Report)

<u>Existing</u>	<u>Future</u>	<u>Increase</u>
= 44,675 cf	= 84,885 cf	= 40,210 cf

The 50-year, 1-hour rainfall volume increase is the minimum volume to be retained onsite in order to attain zero runoff increase to adjacent/downstream properties.

V. Retention Pond:

In accordance with the County Drainage Standards, retention pond shall have a storage capacity to at least equal to the anticipated 50-year, 1-hour storm runoff volume increase for drainage areas less than 100 acres; however, in determining the storage capacity, soil percolation shall not be taken into account. Based on this guideline, the proposed project will require a minimum storage of 40,210 cf.

The conceptual grading plan of the proposed drainage pond is shown on Figure 12. Storage capacity of the proposed pond is given in the attached "Pond Report". Allowing for a freeboard of 2 feet; the design capacity of the proposed pond is about 46,510 cf resulting in an excess of 6,300 cf over the volume increase.

Pond Report

Hydraflow Hydrographs by Intelisolve

Thursday, Nov 4 2010, 3:39 PM

Pond No. 3 - Proposed Drainage Pond

Pond Data

Bottom LxW = 95.0 x 60.0 ft Side slope = 2.0:1 Bottom elev. = 0.00 ft Depth = 8.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	0.00	5,700	0	0
0.40	0.40	5,951	2,330	2,330
0.80	0.80	6,206	2,431	4,761
1.20	1.20	6,467	2,534	7,296
1.60	1.60	6,733	2,640	9,935
2.00	2.00	7,004	2,747	12,683
2.40	2.40	7,280	2,857	15,539
2.80	2.80	7,561	2,968	18,507
3.20	3.20	7,848	3,082	21,589
3.60	3.60	8,139	3,197	24,786
4.00	4.00	8,436	3,315	28,101
4.40	4.40	8,738	3,435	31,536
4.80	4.80	9,045	3,556	35,092
5.20	5.20	9,357	3,680	38,772
5.60	5.60	9,674	3,806	42,578
6.00	6.00	9,996	3,934	46,512
6.40	6.40	10,323	4,064	50,576
6.80	6.80	10,656	4,196	54,771
7.20	7.20	10,993	4,330	59,101
7.60	7.60	11,336	4,466	63,567
8.00	8.00	11,684	4,604	68,171

CAP. @ 2 FE = 46,510 CF

Culvert / Orifice Structures

	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 7.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

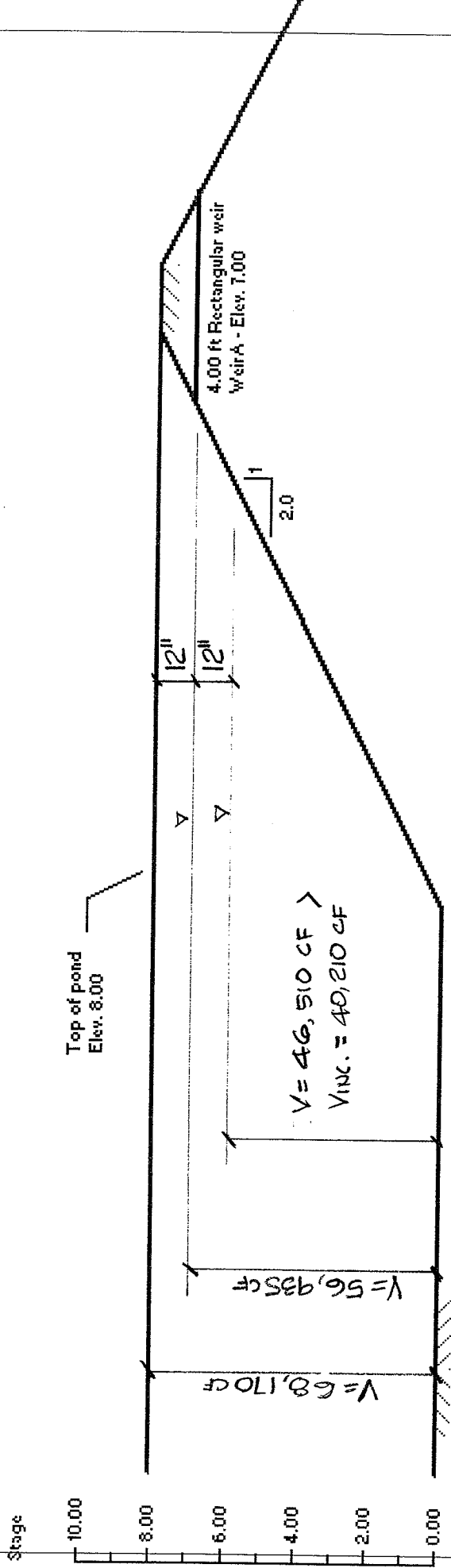
Exfiltration = 0.000 in/hr (Wet area) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	Clv D cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Total cfs
0.00	0	0.00	---	---	---	---	0.00	---	---	---	---	0.00
0.40	2,330	0.40	---	---	---	---	0.00	---	---	---	---	0.00
0.80	4,761	0.80	---	---	---	---	0.00	---	---	---	---	0.00
1.20	7,296	1.20	---	---	---	---	0.00	---	---	---	---	0.00
1.60	9,935	1.60	---	---	---	---	0.00	---	---	---	---	0.00
2.00	12,683	2.00	---	---	---	---	0.00	---	---	---	---	0.00
2.40	15,539	2.40	---	---	---	---	0.00	---	---	---	---	0.00
2.80	18,507	2.80	---	---	---	---	0.00	---	---	---	---	0.00
3.20	21,589	3.20	---	---	---	---	0.00	---	---	---	---	0.00
3.60	24,786	3.60	---	---	---	---	0.00	---	---	---	---	0.00
4.00	28,101	4.00	---	---	---	---	0.00	---	---	---	---	0.00
4.40	31,536	4.40	---	---	---	---	0.00	---	---	---	---	0.00
4.80	35,092	4.80	---	---	---	---	0.00	---	---	---	---	0.00
5.20	38,772	5.20	---	---	---	---	0.00	---	---	---	---	0.00
5.60	42,578	5.60	---	---	---	---	0.00	---	---	---	---	0.00
6.00	46,512	6.00	---	---	---	---	0.00	---	---	---	---	0.00
6.40	50,576	6.40	---	---	---	---	0.00	---	---	---	---	0.00
6.80	54,771	6.80	---	---	---	---	0.00	---	---	---	---	0.00
7.20	59,101	7.20	---	---	---	---	1.19	---	---	---	---	1.19
7.60	63,567	7.60	---	---	---	---	6.19	---	---	---	---	6.19
8.00	68,171	8.00	---	---	---	---	13.32	---	---	---	---	13.32

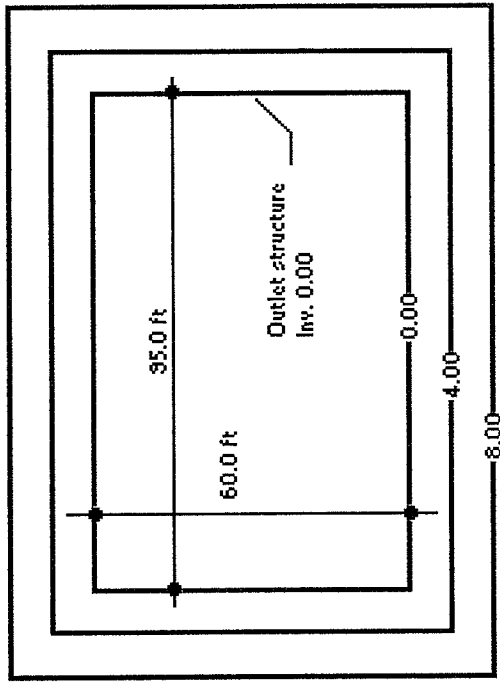
Proposed Drainage Pond



Section
NTS

Schematic only. Not for construction.

Proposed Drainage Pond



Plan View

NTS

Schematic only. Not for construction.

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:50 PM

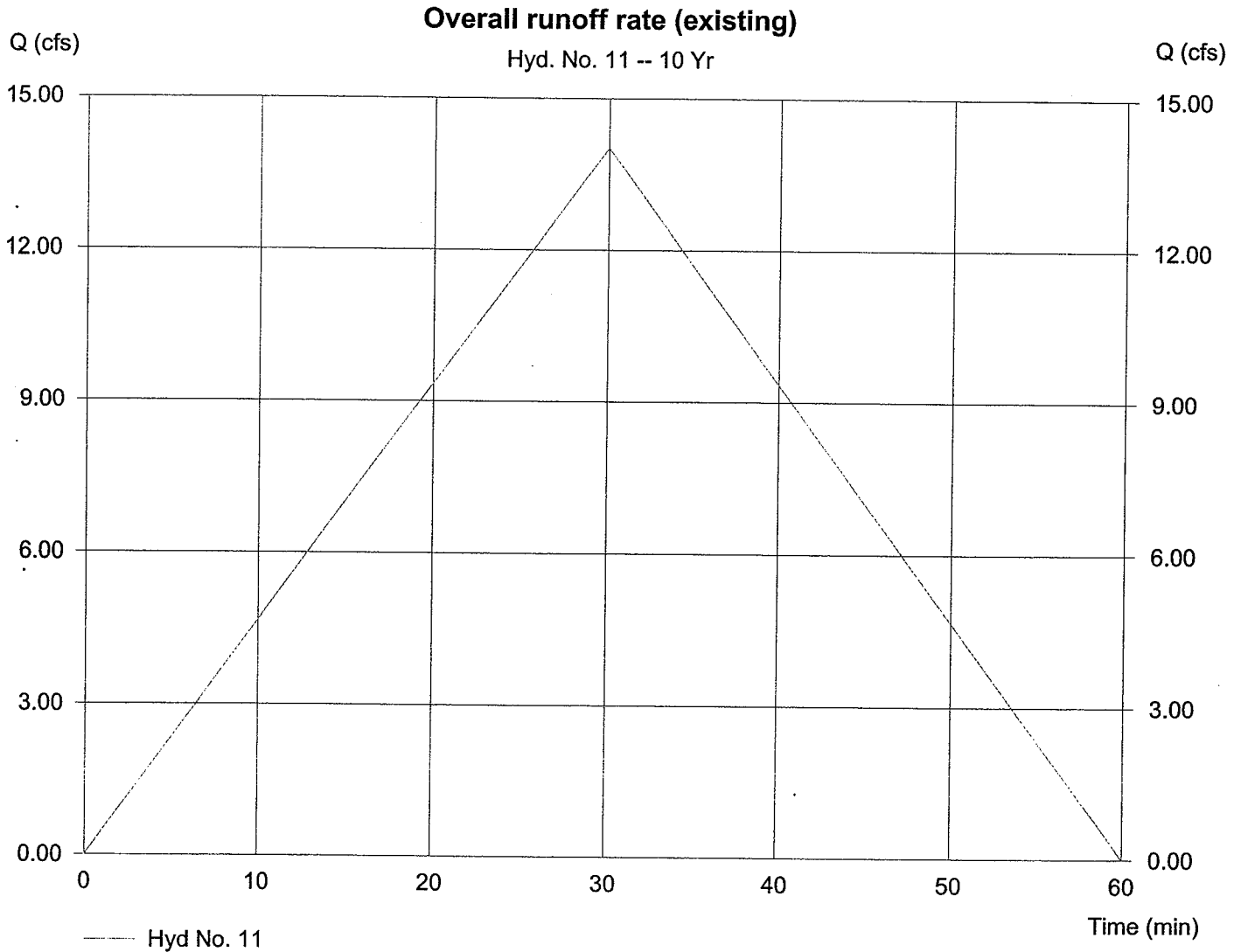
Hyd. No. 11

Overall runoff rate (existing)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 16.680 ac
Intensity = 2.800 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 14.01 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 25,220 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:50 PM

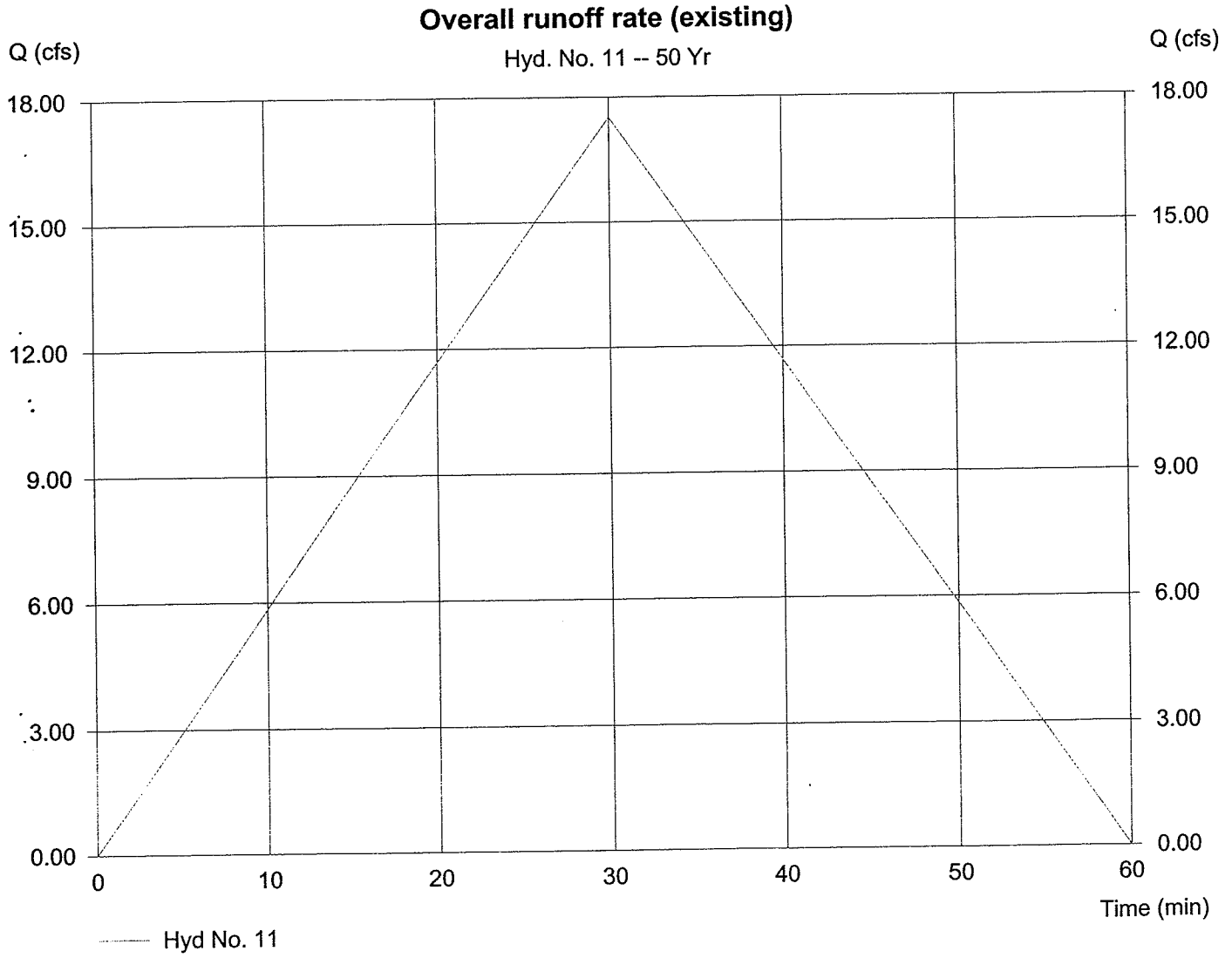
Hyd. No. 11

Overall runoff rate (existing)

Hydrograph type = Rational
Storm frequency = 50 yrs
Drainage area = 16.680 ac
Intensity = 3.500 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 17.51 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 31,525 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:50 PM

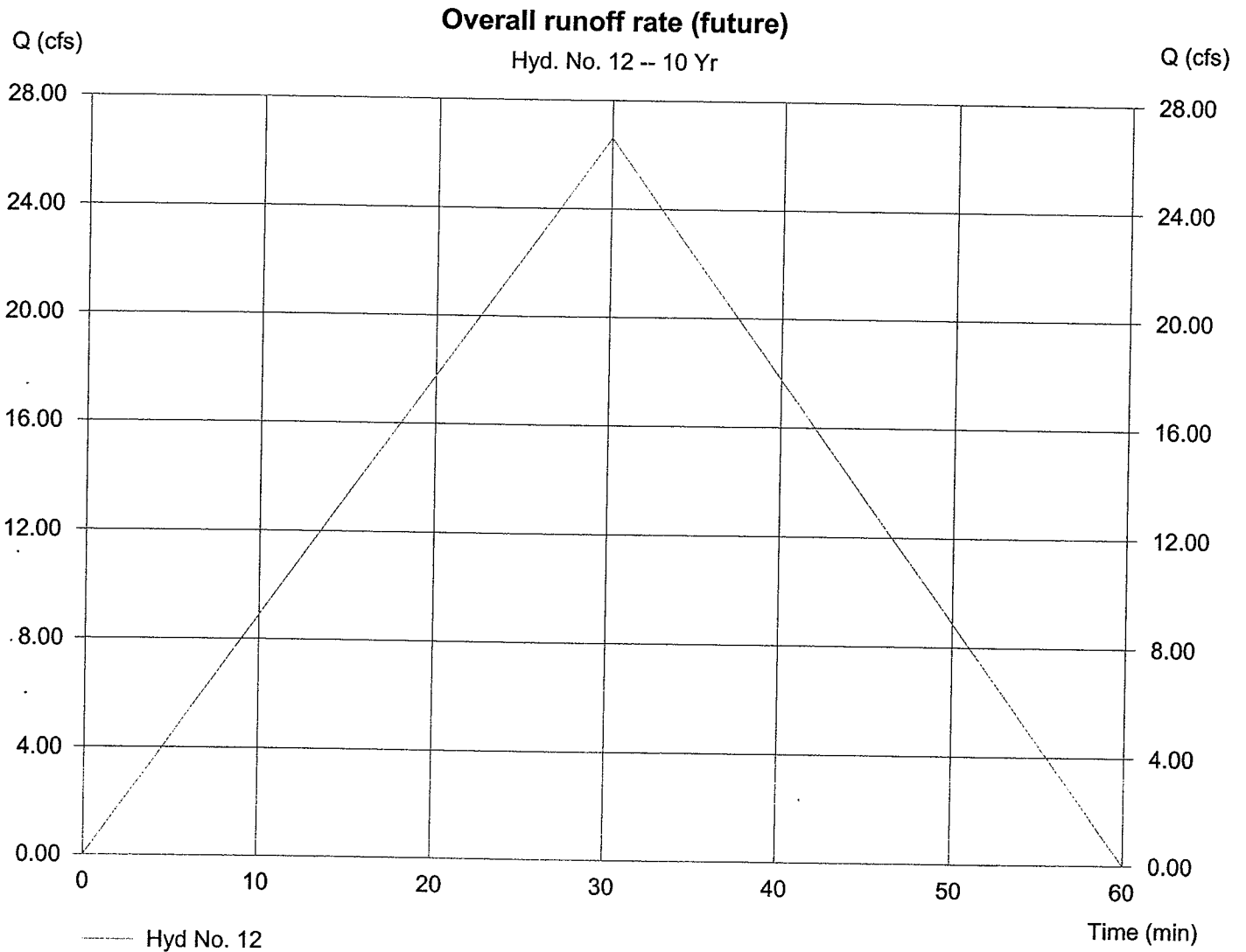
Hyd. No. 12

Overall runoff rate (future)

Hydrograph type = Rational
Storm frequency = 10 yrs
Drainage area = 16.680 ac
Intensity = 2.800 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 26.62 cfs
Time interval = 1 min
Runoff coeff. = 0.57
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 47,918 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:50 PM

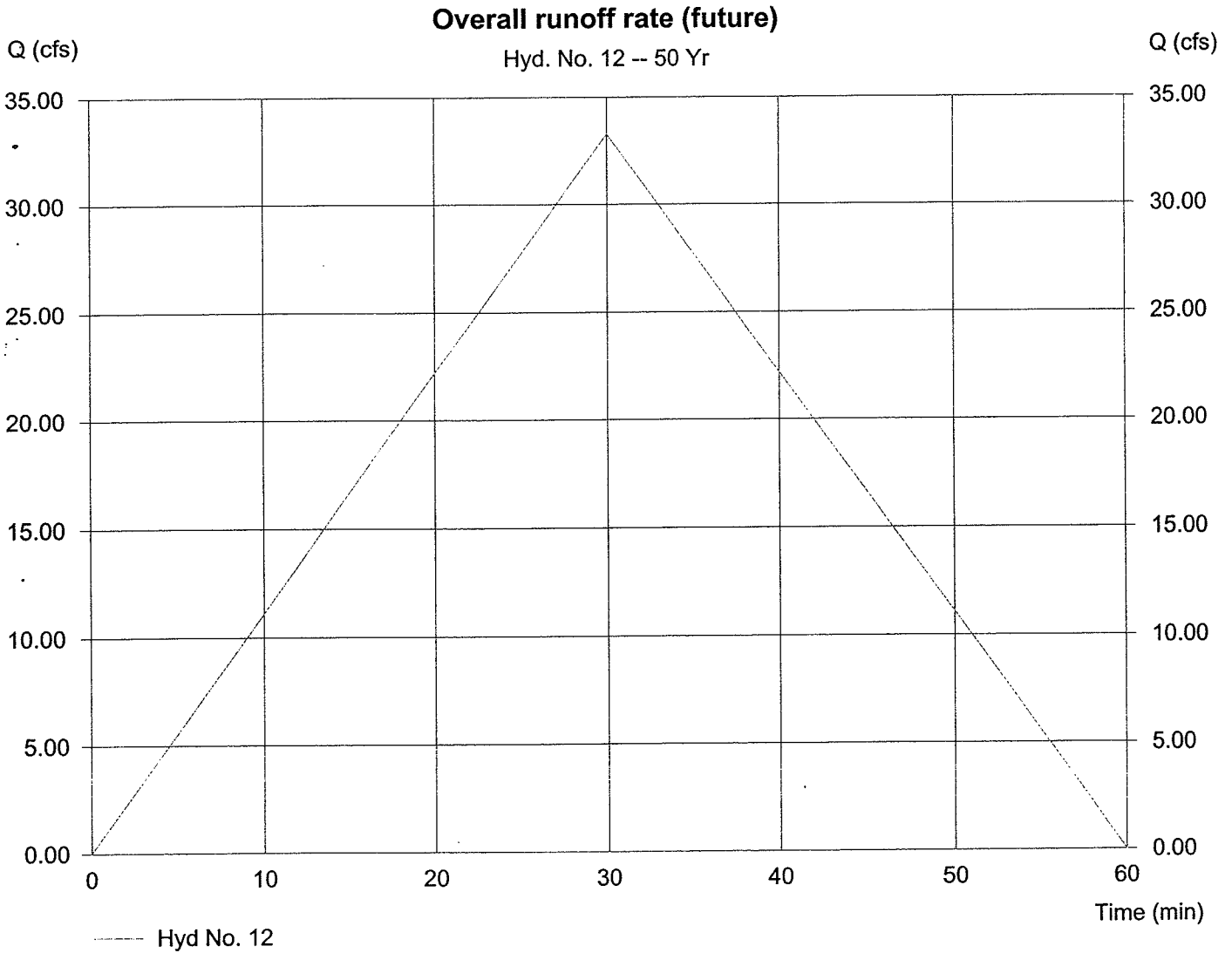
Hyd. No. 12

Overall runoff rate (future)

Hydrograph type = Rational
Storm frequency = 50 yrs
Drainage area = 16.680 ac
Intensity = 3.500 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 33.28 cfs
Time interval = 1 min
Runoff coeff. = 0.57
Tc by User = 30.00 min
Asc/Rec limb fact = 1/1

Hydrograph Volume = 59,898 cuft



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:50 PM

Hyd. No. 13

Overall runoff volume (existing)

Hydrograph type = Mod. Rational
Storm frequency = 50 yrs
Drainage area = 16.680 ac
Intensity = 2.480 in/hr
IDF Curve = Lai O Lele 05-105.IDF

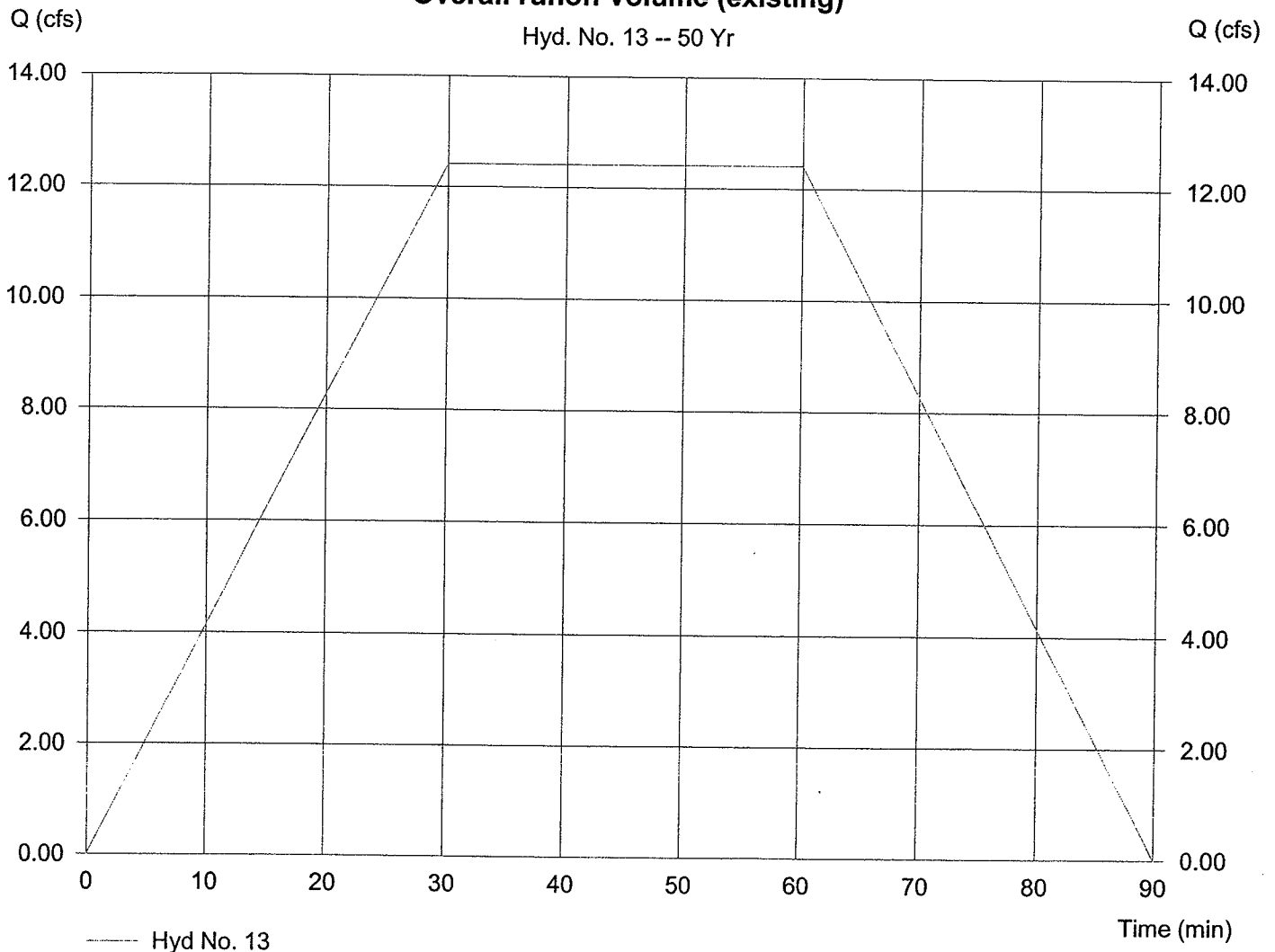
Peak discharge = 12.41 cfs
Time interval = 1 min
Runoff coeff. = 0.3
Tc by User = 30.00 min
Storm duration = 2 x Tc

Hydrograph Volume = 44,676 cuft

≈ 44,675 CF

Overall runoff volume (existing)

Hyd. No. 13 -- 50 Yr



Hydrograph Plot

Hydraflow Hydrographs by Intelisolve

Wednesday, Oct 27 2010, 2:51 PM

Hyd. No. 14

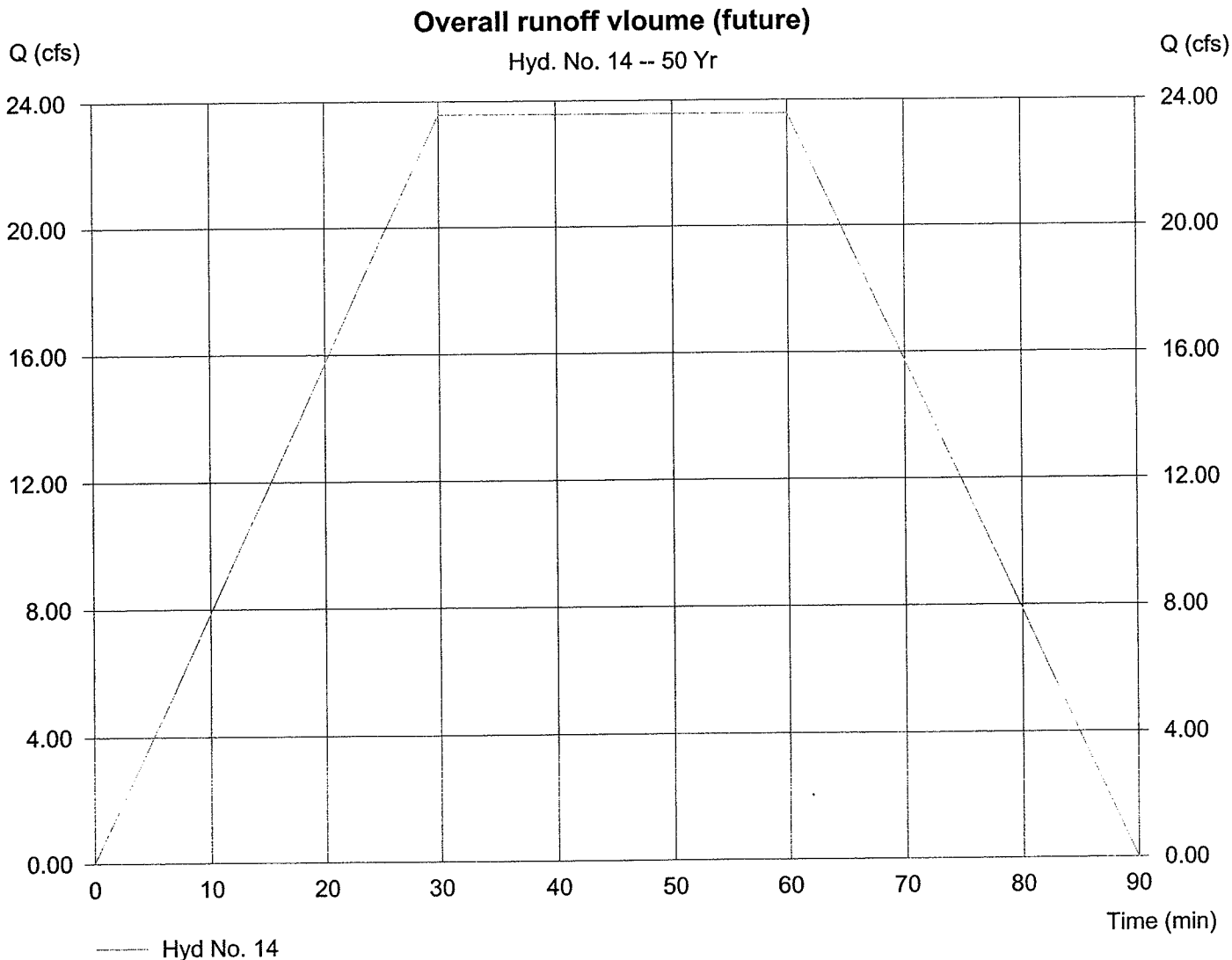
Overall runoff volume (future)

Hydrograph type = Mod. Rational
Storm frequency = 50 yrs
Drainage area = 16.680 ac
Intensity = 2.480 in/hr
IDF Curve = Lai O Lele 05-105.IDF

Peak discharge = 23.58 cfs
Time interval = 1 min
Runoff coeff. = 0.57
Tc by User = 30.00 min
Storm duration = 2 x Tc

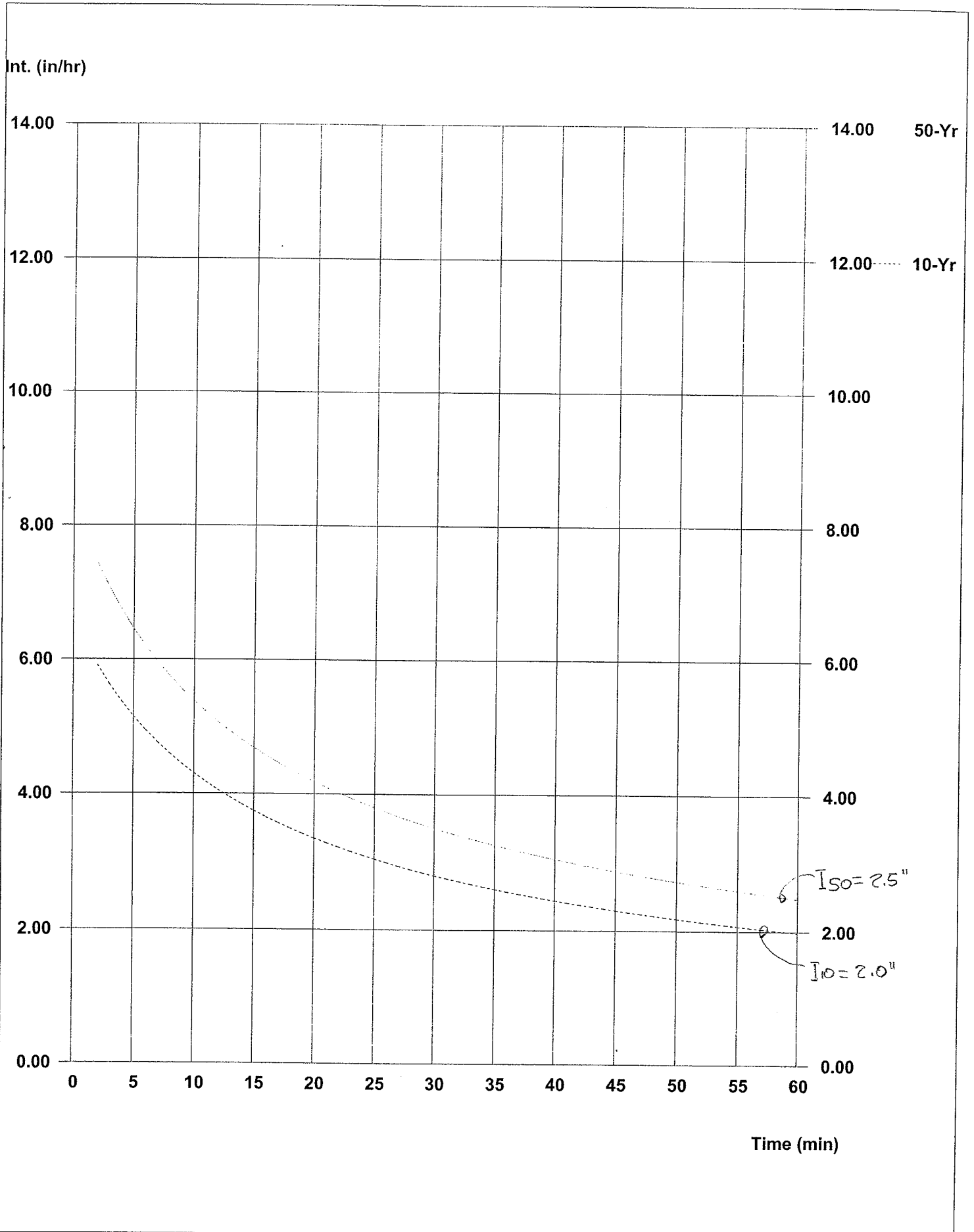
Hydrograph Volume = 84,884 cuft

≈ 84,885 CF



Hydrograph IDF Curves

IDF file: Lai O Lele 05-105.IDF



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	27.3279	9.9000	0.6180	-----
25	0.0000	0.0000	0.0000	-----
50	32.9258	9.5000	0.6097	-----
100	0.0000	0.0000	0.0000	-----

C:\Program Files\Hydraflow\Hydrographs\2004\La O Tele 05-105.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	5.15	4.30	3.75	3.35	3.04	2.80	2.60	2.44	2.30	2.18	2.07	1.98
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	6.45	5.38	4.68	4.18	3.80	3.50	3.25	3.05	2.88	2.73	2.60	2.48
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

Tc = time in minutes

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

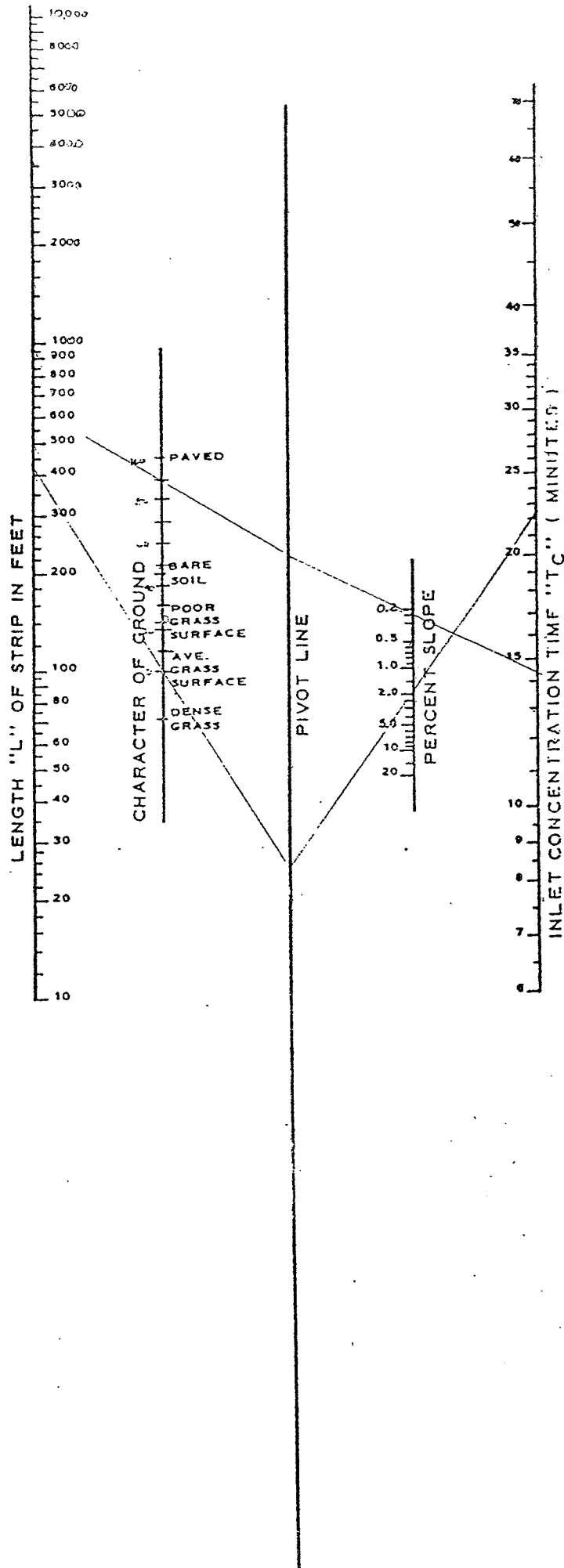
APPROXIMATE AVERAGE VELOCITIES OF RUNOFF FOR CALCULATING TIME OF CONCENTRATION

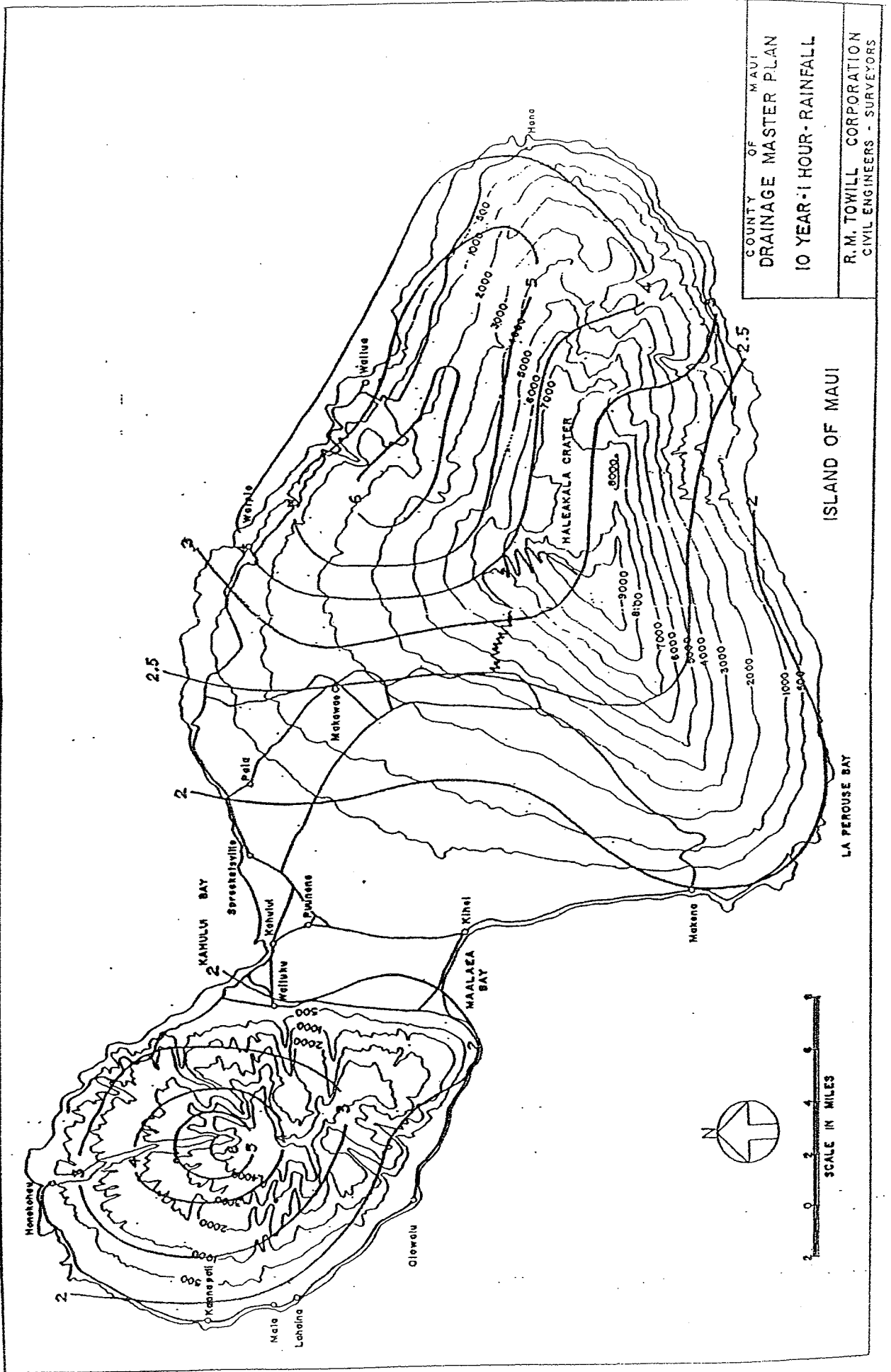
TYPE OF FLOW	VELOCITY IN FPS FOR SLOPES (in percent) INDICATED			
	0-3%	4-7%	8-11%	12-15%
OVERLAND FLOW:				
Woodlands	1.0	2.0	3.0	3.5
Pastures	1.5	3.0	4.0	4.5
Cultivated	2.0	4.0	5.0	6.0
Pavements	5.0	12.0	15.0	18.0
OPEN CHANNEL FLOW:				
Improved Channels	Determine Velocity by Manning's Formula			
Natural 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

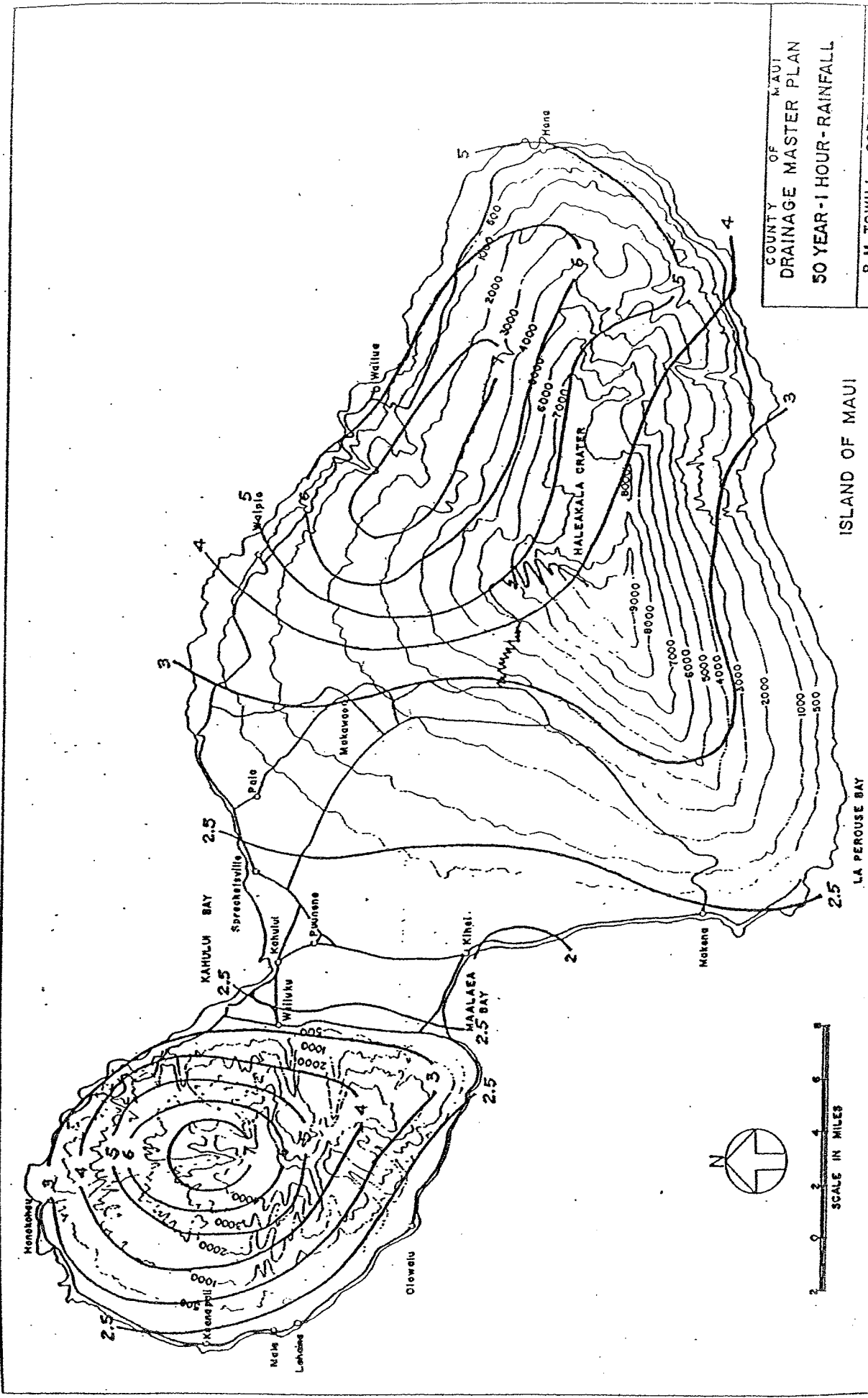
Overland Flow Chart





COUNTY OF MAUI
DRAINAGE MASTER PLAN
 10 YEAR - 1 HOUR - RAINFALL
 R. M. TOWILL CORPORATION
 CIVIL ENGINEERS - SURVEYORS

ISLAND OF MAUI

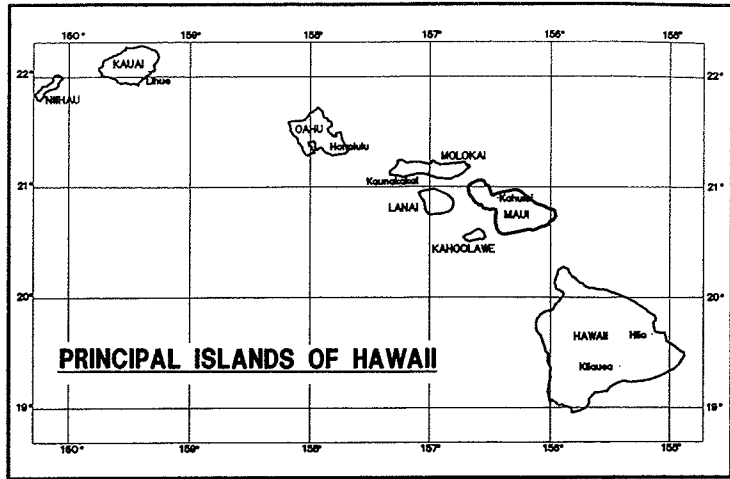


COUNTY OF MAUI
 DRAINAGE MASTER PLAN
 50 YEAR-1 HOUR-RAINFALL

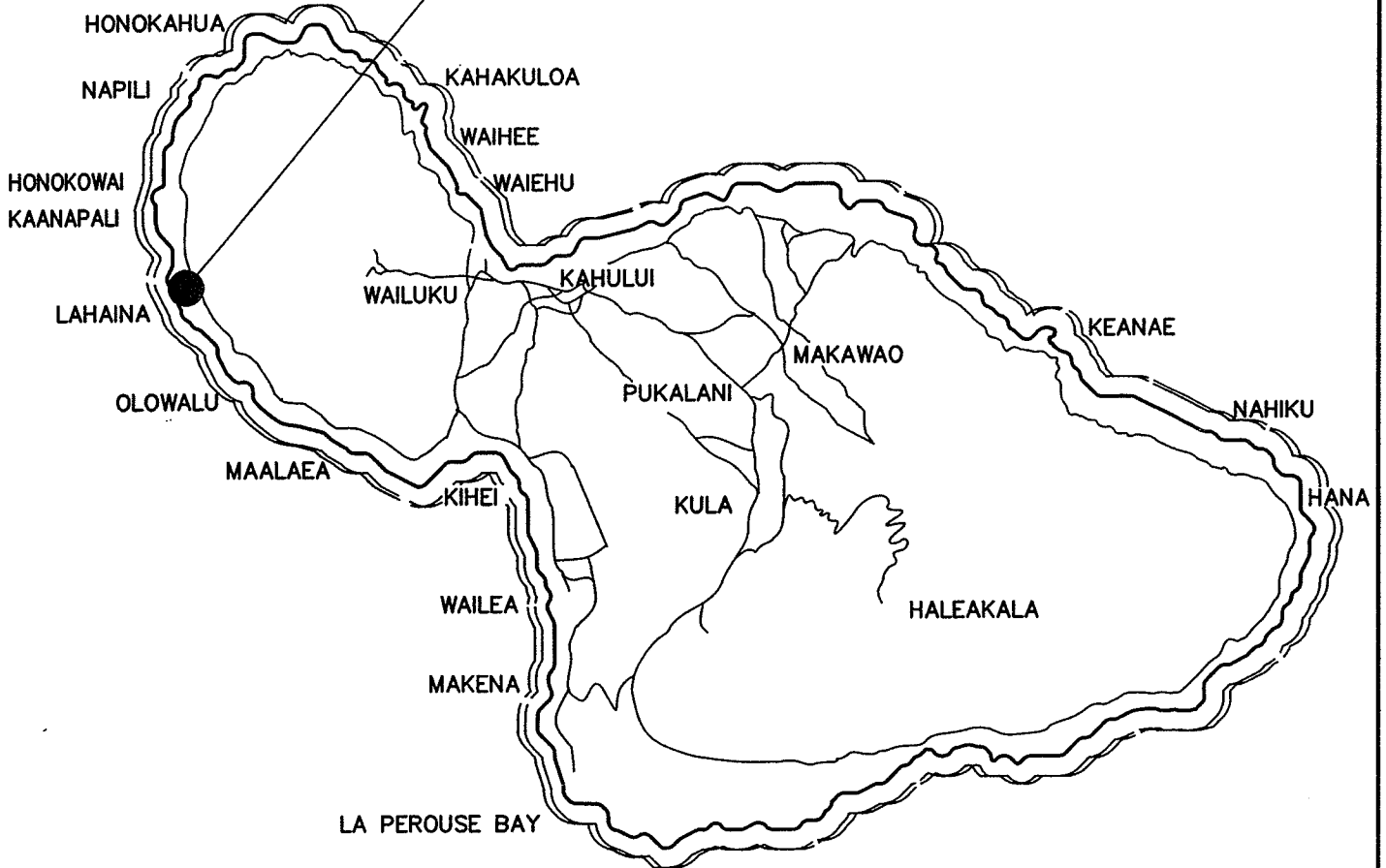
R. M. TOWILL CORPORATION
 CIVIL ENGINEERS - SURVEYORS

ISLAND OF MAUI

Plate 3



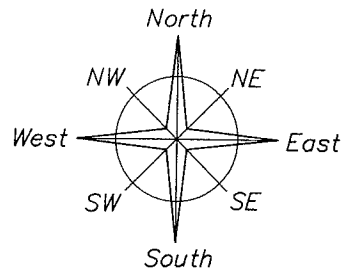
PROJECT SITE



**LOCATION MAP
ISLAND OF MAUI**

FIGURE 1

2005_05-105.WMLCI.SUBD.EXHIBIT.MAPS.dwg (Layout1)



PROJECT SITE

PROPOSED ACCESS POINT

PROPOSED ACCESS

LAHAINA BUSINESS PARK

KAHOMA STREAM FLOOD CONTROL CHANNEL

EXISTING OLD CANE HAUL ROAD

EXISTING BRIDGE

KAHOMA STREAM

CHANNEL

KELAWEA SUBDIVISION

KUHINA TRACTS

PROPOSED ACCESS POINT

TO KANAPALI

LAHAINA CANNERY

HONOHUILANI

KEAWE STREET

KAHOMA

HIGHWAY

KUHINA STREET

ALANALANUA ROAD

KAHOLA

KAHOLA

KAHOLA

TO WAILUKU

NOTE:
PROPOSED OFFSITE ACCESS
WILL BE PROVIDED WITH
20 FT. WIDE A.C. PAVEMENT

VICINITY MAP
NOT TO SCALE

DATE: DECEMBER 08, 2009

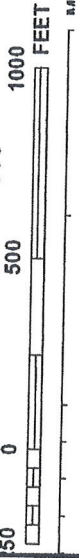
FIGURE 2

(Vicinity)
Z:\DRAW1\2005\05-105\WMLC1_SUBD_EXHIBIT_MAPS_DEC2009.dwg 08-DEC-2009 : Revised BY:Nancy

nd Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NATIONAL FLOOD INSURANCE PROGRAM


PANEL 0361E

FIRM
FLOOD INSURANCE RATE MAP
MAUI COUNTY,
HAWAII

PANEL 361 OF 825
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

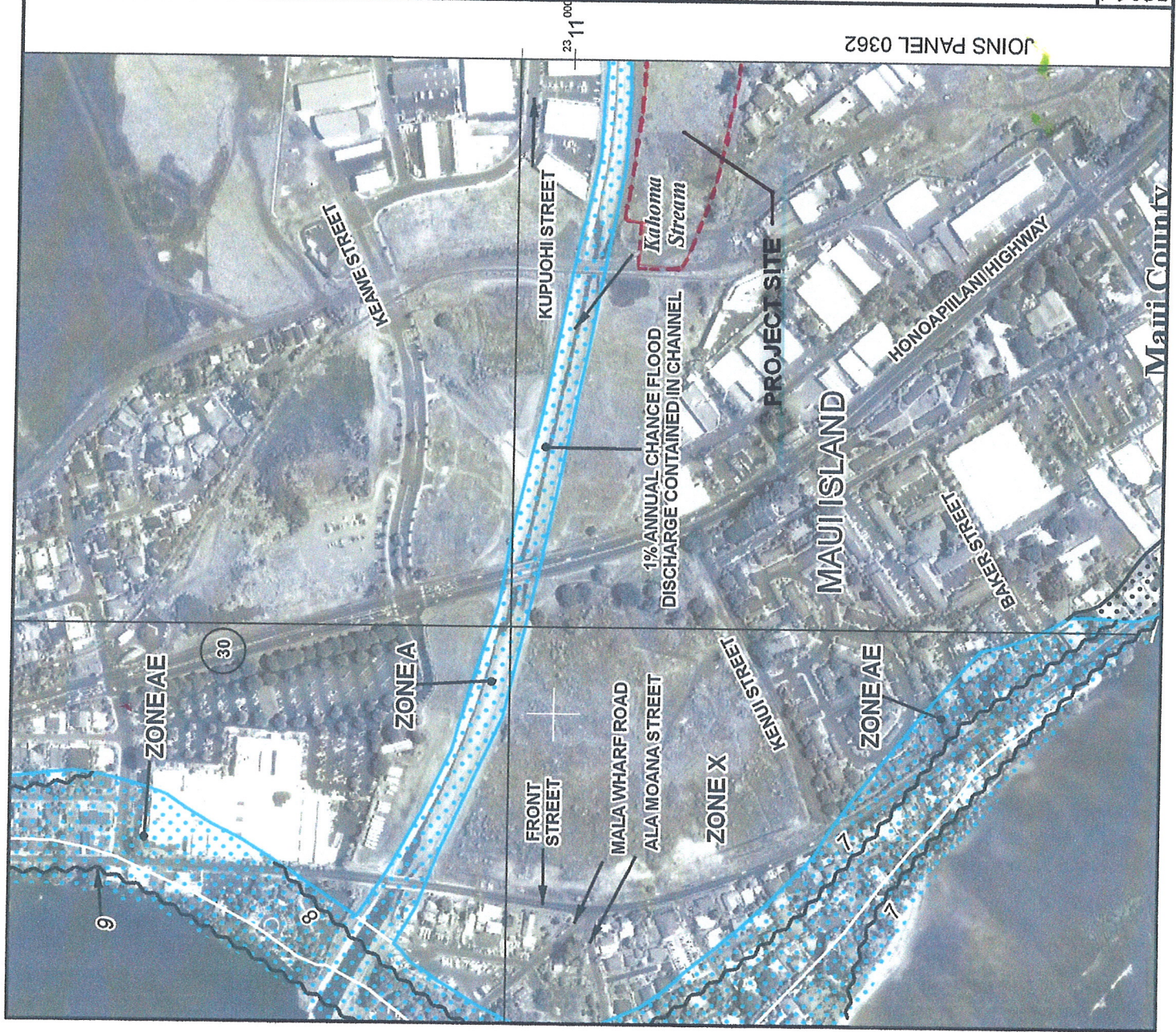
CONTAINS:
COMMUNITY NUMBER 150003
PANEL SUFFIX 0361
E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

 MAP NUMBER 1500030361E
MAP REVISED SEPTEMBER 25, 2009
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT 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.msc.fema.gov

FIGURE 4

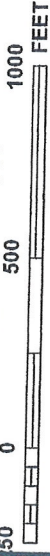


JOINS PANEL 0362

Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



METED

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0362E

FIRM
FLOOD INSURANCE RATE MAP


MAUI COUNTY,
HAWAII

PANEL 362 OF 825
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY MAUI COUNTY
NUMBER 150003
PANEL 0362
SUFFIX E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

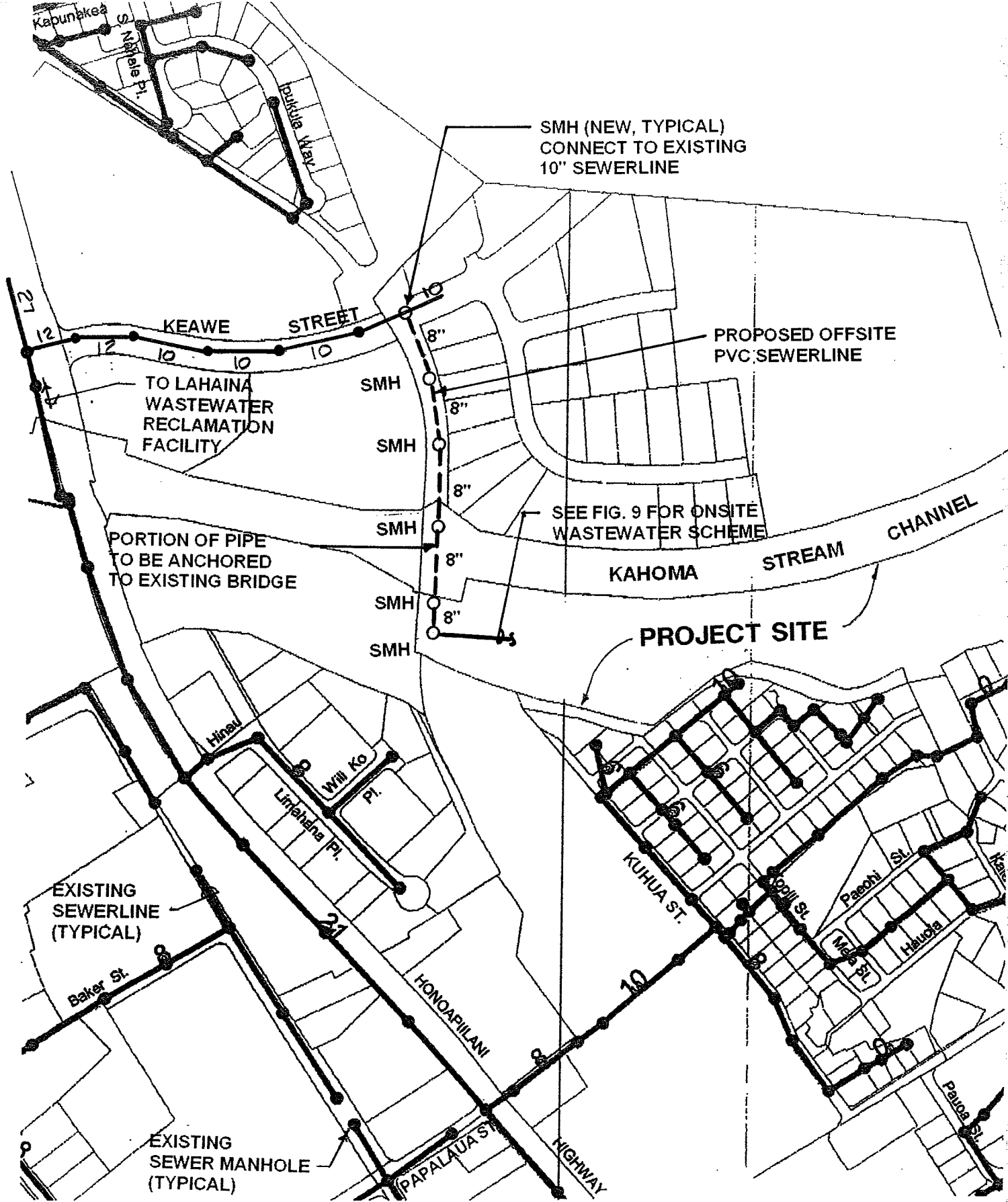
MAP NUMBER 1500030362E
MAP REVISED SEPTEMBER 25, 2009
Federal Emergency Management Agency



This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT 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.msc.fema.gov



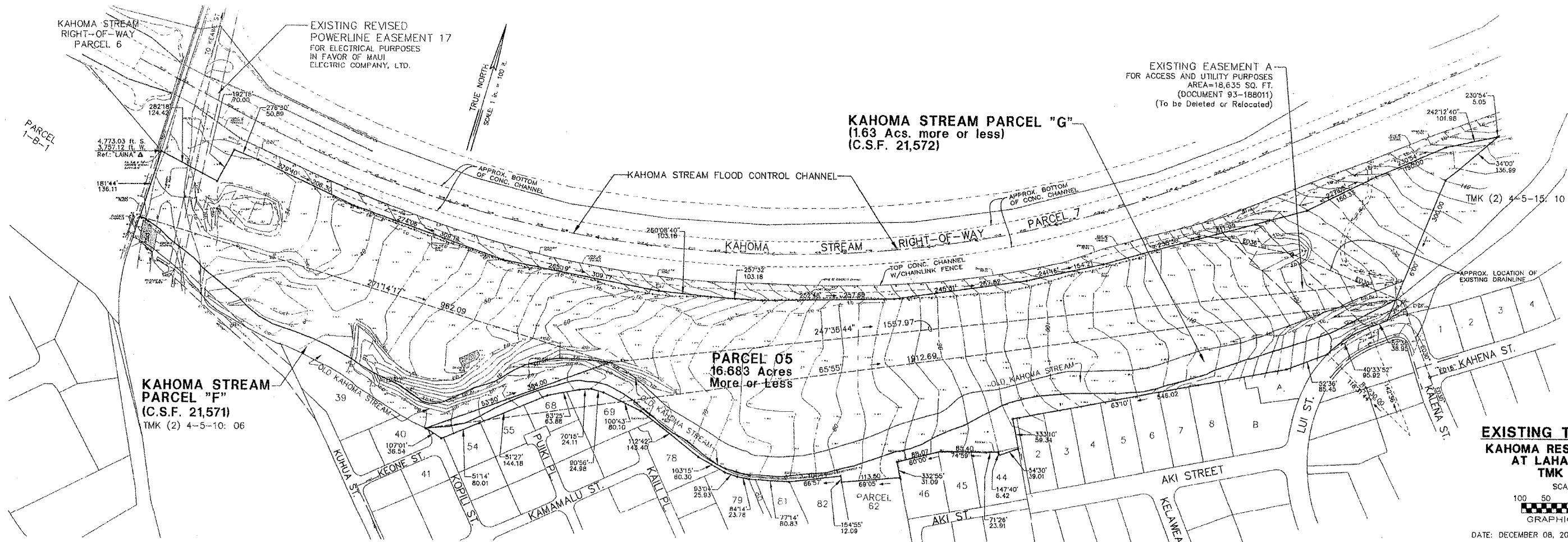
FIGURE 4A



SCHEMATIC LAYOUT
OFFSITE GRAVITY WASTEWATER SYSTEM

Not to Scale

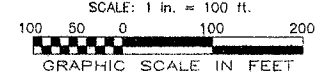
FIGURE 5A



LEGEND & ABBREVIATION:

- - - - - EXIST. CONTOUR
- EXIST. SPOT ELEVATION
- tb— TOP BANK
- bb— BOTTOM BANK
- eoc EDGE A.C. PAVEMENT
- PP/TP POWER/TELEPHONE POLE
- HB HOSE BIBB

EXISTING TOPOGRAPHIC MAP
KAHOMA RESIDENTIAL SUBDIVISION
AT LAHAINA, MAUI, HAWAII
TMK (2) 4-5-10: 05

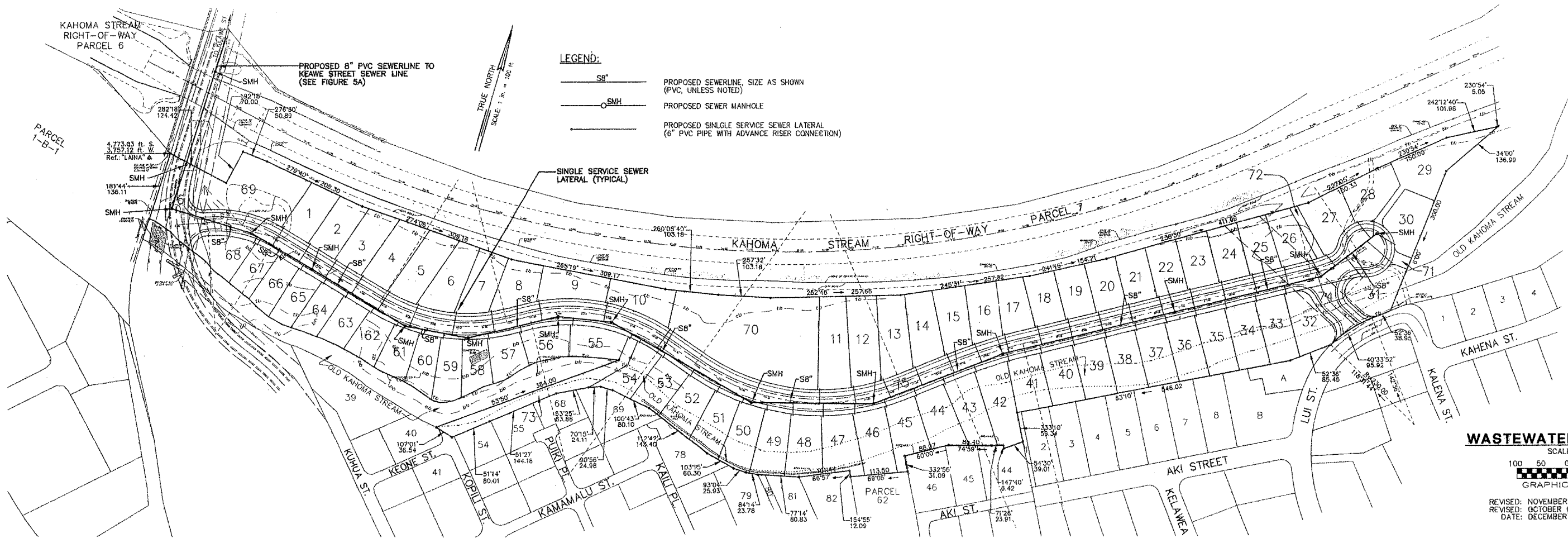


DATE: DECEMBER 08, 2009

FIGURE 7

[TOPO]
 Z:\URBAN\2005\05-105\WML\CL\SURC_EXHIBIT_MAPS_DEC2009.dwg 08-DEC-2009 Revised by: nancy

Sewer, FIG. 9
2:\DRAWING\2009\05-105\EXHIBIT MAPS\11-2010_MULLI_SUBD_EXHIBIT_MAPS.dwg 09-NOV-2010 : Revised: Bryson



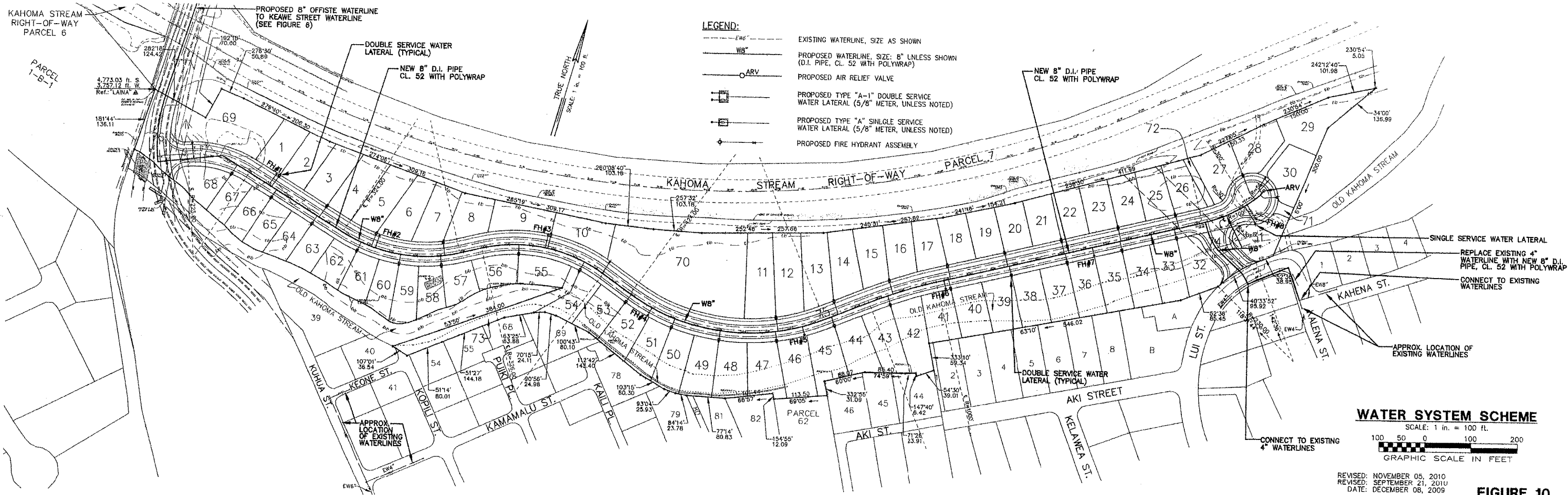
LEGEND:

- 8" — PROPOSED SEWERLINE, SIZE AS SHOWN (PVC, UNLESS NOTED)
- SMH PROPOSED SEWER MANHOLE
- PROPOSED SINGLE SERVICE SEWER LATERAL (6" PVC PIPE WITH ADVANCE RISER CONNECTION)

WASTEWATER SYSTEM SCHEME
SCALE: 1 in. = 100 ft.
100 50 0 100 200
GRAPHIC SCALE IN FEET
REVISED: NOVEMBER 05, 2010
REVISED: OCTOBER 01, 2010
DATE: DECEMBER 08, 2009

FIGURE 9

Water, FIG. 10:
Z:\NORTH\11\2009\05-105\EXHIBIT MAPS\11-2010_WWCL_SUBD_EXHIBIT_MAPS.dwg 05-NOV-2010 1:10:00 PM BPH/MS



(Drawing: FIG. 11)
 Z:\DRAWING\2005\05-105\EXHIBIT MAPS\11-2010_WILCO_SUBD_EXHIBIT_MAPS.dwg 05-NOV-2010 10:58:11 AM
 Revised by Nancy

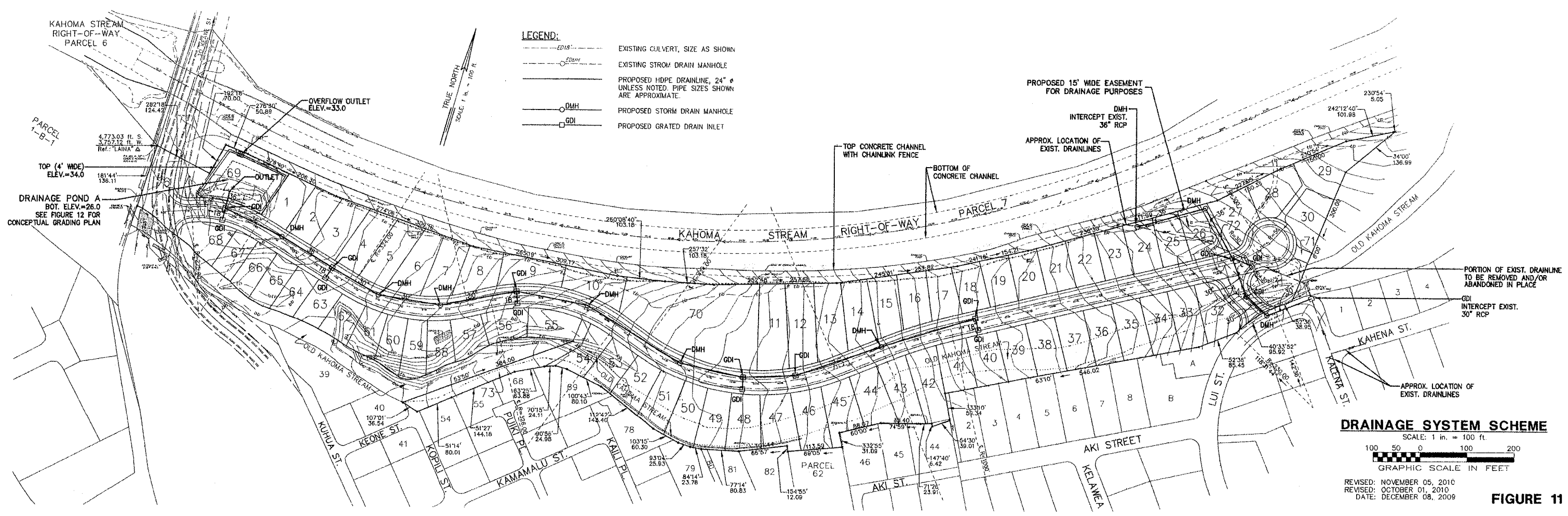
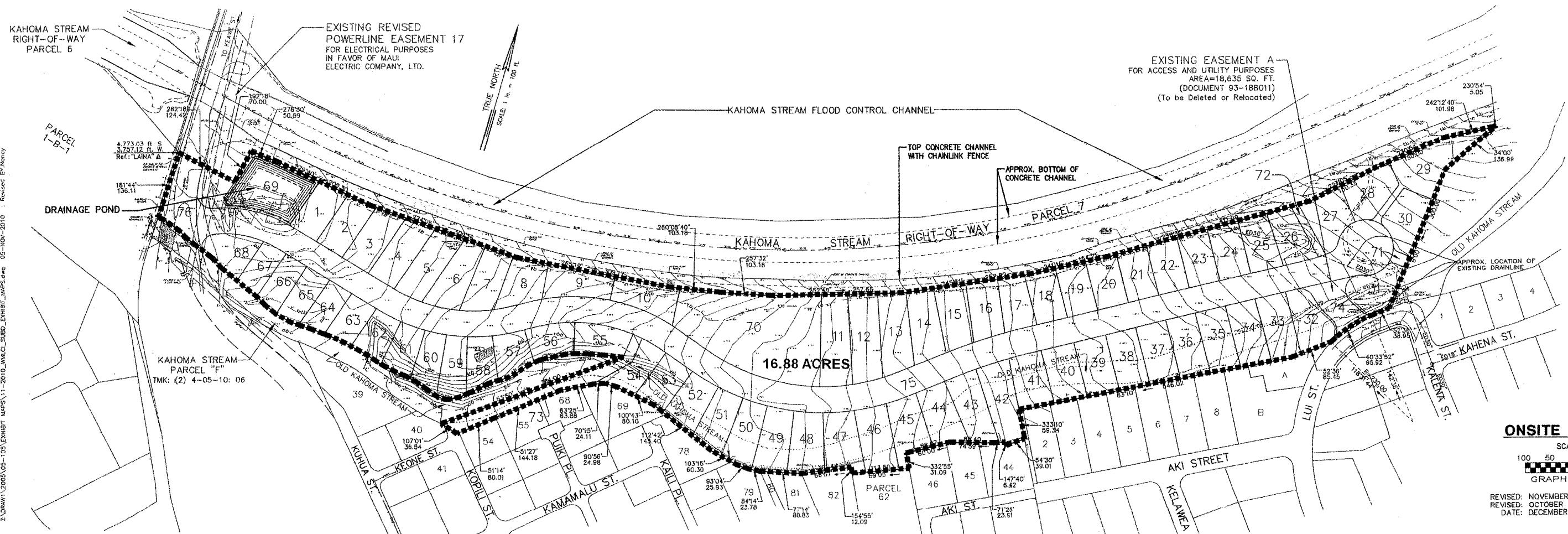
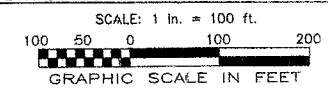


FIGURE 11

ON-SITE DRAINAGE FIG. 13
Z:\DRAWING\2009\05-105\EXHIBIT MAPS\11-2010\MAKCL\SUBD_EXHIBIT_MAPS.dwg 05-NOV-2010 : Revised: E:\Nancy



ONSITE DRAINAGE AREA



REVISED: NOVEMBER 05, 2010
REVISED: OCTOBER 01, 2010
DATE: DECEMBER 08, 2009

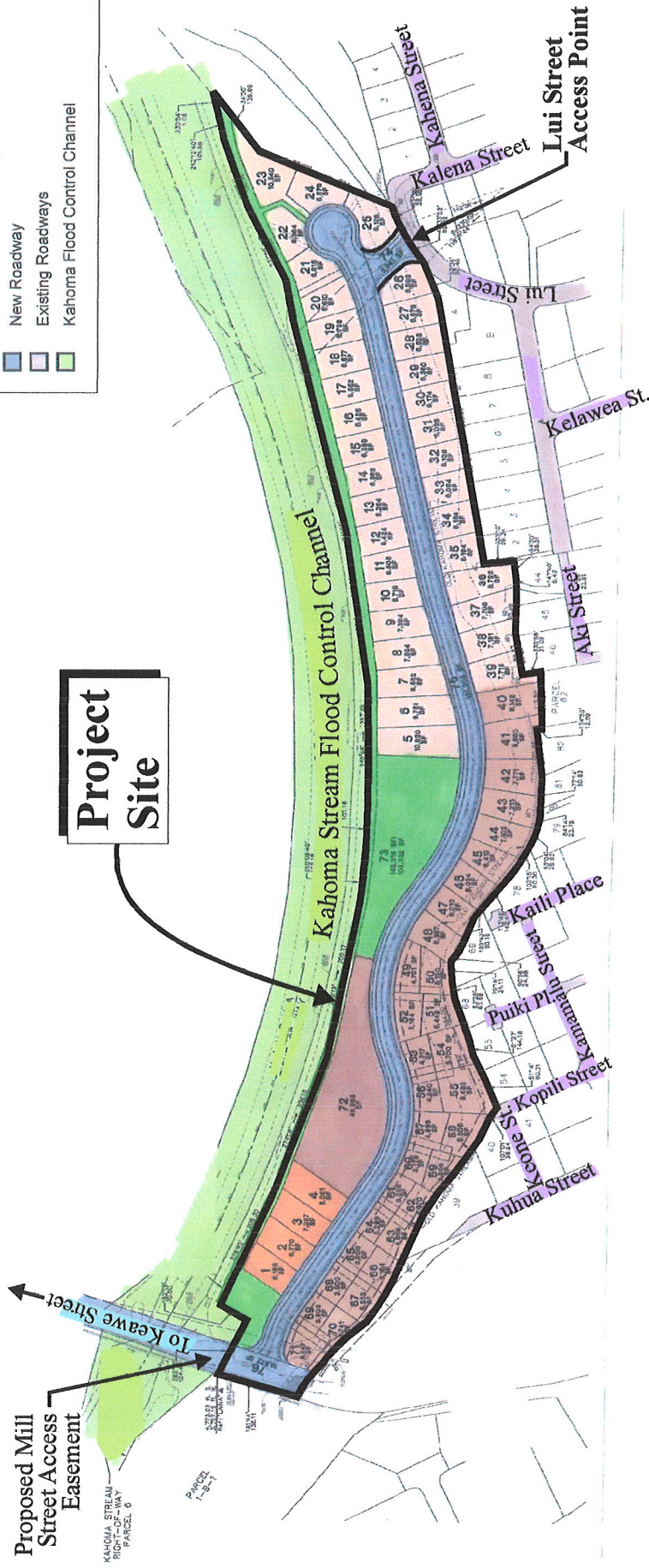
FIGURE 13

APPENDIX H.

Alternate Site Plans

Kahoma Residential Subdivision
 (2) 4-5-010-005, Lahaina, Maui
95 Units Proposed

- Habitat Homes (4 lots)
- Lokahi Special Needs homes (25 MFR Units)
- Lokahi Pacific Affordable Homes (31 lots)
- Affordable Lots (35 lots)
- Park, Bike Path, Drainage Lot
- New Roadway
- Existing Roadways
- Kahoma Flood Control Channel



Source: R.T. Tanaka Engineers, Inc.

Figure H-3 Proposed Kahoma Residential Subdivision
 Alternative Site Plan 3: 95-Unit Configuration



NOT TO SCALE

Prepared for: West Maui Land Company, Inc.



MUNEKIYO & HIRAGA, INC.

APPENDIX I.

May 7, 2008 Meeting Memorandum

WEST MAUI LAND COMPANY, INC.

LAUNIUPOKO – OLOWALU – KAUAULA – KAHOMA – MAKILA

33 LONO AVE., SUITE 450
KAHULUI, MAUI, HAWAII 96732

PHONE: (808) 877-4202
FAX: (808) 877-9409

MEETING MEMORANDUM

Date of Meeting: May 7, 2008

Attendees: Applicants:

Heidi Bigelow (West Maui Land Company, LLC)
Sherri Dodson (Habitat for Humanity)
Maile Sombelon (Lokahi Pacific, Inc.)
Cindy Texeira (Lokahi Pacific, Inc.)

Consultants:

Kyle Ginoza (Munekiyo & Hiraga, Inc.)
Gwen Ohashi Hiraga (Munekiyo & Hiraga, Inc.)

Community Members:

Attached Attendance Sheet

Meeting Purpose: Public Informational Meeting (Presentation) on the Proposed Kahoma Residential Project, Located at TMK (2) 4-5-010:005, Lahaina, Maui, Hawaii

The meeting started at approximately 5:30 p.m.

Kyle Ginoza provided brief opening remarks in welcoming attendees to this public informational meeting. He then provided a Power Point presentation on the proposed project (overview of the project, proposed site plan, access to the project, proposed unit counts, distribution of units among the applicants, entitlements to be sought, and project timeline). It was noted that a draft Final Environmental Assessment is being prepared for the project. It was explained that the purpose of the meeting was to receive comments on the proposed Kahoma Residential Subdivision.

The following highlights the questions and comments offered at the meeting:

1. Kalani Kapu

How did the developers get the land; where are the developers; the developer is using a quitclaim deed and this is questionable; request that title issues be resolved and proof of title and ownership.

Wants to know about entitlements and burials, as these are interest for the families in Kahoma. Wants this settled now, before going to the State Land Use Commission. The families are afraid of what will happen to the burials.

The developer putting the cart before the process.

If the Kahoma project is started, a lawsuit will be filed.

Not against affordable housing, but wants to make sure that the homes are affordable. The multi-family project that is coming up is selling for more than a million.

Concern is with housing on lands where do not have title to land.

At the meeting held about a month ago, the issue of the Quitclaim Deed was discussed. Thought that Peter Martin would be at tonight's meeting.

Response: The applicant has title insurance for the property.

2. Gary Lincoln

What happens if burials are found?

Do not want to see the project.

Response: There is a process in place (State law) that requires notification to the SHPD and Burial Council. The Burial Council will review any finds of burials.

3. Noelani Mason

Who gave the Quitclaim Deed? The Quitclaim Deed is an unwarranted deed. Having title insurance does not provide the title to the property.

Native Hawaiian rights must be protected, per the State Constitution.

Do not approve of this project. Mr. Martin is not a hero. There is collusion and conspiracy.

Maybe a lien needs to be put on the property. Pioneer Mill has been stealing for years doing fraudulent acts.

Noted that buyer beware; title insurance and secured interest is questionable; under protest and under duress that this meeting is being held.

End the meeting and come back with Mr. Martin.

4. Lillian Sutter

Family owns property in Kahoma and has been paying property taxes. Who owns the property that the affordable housing will be built on?

How was notice provided for the meeting?

If Peter Martin wants affordable housing, he should put them in Launiupoko.

Pioneer Mill Co., Ltd. is bankrupted and they received stolen property.

Response: Kahoma Land LLC pays property taxes on the subject parcel. Notice of the meeting was sent to land owners within 500 feet of the subject property.

5. Yolanda Dizon

Wants to see affordable housing, but wants the issues resolved first.

6. Su Yong Kim

This is a light industrial area; is there a limitation of buffer for development?

7. Alison Stanford

Keawe Street is a private road; concerned with access and ownership of Keawe Street.

8. Rae Matsumoto

Lives in the area and her property to be affected with the proposed development.

The meeting ended at approximately 6:50 p.m.



Heidi Bigelow

HB:

K:\DATA\Kahoma\Empeet\g050711 meeting memo.doc

Name	Address
55 Su Young Kim	417A Aie St CAH. 96741
56 Kuulei Minchen	P.O. Box 5118 Kahului HI 96733
57 Heidi Bigelow	33 Lono Ave., Kahului HI 96732
58 Lillian Suter	29 Kokoi Rd., Lah.
59 Lehua Ii	174 Fleming Rd. Lah
60 Glenn R. Ii Jr.	174 Fleming Rd Lah
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APPENDIX I-1.

**March 10, 2010 Kaanapali
2020 Community Advisory
Group**

***Ka'anapali 2020
Community Advisory Group***

***Ka'anapali Land Management Corp. Conference Room
March 10, 2010***

Attendance: B. Ariyoshi, Eve Clute, Walter Delos Reyes, Ken Hansen, Z. Kalua, John Kuia, Paul Laub, P. Nishiyama, Joe Pluta and S. Williams

Howard Hanzawa (Kaanapali Land Management Corp.)
Gwen Ohashi Hiraga (Munekiyo & Hiraga, Inc.)

The meeting started at approximately 3:00 p.m.

I. Review of Meeting Report (February 10, 2010)

The report was approved, as circulated.

II. Guest Speakers

A. Nancy Johnson (UH Maui College)

Ms. Johnson provided handouts (power point presentation on Health Care in Maui County and an informational brochure of UH Maui College Careers in Health).

Highlights of the discussions included the following:

- Maui has only one (1) nursing program (UH Maui College).
- Out of 21 graduates last year, 14 were hired, with most going to Maui Memorial Medical Center.
- The Kaanapali 2020 plan proposes to create a new medical industry.
- Lahainaluna High School has an excellent Health Pathway program and the College is working with the high school, starting with juniors.
- The ratio of men to women in the health care industry is 25% men, and Hawaii has the highest ratio.
- Financial aid and scholarships are available for veterans.

- The retirement of nurses is largely dependent on the economy, and nurses who would have wanted to retire kept working when the spouses were laid off.
- There would not be a shortage of nurses for the West Maui Hospital, and nurses are already saying that they would like to work at the new hospital.
- With regard to career path, an individual would need to have a BA to be a nurse, and would need a Masters Degree or PhD to teach.

B. Rory Frampton (Consultant for Kahoma Residential Project)

Mr. Frampton provided a handout and made a power point presentation on the proposed Kahoma Residential Project, to be developed by Lokahi Pacific, Habitat for Humanity and West Maui Land Company. The project proposes 87 units, 62 single-family units and 25 multi-family units. Lokahi Pacific would provide 25 multi-family rental units for special needs and 23 single-family units. Habitat for Humanity is allotted 4 lots and West Maui Land Company would be building 35 "affordable" single-family homes, consistent with the County's residential workforce housing policy.

Access to the project site would be from Mill (Kuhua) Street, Keawe Street and the existing Lui and Kalena Streets. The proposed park will be open to the public and will have a perimeter walkway.

The project will be reviewed by the County Council as part of the HRS 201-H application process, and will be reviewed by the State Land Use Commission for the change in designation from Agricultural to Urban.

J. Kuia noted that he lived along the Kahoma Stream and when the Kahoma channel was built, it took away a part of the history of the area.

Z. Kalua noted that he met with Rory, and although the WMTA has fought every West Maui Land Company project, affordable housing is needed in Lahaina. In reviewing the Maui Island Plan, this is an infill project.

E. Clute noted that the project team should discuss with the County Department of Environmental Management regarding the sewage hook-up since the County cannot allow any hook-ups until the R-1 water system is upgraded.

J. Pluta noted that the County did not keep up with the upgrades required for the wastewater system and with collection of fees for the upgrades. He stated that the WMTA supports affordable housing.

III. Project Status

A. County-Wide Policy Plan

H. Hanzawa noted that the plan is an umbrella plan, with broad goals, objectives and action statements. The next step is the island plans and then community plans. He noted that he has provided testimony stating that the community plans should have the details, and not the County-wide Plan and Maui Island Plan.

J. Pluta noted that WMTA has commented on the plan as well, as the plan appears to be too specific, the concern with the apparent rush to review, and requesting that the Council “table” the plan until after Budget review.

B. Maui Island Plan

The Council’s Planning Committee has suspended meetings on the review of the plan, until after the Council completes its review of the FY 2011 Budget. P. Laub noted that to implement the plan, it will cost more than \$200,000,000. H. Hanzawa noted that \$53,000,000 is estimated to implement the Heritage Resources section and only \$575,000 is estimated for Economic Development. The Council will start its review of the Budget soon and must resolve the proposed deficit. The Council needs to look at the cost of implementing the Maui Island Plan.

1. Kaanapali 2020 Area

H. Hanzawa noted the “Urban Reserve” designation proposed by the Planning Department and thanked the Group for its support to remove the “Urban Reserve” designation. He met with Planning Department and informed the department of the Group’s decision. He is confident that the “Urban Reserve” designation will be removed.

2. Wainee Community

There was no discussion on the Wainee project.

3. Puukolii Village

H. Hanzawa reported that they are still working on the construction plans, and have started on the off-site plans.

4. West Maui Hospital

K. Hansen noted that with the regard to the Certificate of Need, Newport Hospital Corporation (NHC) must show progress and a report will be prepared and submitted to SHPDA. They must show that they are moving forward with the project. They have done preliminary design and engineering work and must work on the site plan.

NHC continues to work with lenders and are proceeding in four (4) parallel paths to secure funding. B. Hoyle will apply for a change in status from a for-profit to a non-profit hospital.

K. Hansen noted that there are issues on site with regard to access and timing. The lenders have certain requirements that must be met with regard to entitlements, and it is becoming difficult to use the current site because of access and infrastructural (water, sewer, etc.) needs.

NHC is now pursuing a different site for the hospital and is in discussion with Kaanapali Land Management Corp. They are looking for an area where infrastructure is available. They will be meeting with Steve Lovelette to discuss the purchase of a new site.

H. Hanzawa stated that they are optimistic in having a new site. K. Hansen stated that his design and construction team will be meeting the following week and they hope to identify the site, which should be a flatter site and where they can construct a single-story hospital, skilled nursing and assisted living buildings.

There are two (2) large non-profit groups in the health care business that are very anxious to do the hospital, however, there is a concern with doing business in Hawaii.

J. Kuia asked about the new location. K. Hansen responded that they are looking at the Puukolii Triangle area.

E. Clute asked about zoning for the hospital parcel. K. Hansen responded that NHC is committed to working on reverting the property back to Agricultural. E. Clute asked if sewer hook-up is available, and K. Hansen replied that they would review sewer service as part of their due diligence.

IV. Next Meeting

The next meeting is scheduled for April 14, 2010, at 3 30 p.m.

V. Adjournment

There being no further business, the meeting was adjourned at 4:40 p.m.

APPENDIX I-2.

March 23, 2010 Meeting Memorandum



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

MARK ALEXANDER ROY

April 2, 2010

MEETING MEMORANDUM

Date of Meeting: March 23, 2010

From: Gwen Ohashi Hiraga, Principal

Participants: Applicants:
Heidi Bigelow (West Maui Land Company, LLC)
Sherri Dodson (Habitat for Humanity)
Vanessa Medeiros (Lokahi Pacific, Inc.)
Condy Texeira (Lokahi Pacific, Inc.)

Consultants:
Rory Frampton (Consultant)
Gwen Ohashi Hiraga (Munekiyo & Hiraga, Inc.)

Community Members
Attached Attendance Sheet

Meeting Purpose: Public Informational Meeting (Presentation Update) on the Proposed Kahoma Residential Project, Located at TMK (2) 4-5-010:005, Lahaina, Maui, Hawaii

The meeting started at approximately 6:00 p.m.

Gwen Ohashi Hiraga provided brief opening remarks in welcoming attendees to this public informational meeting, noting that the first public informational meeting was held in May 2008, and the purpose of this meeting is to provide an update and status of the project. An informational packet summarizing the project was made available at the reception table.

The applicants (Heidi Bigelow, Sherri Dodson, Vanessa Medeiros and Cindy Texeira) were introduced and a thank you was extended to Lahainaluna High School Foundation for its assistance with the sign-in/reception table.

The meeting format was explained, and would include a Power Point presentation by Rory Frampton, to be followed by general questions. Time is allotted for attendees to speak directly with the applicants to ask questions on the project.

Lastly, it was noted that "comment forms" are available at the reception table and have been placed on the tables. These forms can be left at the reception table or mailed in.

Rory Frampton provided a Power Point presentation (overview of the project, proposed site plan, access to the project, proposed unit counts, distribution of units among the applicants, and project timeline). It was noted that the draft Final Environmental Assessment was being prepared as well as a 201H application for County Council review. It is anticipated that the Council would review the 201H application in late Summer, and the State Land Use Commission would review some time in the Fall.

The following highlights the questions, comments and discussion at the meeting:

1. What is "special needs"?

V. Medeiros responded that "special needs" units are to be made available to the elderly and those with disabilities.

2. Where is the location of the "special needs" units?

R. Frampton responded by showing the "special needs" units on the site plan, consisting of six (6) buildings with four (4) units in each building, for a total of twenty-four (24) units.

3. If the project is proposing 87 units, how many residents does this translate to?

R. Frampton responded that based on an average of three (3) persons per family, there may be approximately 260 to 300 people living at the project.

4. Why doesn't the applicant (West Maui Land Company) build the project above the Lahaina industrial area instead of at the proposed location?

R. Frampton responded that the applicant does not own the land up there.

5. The schools are already overloaded, so where will the kids from the project be attending school?

R. Frampton responded that the children will attend the existing schools in the area, and further, it is anticipated that those who will live at the new project are those who already live in Lahaina. There is pent-up demand for housing in Lahaina.

The schools will be an issue.

R. Frampton noted that the goal is to provide workforce housing for people who live in Lahaina. The Council will review all aspects of the proposed project, including student population.

Why do a project now when there are foreclosures of homes and closing of shops?

R. Frampton responded that the proposed project is located at a site that is currently vacant, which is a liability concern for the landowner, and it is not really an option to leave the property as is. Further, the site is in close proximity to infrastructure.

6. The landowner bought the parcel knowing the situation (i.e. open space).

R. Frampton responded that this parcel was part of a larger purchase from the previous landowner.

Why did the landowner invest here, knowing the situation?

R. Frampton noted that he could not speak for the landowner.

7. What is the starting sales price for the units?

R. Frampton responded that it could start at \$264,000, depending on the County (and HUD) pricing guidelines.

8. Is West Maui Land selling the land or building the project?

R. Frampton responded that this has not been decided.

Will there be CCRs?

R. Frampton responded that there will be CCRs, with design standards and design controls, a timeframe for construction, and a requirement for owner-occupied units.

Is there a time period when the units cannot be sold?

R. Frampton responded that there will be restrictions, and the intent is to provide homes for the first-time homebuyer.

9. If a person already owns a home, they cannot buy in the project? How long does an owner have to hold onto the home? The County requires 25 years.

R. Frampton responded that they are looking at seven (7) years. V. Medeiros responded that for Lokahi, the restriction is fifteen (15) years. S. Dodson noted that Habitat is also the lender on its homes, so you would be looking at 20 or 30 years.

10. What are the lot sizes?

R. Frampton responded that lots will range from 4,500 s.f. to 6,000 s.f. to 10,000 s.f.

11. What about the impact from vehicles?

R. Frampton responded that a traffic engineer has done a study.

12. With the project of 87 units, the roads would be more congested and already people park on the streets.

R. Frampton noted that the project provides for connectivity. Roadways will be constructed with 28-foot lanes and with curbs and gutters, as well as traffic control measures.

13. Expressed concern with Kalena Street and traffic to Lahainaluna (traffic impact to those residents on Kalena Street). There needs to be another road to Lahainaluna, like through Dickenson Street.

14. With 250 vehicle trips, traffic will be grid-locked.

R. Frampton responded that a traffic study was prepared. The projection shows that there will be less traffic on Lahainauna Road after Phase IA of the Bypass is done, and also regional traffic will be less likely to utilize the project road to travel to schools on Lahainaluna with the completion of Keawe Street/Phase IA.

Traffic will still be congested.

There will be congestion on Kalena Street.

Need for an alternate road to Lahainaluna.

R. Frampton noted that Dickenson Street extension was proposed in the past, but the people were against it so the project was not done.

15. If there was a tsunami, there would be major congestion on Lahainaluna Road, with people coming from Front Street.

R. Frampton noted that this could be a problem with, or without, the project. Again, a traffic study was done by a traffic engineer.

16. Kids are walking on the streets so it could be dangerous.

17. Is there going to be traffic light at Kuhua and Keawe Street?

R. Frampton responded that none is being proposed.

Keawe Street cannot handle the traffic and what if there is an accident?

R. Frampton responded that the intersection will be stop-controlled. He further stated that he is a member of the Lahaina Bypass Now Committee. The State will be improving Keawe Street with a dedicated left turn lane and will re-configure the intersection.

18. The improvement to Keawe Street may help the current situation, but will not help in the future, with this new project.

19. There are two (2) traffic lights now, at Lahainaluna Road and at Keawe Street, but the project will increase the traffic.

R. Frampton noted that Phase IB of the Bypass will get started, and will provide additional relief to Hokiokio Street.

20. What about the Kuhua Street extension project?

R. Frampton responded that the Kuhua Street extension is not part of this project, but this project will do the improvements in this Kahoma area. The Kuhua Street extension project is still a far way off.

21. Will the project use local contractors for construction?

R. Frampton responded that he could not see using Mainland contractors.

22. Will the project impact on the values of the neighboring homes?

R. Frampton noted that the project would not impact the values.

23. The traffic will be increased with the project. Is there any other access that could be provided?

R. Frampton responded that there is no opportunity to do another access. The traffic engineers have studied the matter.

The congestion on Kalena Street will impact the residents.

24. Maybe the traffic study was done when there was no traffic.

R. Frampton responded that the traffic engineer knows when the study (traffic counts) should be done and would not do the study when not appropriate.

Person helped count the cars and felt it (counting) was done at the wrong time, and at the wrong location.

R. Frampton stated that the counts were taken from 6:00 a.m. to 9:00 a.m., and then again from 2:00 p.m. to 6:30 p.m. Counts were taken at each intersection and counts were taken at worst time for traffic.

Person reiterated comment that count was taken at the wrong location.

25. The project is located next to the old stream area, where it is not too safe. This is not a good project.

R. Frampton responded that the Corp. of Engineers designed the stream channel, and it appears to be over-sized. The County owns the area that extends to approximately 40 feet away from the channel, so the project would not be built right next to the stream channel. Also, any increase in run-off from the project will be retained on-site.

How will the run-off be retained?

R. Frampton stated the catch basins will be constructed to accommodate 50-year storms. Also, the proposed park area is located on the stream side of the property.

26. Where the property borders the stream channel, will the rocks be removed?

R. Frampton responded that the site will be changed to direct the run-off from the project to flow into the on-site drainage system.

27. Will the project be build up, and will there be problems like in Maui Lani?

R. Frampton responded in the negative.

28. What about fencing around the project area?

R. Frampton responded that there will likely be a common boundary fence, but the details have not been decided.

29. What other way is there to get out of the neighborhood?

R. Frampton responded that there is none, unless a neighbor wants to provide an easement.

What about people spilling into her backyard?

R. Frampton responded that there are County setback requirements that must be met (i.e. a 6-foot setback for one-story structure and 10-foot setback for a two-story structure.

30. The project will change the area and now she will have neighbors. What about the dumping that was done by Pioneer Mill?

R. Frampton stated that the site will be cleaned up.

31. Person's existing lot is lower than the project site, and wants the project to be lower, not higher than person's lot.

R. Frampton responded that this can be reviewed.

32. Why is Pete doing the low-income project here, and not at Launiupoko? Why in this person's neighborhood?

R. Frampton noted that a "workforce" housing project was proposed in Puunoa but was denied.

Maybe Pete should try again with this Mayor.

R. Frampton stated that a project needs infrastructure and needs to be part of the urban expansion area.

33. When will the Council provide notice of its meeting to review the project?

R. Frampton responded that the applicant will notify the neighbors of the Council meeting dates.

34. What is the difference between an EA and EIS?

R. Frampton responded that it is similar, but an EIS has more detail. There is public review for both an EA and EIS, however, the EIS provides more information. Tonight's comments will be included in the Final EA document.

Which County agency is responsible for the EA?

R. Frampton stated that the Department of Housing and Human Concerns is the "approving agency".

35. What is the area (size) of the retention basin?

R. Frampton responded that he was not sure, however, they want to make the area usable for a park.


36. This project is for a handful of investors that just want to make money.

R. Frampton noted that the project is not a money maker.

Questioned the landowner interest in the property.

R. Frampton stated that the land is not ceded land. The landowner does have title insurance on the property, and Kahoma Land has legal title to the property.

At approximately 7:20 p.m., the formal questions ended and attendees were encouraged to speak to the applicant representatives. Attendees were also encouraged to take the "comment forms" for mailing.



Gwen Ohashi Hiraga
Principal

GOH:tn

KAHOMA RESIDENTIAL PROJECT

Community Meeting
 Lahaina Senior Center
 March 23, 2010

PLEASE PRINT PLEASE PRINT PLEASE PRINT PLEASE PRINT

NAME	MAILING ADDRESS AND/OR EMAIL ADDRESS	TELEPHONE NUMBER
Vanessa A. Medeiros	Vanessa@lakai-pacific.org	242-5761
IRENE NAEDE	559 KAHANA ST.	264-4117
HERMAN NAZOL	559 KAHANA ST.	264-4118
Ben Shihon	2A h - 908 Kapahe	298.1677
Mr. & Mrs. Kam	588 417A AKA ST	661-3107
Bob & Alison Stanford	431 AKA ST	667 9143
Stanford & Stanford, LLC	151 Kupunohi ST E3	667 9143
Kaiki Lindsey JR	583 Kahuna St	870 3994
RAE MATSUMOTO	P.O. BOX 305, LAHAINA 910707	204-0553
GARY LINCOLN	452 AKA ST.	667 6652

KAHOMA RESIDENTIAL PROJECT

Community Meeting
Lahaina Senior Center
March 23, 2010

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NAME	MAILING ADDRESS AND/OR EMAIL ADDRESS	TELEPHONE NUMBER
S. JOHN BUJIST JR	jbuiste@owesmd.kubota.com	281-9777
Gonnie & Hulali Waiohau	P.O. Box 912 Lahaina 96761	957-1118
Charles Foot	865 Kalena St Lahaina 96761	661-9746
LORA YANAO	499 Aki St Lahaina 96761	280-5169
Ray S IICKA	200 Sana Waiu St Lahaina	261-5877
Conrad, Alena Polior	425 Aki St Lahaina 96761	661-3130
Tanisha + Robert Smith	1400 Limahana Circle #D202 Lahaina HI	808-283-8511
John Moore	898 Kalena St. Lahaina, HI	808-250-3288
Bill Bookland	453 Aki St. Lahaina	298-6654
Bill Fujiko Carter	457 Aki St Lahaina	661-3892

KAHOMA RESIDENTIAL PROJECT

Community Meeting
Lahaina Senior Center
March 23, 2010

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NAME	MAILING ADDRESS AND/OR EMAIL ADDRESS	TELEPHONE NUMBER
Andy Teixeira	Kokahi Pacific 1937 Maui St. Maui	242-5761
Sherril Dodson, Hill Maui	PO Box 5034, Kahului 96733	893-0334
Tina Kagihue	8712544, Lele, Maui	661-5233
GARY KEGNER	564 KAHENA ST	661-0744
Patty Kepner	564 Kelewa St.	661-0744
Cindy & Stan Cutney	363 Keane St.	667-1932
Mullie Villalona	511 Ahi St	661-0949
Jocelyn Phillip	467 Ahi St	661-0123
DEAN FUSHIKOSHI	593 Lui St.	661-0746
Anne Imat	505 KAHANA ST.	661-2088

KAHOMA RESIDENTIAL PROJECT

**Community Meeting
Lahaina Senior Center
March 23, 2010**

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NAME	MAILING ADDRESS AND/OR EMAIL ADDRESS	TELEPHONE NUMBER
Beth Clapper	1300 Lihauhane C-204	808-214-4988
MARVIN KUKIHI TENGATA	P.O. BOX 1311 LAHAINA, HI 96767	(808) 276-0089
Chris Yarbrow	499 Aiki St Lahai 96761	283-3450
Joy Agapay	485 Aiki St. Lahaina	667-9145
Joshua Deean	1725 Hanalei St. Lahaina	357-3595

APPENDIX I-3.

**Letter Dated June 15, 2011
from Lahaina Bypass Now**

Lahaina Bypass Now

June 15, 2011

Jo-Ann T. Ridao, Director
Department of Housing and Human Concerns
County of Maui
2200 High Street, Suite 546
Wailuku, Hawaii 96793

Subject: Proposed Kahoma Residential Project at TMK: (2) 4-5-010: 5

Dear Ms. Ridao,

Lahaina Bypass Now (LBN) is a community-based organization dedicated to creating a better quality of life for Maui's residents and visitors both now, and in the future, by developing transportation solutions for Maui. To achieve this vision, we have adopted a multi-pronged approach, embracing the following planning strategies:

- Construction of the Lahaina Bypass
- Development of a network of roads
- Improved traffic management
- Increased public transit
- Encouragement of smart planning
- Create walking and biking paths

LBN's Board of Directors has reviewed the plans for the Kahoma Residential Project as proposed by West Maui Land Company. The proposed project aligns with the strategies embraced by LBN as follows:

Network of Roads. The project will provide an additional roadway linkage between the existing residential communities along Lahainaluna Road and the commercial and light industrial projects along Keawe Street. Expanding the network of roads in an urban area allows for better distribution of traffic and should lessen the burden on Honoapiilani Highway and the Lahainaluna Road corridor. It is our understanding that the project design has been coordinated with the planned Kuhua Street Extension Project.

Public Transit. It would appear that the new roadway connection could be utilized to enhance the Lahaina Villager bus route. The proposed park site would be a logical location for a bus route.

Lahaina **B**y pass *Now*

Smart Planning. The location of the project site within Lahaina's urban core aligns with "Smart Planning" principles which promote in-fill development within walking distance to commercial districts and places of employment. The project is also targeted at Maui's Workforce Housing Population, with 100% of the units being priced as "affordable" for residents earning 160% or less of Maui's Median Income.

Walking and biking paths. The project design incorporates walking and biking routes which would benefit the future residents of the project as well as residents of the abutting neighborhoods.

Based on the foregoing, LBN's Board of Directors supports the Kahoma Residential Project proposed by West Maui Land Company.

Yours truly,

Bob Pure, President
LBN Board of Directors
lbn@lahainabypassnow.com